

Engaging ICT in the English Language Classroom

Lynde Tan Lee Wee

Educational Technology Division

Ministry of Education, Singapore

Abstract

The Singapore Ministry of Education conducted a small-scale pilot study in Y2003 to find out how engaged learning was interpreted and translated into practice by teachers and the role of ICT in facilitating engaged learning. For this study, 6 teachers were involved, of which 2 were English language teachers. A case study methodology incorporating an intervention element was adopted. The analysis of the collected data, in the form of pre-lesson interview, lesson observations/videotaping and post-lesson interviews, surfaced teachers' understanding and implementation of engaged learning in the classroom context. This paper focuses on the 2 case studies in which one primary and secondary English language teachers were observed for the way they designed and implemented ICT-based English lessons to promote engaged learning. Although the insights generated by the 2 case studies are legitimate in their own instances, they may be used to sensitize those involved in professional development to five interdependent factors that influence the way ICT may be used to promote engaged learning in the EL classroom.

Keywords

Engaged learning, English language teaching and learning, technology integration, professional development

Background

Information Technology (IT) in ELT in Singapore

In 1997, the Singapore Ministry of Education launched the first Masterplan for IT in Education (MPITE) to integrate IT into our education system as an impetus to Singapore's economic growth. In Y2002, the second Masterplan for IT in Education (mp2) was launched to build on the achievements of the first Masterplan. In mp2, the underlying philosophy for MPITE remains: Education should continually anticipate the future needs of society and work towards fulfilling these needs. The vision of mp2 is to see IT being pervasively and effectively used to enhance the educational processes to help realize the ability-driven paradigm. The vision, when realized, will lead to IT being used effectively to promote engaged learning among pupils.

Integration of ICT in the EL Classroom

Tan, Wong & Hung (2003) advocated that an effective integration of technology in teaching and learning requires teachers to know how learning occurs. Based on the work of Roschelle, Pea, Hoadley, Gordin and Means (2000), technology enhances the teaching and learning processes when pupils learn through: (1) active engagement; (2) participation in groups (3) frequent feedback and interaction and (4) connections to real-world contexts. Although Roschelle et al (2000)'s principles pertain to teaching and learning in general, they are in line with the current sociocognitive perspective on language teaching and learning. Kern and Warschauer (2000) observed that there has been a shift in perspectives on language teaching and learning from a structural perspective to a sociocognitive one. According to Kern and Warschauer (ibid), the latter approach has the following pedagogical foci:

- (1) Language is viewed as a social and cognitive phenomenon.
- (2) Language is learnt through social interaction and assimilation of other's speech.
- (3) Instruction is oriented towards negotiation of meaning through collaborative interaction with others and creating a discourse community with authentic communicative tasks.

Kern and Warschauer's (2000) observation was also noted by Towndrow and Vallance (2002) in their practical guide to using IT in the language classroom that the emphasis in language education today is on learners taking a more active role in the learning process. This shift in perspective, as commented by Kern and Warschauer (*ibid*), has influenced ICT use in the language classroom whereby the role of computer in language education has gradually been transformed from that of the tutor to that of a tool and the focus is no longer on learners' interaction with computers but interaction with other learners through the computer.

There is a plurality of theoretical perspectives on effective ICT use in teaching and learning, including the use of ICT in the language classroom and they point to a singular focus of engaging pupils in the learning process but underlying these broad theoretical perspectives lies a major question of what constitutes engaged learning. Jones, Valdez, Nowakowski and Rasmussen (1995) proposed 26 indicators of engaged learning within the context of ICT use and these indicators are organized into 8 categories of learning and instruction (vision of learning, learning context, tasks, assessment, teacher role, student role, instructional models and strategies, and grouping). In essence, Jones et al's (1995) framework perceives engaged learning to be both learner-centred where there is more

student interaction, collaboration among teachers and students, connections among schools and involvement of teachers as facilitators. An alternative viewpoint was proffered by Chapman (2003) who presented engaged learning among pupils in three ways: (1) cognitive investment as the extent to which students are attending to and expending mental effort in the learning task; (2) active participation whereby pupils play an active role in asking questions and in class discussions; (3) emotional engagement where there are high levels of interest or positive attitude.

The Study

To achieve engaged learning as a desired outcome of mp2 requires more than an intuitive understanding of the nebulous term. As the Ministry believes that teachers are change agents (Shanmugaratnam, 2003), 12 education officers from the Singapore Ministry of Education formed a project team in Y2003 to conduct a small-scale pilot study to investigate how six teachers, teaching different subjects and levels, interpreted and actualized the concept of using ICT to promote engaged learning in their classrooms. Two officers were paired to one case study and they played the role of a researcher. For the interest of the paper, I will discuss only two case studies (out of six) that involved one primary and secondary English language teachers.

Methodology

According to Yin (1994) and Stake (1995), the case study approach is ideal for an inquiry that investigates interpretive and subjective dimensions of educational phenomenon within its real-life context. The project team found the method suitable for the pilot study as it illuminated teachers' processes and behaviours in the current classroom context that

promoted engaged learning with the use of ICT. In the words of Kern and Warschauer (2000):

The computer, like any other technological tool used in teaching (e.g., pencils and paper, blackboards, overhead projectors, tape recorders), does not in and of itself bring about improvements in learning. We must therefore look to particular practices of use in particular contexts in order to begin to answer the question. (p. 2)

Selection of Cases

The Educational Technology Division (ETD), Singapore Ministry of Education has officers with experience in training teachers to use ICT for teaching and learning and working with teachers in projects and competitions that involve innovative use of ICT. Based on the recommendation of these officers, this cadre of teachers was invited to submit lesson proposals for the pilot study. From a total of 17 submitted lessons, six lesson proposals on a range of subjects taught at different levels with varying use of technology were short listed based on two criteria:

(1) Lesson (preferably in the core subjects and conducted during curriculum time) is pedagogically sound.

(2) Technology plays a central role to support engaged learning

A checklist, adapted from Bransford's (2000) principles of using technology to support learning, Jonassen's (2000) Mindtools and Jones et al's (1995) indicators of engaged learning, was used to identify aspects of engaged learning in the lesson proposals. I will focus only on the 2 English language teachers and pivot my discussion of this paper on the two case studies. One of the English teachers was a secondary school teacher

teaching pupils of fifteen and sixteen years of age while the other was a primary school teacher teaching pupils of eight years old.

Data Collection

The data were collected over a five-week period in the following sequence (Table 1).

Table 1: Data Collection Activities

Data Collection Activities	Key Areas to Collect Data	Sources of Data
<u>Pre-Lesson Teacher Interview</u> To find out the teacher's initial understanding of engaged learning and his/her views about the role of IT	Preconceptions of: <ul style="list-style-type: none"> engaged learning role of IT 	<ul style="list-style-type: none"> Lesson Selection Checklist Transcripts of Pre-Lesson Interview
<u>Lesson 1 Observation</u> Observe how the teacher translates his/her concept of engaged learning into actual pedagogical practices.	<ul style="list-style-type: none"> Aspects of engaged learning exhibited and translated into pedagogical practices (e.g. instructional strategies) 	<ul style="list-style-type: none"> Classroom Observation Notes Pupils' work
<u>Post-Lesson 1 Teacher Interview</u> (With intervention - introduction of engaged learning framework) Interview the teacher on the lesson conducted, introduce the engaged learning framework and get the teacher to think about redesigning certain aspects of the lesson in terms of engaged learning	<ul style="list-style-type: none"> Gaps in the understanding of engaged learning Intervention strategy used Changes in understanding of engaged learning (positive or negative) 	<ul style="list-style-type: none"> Transcripts of Post-Lesson 1 Interview Engaged learning criteria Classroom Observation Notes
Redesigning of Lesson by Teacher (1-2 weeks)		
<u>Lesson 2 Observation</u> (With videotaping of the entire redesigned lesson) Observe how the teacher conducts an improved lesson in terms of engaged learning	<ul style="list-style-type: none"> Aspects of engaged learning exhibited and translated into pedagogical practices 	<ul style="list-style-type: none"> Classroom Observation Notes Videotape of lesson Video transcripts Pupils' work
<u>Post-Lesson 2 Teacher Interview</u> Interview the teacher about the second lesson conducted and the support needed to do an engaged- learning lesson	<ul style="list-style-type: none"> Changes in teacher's perceptions of engaged learning Insights about engaged learning Support needed to conduct engaged-learning lessons in general 	<ul style="list-style-type: none"> Transcript of Post-Lesson 2 Interview Classroom Observation Notes

For each case, the team had to intervene to different extents during the Post-Lesson 1 Interview. Jones's et al (1995) indicators of engaged learning were introduced to the teacher with the intention to help the teachers to identify areas for redesigning the lesson

so that aspects of engaged learning were more prominently observed in the second lesson. The teachers were given time to redesign their lesson and to conduct it with the same class on another topic or another class of similar ability.

Coding and Analysis of Data

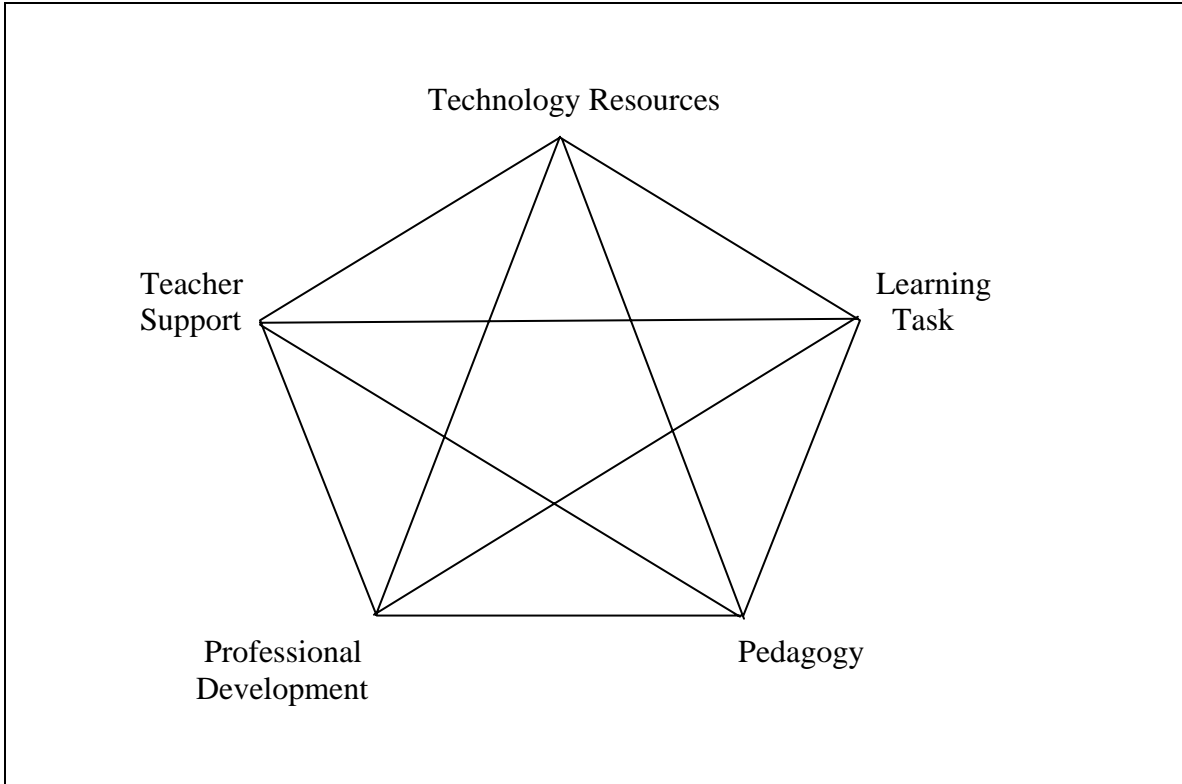
For each case study, the researchers' observation notes, video and interview transcripts were coded using Jones et al's (1995) eight categories of learning and instruction and an additional category on the critical added value of ICT to the lessons. During the coding process, the researchers took note of problems encountered in assigning codes. The whole team came together to review one another's case studies so as to ensure that the coding and analysis of the data were based solely on observable practices noted in the researchers' observation notes, videotape of lesson and pupils' work as well as teachers' perceptions as indicated in the interview transcripts. This paper draws on the findings of the case studies of the two English language teachers which I participated as a researcher.

Discussion on the 2 Case Studies

I propose the following model (Figure 1) to anchor my discussion on the teachers' use of ICT to promote engaged learning in their English language classrooms using specific examples from the case studies. The model is influenced by the guiding principles put forth by Cornu (1995), Foo, Hedberg and Ho (2004)¹, Oliver (1999) and Sandholtz, Ringstaff and Dwyer (1997). Foo et al (2004) emphasized that within the classroom context, it is the interplay of three factors- the learning task, technology resources and

¹ Foo et al's paper is based on the findings of the same pilot study in which the writers and I were involved.

Figure 1: Model of Engaging ICT into EL Classroom



teacher support- in a tripartite relationship that is crucial in determining whether learning experiences are engaging to pupils. This paper proposes that on top of the interplay of the three above-mentioned factors within the classroom context, two other interdependent factors, professional development and pedagogy, may be considered outside the classroom context when providing teachers with the necessary support in integrating ICT into their English language classroom.

Insights generated from the case studies show that:

- (1) The way ICT is used to promote engaged learning relies on the teachers' understanding of what constitutes engaged learning and their roles in pupils' learning and**
- (2) it is crucial for the teachers to manage the tripartite relationship on**

the learning task, technology resources and teacher support to engage pupils in their learning.

Table 2: Tripartite elements in the 2 EL classrooms

Learning Tasks	Technology Resources	Teacher Support
In the secondary English language classroom:		
<p>Pupils had to negotiate a possible storyline of a movie based on a French movie trailer and disjointed still images extracted from it.</p> <p>Based on pupils' understanding of the generic structure of a narrative, they discussed in groups which parts of the movie clip constituted the different parts of a narrative and constructed their own stories.</p>	<p>Digital movie clip, digital still images and Microsoft Word</p>	<p>The teacher used open-ended questioning to:</p> <ol style="list-style-type: none"> 1. probe pupils' understanding of the generic structure of a narrative 2. surface pupils' thinking behind the form and style of writing 3. lead pupils to discover for themselves how they should effectively develop their stories according to the generic structure of a narrative, purpose of writing and intention to act on the readers.
In the primary English language classroom ² :		
<p>The teacher wanted her pupils to use language for authentic communication. In Lesson 1, her pupils searched the Internet for information on places of interests in Singapore and emailed to their pen pals from Japan about what they had learnt. In Lesson 2, pupils surfed the Web for information on recycling and used the information to design a poster to inform the school of the recycling project that the pupils were involved in and then emailed to their pen friends from New Zealand on what they had learnt about recycling.</p>	<p>Internet, ePALS (an email platform) and CD-ROM (Art Dabbler was used in the observed lesson)</p>	<p>In Lesson 1, the teacher scaffolded pupils' search in the Internet by first previewing and recommending websites for pupils to surf and modelled basic computer literacy³ and desktop skills⁴.</p> <p>In Lesson 2, as pupils had shown that they could access information from the Internet, send and receive emails from ePALS, she focused on asking probing questions to help pupils set a purpose for their individual search and evaluate the relevance of the information that they had found from the Internet.</p>

² The information surfed from the Web was based on the thematic topics to be covered in the syllabus. In the second lesson, the teacher added the design of a poster using the CD-ROM to make her English lesson multidisciplinary.

³ Computer literacy can be understood by Adams and Brindley's definition (2002): "the ability to use and access information from computers" (p. xiii).

⁴ Desktop skills can be understood by Moneith (2002)'s definition: "the ability to drag and drop, have more than one application open at a time, highlight, know how to find the size of a file, make selections by clicking, move information between software, navigate around the desktop environment, print, undo the last action, use menus and open items by clicking with the mouse" (p. 19).

The secondary school teacher was a good example of how a teacher's perception of engaged learning using ICT and his role as a teacher influenced the way he designed his English lessons. The teacher (Pre-Lesson 1 Interview, Sep 3, 2003) perceived that engaged learning occurs when pupils are "active seekers of information and they are critical about the information that they have ... And it has to be a very interactive process – it shouldn't be one way, it should be two ways where students interact with and manipulate information... they also have to engage in some creative reconstruction of information that they are given."

He wanted his pupils to identify the generic structure of the trailer as they watched the incomplete digital movie clip and disjointed digital still images and used it to develop their own stories. He used the movie trailer and provided a big range of digital pictures so as to give different perspectives of a few similar scenes to compel pupils to interpret the storyline differently and generate discussions to think of possible storylines as their solutions.

He felt that his role as a teacher was to facilitate pupils' learning by asking Socratic questions so that he could encourage them to take on multiple perspectives in their thinking and make sense of their own learning. He considered asking Socratic questions as a way of supporting his pupils. Such questions were powerful in making pupils aware of their own thinking and it forced them to think through their writing process and verbalize why they made certain choices in their writing.

As observed in his lessons, his judicious selection of technology resources (digital movie trailer, still images and Microsoft Word) supported his purpose of the learning tasks to encourage pupils to think from multiple perspectives and create their unique versions of

the story. The use of the word processor supported the teacher's intent of allowing his pupils to reconstruct the original storyline and develop their own construction of language in the process. It also facilitated the invention, revision, and editing processes of writing, allowing quick and easy manipulation of the text during pupils' discussion.

The teacher himself designed the learning task to provide a context for collaborative interaction so that there was attention to the generic structure of a narrative, appropriate language use in the interaction among the pupils as well as between the writers and the readers they had in mind. Negotiation of meaning took place in two folds. Firstly, it occurred within the group when pupils in each group discussed possible storylines and how they could best write each part of the story in the way they intended to act on the readers whom they had in mind. Secondly, it occurred between groups while they received feedback from the teacher and the rest of the class on how they structured and wrote their storyline and justified their decisions to the teacher and the rest of the class.

(3) The teacher, in using ICT to promote engaged learning needs to ascertain that the mechanics involved in using ICT does not distract pupils from the intended learning goals.

The primary school teacher was one example where the mechanics involved in using ICT did not distract pupils from the intended learning goals. For months, the teacher (Pre-Lesson 1 Interview, 25 August, 2003) had to teach her pupils basic computer literacy and desktop skills such as how to use a search engine, key in email address, backspace, save, delete and open a folder. She gave them sufficient time and opportunities to master these basic skills. Although these skills appeared apparent to adults, the teacher (Pre-Lesson 1 Interview, 25 August, 2003) noted that they were essential for young children to master

such skills before any learning could occur. Hence, she (Pre-Lesson 1 Interview, 25 August, 2003) guided her pupils in using the Internet and ePALS by demonstrating, modeling the procedures and thinking aloud with them as she showed them how to perform the task:

“I showed them examples, let's say I want to get site information on Singapore Zoo, I'll type out the Singapore Zoological Gardens and this is what I get, look at the hyperlinks, I always mentioned that instead of hyperlinks, look at the little finger, that kind of thing and then the blue finger points just double click on it and then you get your page. You don't want it, just close it and go to the next one.”

4) There is a difference between physical engagement and cognitive engagement of pupils. Effective use of ICT necessitates teachers to make explicit the cognitive processes involved in using the technology resources and involve pupils in the cognitive process.

To the primary school teacher, engaged learning is synonymous with the notion of pupils working on a task by themselves. According to her, pupils were perceived to be engaged in their learning when they were able to access information from the Internet, extract relevant information from different websites and use the computer to write an email on their own (Pre-Lesson 1 Interview, 25 August, 2003). In the first observed lesson, she previewed some websites, selected three with texts of relevant and interesting content as well as those that were not too difficult for her pupils to understand and then instructed pupils to surf those sites. Her intention was for her pupils to concentrate on extracting the information from the websites and emailing to their pen friends about what they had learnt rather than spending most of their time searching endlessly in the Web. Hence, the

cognitive processes that the teacher had planned for required pupils to focus mainly on selecting relevant information, extracting and recording it and then communicating it to their pen friends.

However, the researchers noted that pupils might not be searching for information meaningfully from the Web. They could be doing the mechanical steps of typing in keywords as given by the teacher and clicking hyperlinks, hoping to find out what the teacher had already previewed for them (Post-Lesson 1 Interview, 11 Sep,2003). This is an instance where pupils were seen physically engaged on the computer but there might be minimal cognitive engagement during the search activity. More cognitive processes could have been observed if more information retrieval and processing skills were planned for such as those listed by Wilson (2002): (1) linking pupils' prior knowledge with what they wanted to find out from the Web; (2) establishing a purpose for their search; (3) using effective strategies to locate information; (4) adopting certain reading strategies to help them understand what they read; (5) extracting and taking notes of information from the Web; (6) evaluating the relevance of the information; (7) using language appropriately to communicate to others what they wanted them to know.

In the redesigned lesson, the teacher had involved pupils in more cognitive processes. Since her pupils had shown that they were able to access information from the Web, she did not model the procedures needed but asked probing questions as another scaffold to guide pupils' learning. The primary school teacher started her lesson by asking her pupils questions to recall what they had previously learnt in class about recycling. She then guided them in thinking about what they should do to design a poster to inform the rest of the school about recycling. Pertaining to the topic of recycling, she allowed her

pupils to set their purpose for the search and gave them the freedom to choose their search engine. While pupils were surfing the Internet, she went around asking them questions that helped them evaluate the relevance of their search.

(5) The knowledge generative use and presentational use of ICT can be seen as extreme ends of a continuum. Use of ICT in knowledge generative activities constitute the higher-end of the continuum as they bring pupils with different perspectives together to co-construct knowledge between the teacher, the pupils and others and learning occurs as the result of interactions among the pupils, the teacher, and others (Jones et al, 1995).

In the learning tasks, both teachers intended their pupils to use the technology resources for a generative purpose to achieve the intended learning goals. In the secondary school teacher's lessons, the digital movie clip and still images were used to generate discussion among the pupils so that it in turn generated ideas for the possible storylines of the trailer and pupils' writing. The use of Microsoft Word was also to generate the content for the pupils' stories. Similarly, the use of the Web was used to generate notes for the emails to be written and the use of ePALS was to generate interaction and friendship with the pen pals as well as the content of the emails itself. In both cases, the generative use of the technology resources enabled pupils to simultaneously practise their communication skills and valuable ICT skills.

Pedagogy and Professional Development

From the case studies, the researchers noted that teachers have to master the art of balancing pedagogy and technology when designing an ICT-based lesson that promotes engaged learning. In the case of the primary school teacher, she believed that searching

information from the Internet could extend pupils' knowledge and writing emails was a form of authentic learning for her pupils and it rewarded them for writing (Pre-Lesson 1 Interview, 25 August, 2003). Literature review (e.g. Berenfeld, 1997; Teeler, 2000 etc) had claimed that there are indeed benefits in using the Web and emails to enhance teaching and learning of English. However, in order for technology to be a tool to promote engaged learning, the teachers need to be adequately equipped with sound pedagogy on how children learn language and how the language learning process is enhanced with the use of computers (e.g. Johnassen, 2000; Teeler, 2000, Wilson, 2002 etc). Although the primary school teacher had raised her level of fostering engagement in her lessons in the redesigned lesson, more could be done to impart literacy skills to her pupils. With the proliferation of electronic texts, the teacher needs to know how best to facilitate pupils' learning to ensure that pupils' search for information from the Web is effective and relevant; pupils are critical of what they read from the Web and show awareness that all texts are value-laden and not all that they read is accurate and true. They also have to facilitate pupils' transfer of essential book reading skills to an electronic text. Warschauer (2002) argued that:

“... New electronic literacies ... include computer literacy (comfort and fluency in keyboarding and computer use), information literacy (the ability to find and critically evaluate online information), multimedia literacy (the ability to produce and interpret complex documents comprising texts, images, and sounds), and computer-mediated communication literacy (knowledge of the pragmatics of individual and group online interaction)... are important in many languages, but

they are especially critical in English since more than 50% of the world's online content is in the English language ...” (p.454).

As teachers understand more about the technologies and how they support the language learning processes, they can potentially increase the effectiveness of their use of ICT. Teachers need support and professional development to reach that understanding. As observed in the study, an intervention element (as a form of professional development) was incorporated to help the teachers reach a better understanding of engaged learning and attain a higher level of engaged learning in the redesigned lesson. The researchers noted that professional growth was observed after the intervention where the teachers engaged in self-reflection and explored their personal willingness to experiment with approaches to promote engaged learning with IT. Although it was not an intended research question, the researchers interviewed the teachers on how support could be given to help teachers better understand engaged learning and all replies reiterated the need for professional development (Post-Lesson 2 Interview). This is one key consideration in supporting teachers in grasping the pedagogy of English language teaching and learning with computers and managing the tripartite relationship in designing engaging learning experiences.

Concluding remarks

While none of the teachers in the case studies, including the two discussed in this paper, provide a complete answer to what constitutes engaged learning and how it is translated into actual pedagogical practices, taken together they provide insights as indicators for future research and professional development programmes. The model proposed in this paper is intended to generate more discussion on the interaction of the factors that support

integration of ICT into the English language classroom to promote engaged learning. A developmental approach is recommended as the project team continues to explore the process of achieving engaged learning with teachers as a desired outcome (product) of mp2.

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