Technology integration in the form of digital storytelling: mapping the concerns of four Malaysian ESL instructors

Siew Ming Thang, Luck Kee Lin, Najihah Mahmud, Kemboja Ismail & Noraza Ahmad Zabidi

To cite this article: Siew Ming Thang, Luck Kee Lin, Najihah Mahmud, Kemboja Ismail & Noraza Ahmad Zabidi (2014) Technology integration in the form of digital storytelling: mapping the concerns of four Malaysian ESL instructors, Computer Assisted Language Learning, 27:4, 311-329, DOI: 10.1080/09588221.2014.903979

To link to this article: http://dx.doi.org/10.1080/09588221.2014.903979

Published online: 15 Apr 2014.

Submit your article to this journal

Article views: 433

View related articles

View Crossmark data
Technology integration in the form of digital storytelling: mapping the concerns of four Malaysian ESL instructors

Siew Ming Thang*, Luck Kee Lin, Najihah Mahmud, Kemboja Ismail and Noraza Ahmad Zabidi

School of Language Studies and Linguistics, Universiti Kebangsaan Malaysia, Bangi, Malaysia

Digital storytelling, which combines the art of storytelling with a variety of digital audio, video, and multimedia images, has been increasingly used as a language learning tool as research studies have shown it to be effective in enhancing the development of language skills as well as related language learning skills, such as autonomy, collaboration, and problem-solving skills. However, before successful language learning can take place, teachers’ concerns regarding technology adoption has to be explored, especially since there is very little research in this area in the Malaysian context. This study addresses this gap in knowledge by sharing the concerns of four English as Second Language (ESL) instructors in terms of their attitudes and acceptance of the use of technology in the form of digital storytelling in teaching ESL at a Malaysian public university. “Concern” in this study refers to the evoked feelings and perceptions towards an innovation and the change process. The data of the study are drawn from the Stages of Concern Questionnaire (SoCQ) and interviews of the instructors. The findings revealed that the teachers perceive the technology to be beneficial to their students to a certain extent; however, resistance to the technology was particularly strong in two of the instructors and this could lead to failure in technology integration.

Keywords: digital storytelling; teacher concern; integration of technology in language learning

1. Introduction

1.1. Setting the scene

Educators have explored the potential of information and communications technology (ICT) over the past decades and how it can be integrated in their teaching and learning. Numerous studies have reported that the integration of digital storytelling (DST) into teaching and learning of various subjects has provided opportunities for learning in areas such as helping students improve their research skills, organizational skills, and enhancing their interests in the content taught (Paull, 2002; Salpeter, 2005). It has also been found to be a useful tool to accelerate student comprehension and for collecting, creating, analyzing, and combining visual images with written text (Burmark, 2004), helping struggling readers envision text and communicate meaning visually (Kajder & Swenson, 2004) and fostering independent learning (Hafner & Miller, 2011).

In the Malaysian context, the few research studies done on digital storytelling also found it to be successful in improving learning. Norhayati and Siew (2004) and Cut Nora Azizzah (2010) discovered that students were attracted to this mode of learning and were able to define moral values better in subjects on moral education. Studies on Malaysian

*Corresponding author. Email: thang@ukm.my

© 2014 Taylor & Francis
students’ receptions of technology have also generally been positive (Krish, Hussin, & Sivapuniam, 2011; Nadzrah, Hafizah, & Azizah, 2010; Nadzrah & Kemboja, 2009). However, so far the studies on DST in the Malaysian context have only investigated students’ receptions to this innovation and have not looked into teachers’ concerns in terms of their attitudes and acceptance of this technological tool in teaching Malaysian undergraduates. The need to look into this aspect is even more crucial considering that studies that look into the use of technology in Malaysia have evinced that Malaysian teachers’ do have difficulties in accepting technology (Hamzah, Ismail, & Embi, 2009; Kumar, Raduan, & D’Silva, 2008; Ngah & Masood, 2006; Ranjit Singh & Muniandi, 2012; Thang et al., 2010). The incorporation of technology into the learning and teaching of English has been viewed by the Ministry of Education as an important way to promote the learning of the English Language (Kabilan, Ahmad, & Zainol Abidin, 2010); thus the findings of this study will help to provide insights into why current efforts by the Malaysian schools and universities to incorporate technology is not progressing according to plans. Findings from this study that trace the changes in instructors’ concerns when integrating DST as an innovation would be significant for both policy and educational intervention at the university under investigation as well as Malaysian universities at large.

1.2. Research on teachers’ concerns towards integration of ICT in teaching

Jacobsen, Clifford, and Friesen (2002) maintained that teachers, who were consistently challenged to introduce ICT tools to their students, were in most cases not familiar with those tools and had less experience with technology than the students. Besides facing external barriers such as lack and unreliability of equipment, lack of technical support and other resources-related issues (as highlighted by Snoeyink & Ertmer, 2001 and Fabry & Higgs, 1997), these teachers also faced internal barriers such as resistance to change, negative attitudes toward computers, anxiety, lack of motivation (Dias, 1999; Duhaney, 2001; Fabry & Higgs, 1997; Harris & Sullivan, 2000) and personal problems such as lack of time and training and ineffective technological leadership in the institutions (Beggs, 2000; Duhaney, 2001; Krueger, Hansen, & Smaldino, 2000; Newhouse, 1999). Bax (2003) stressed that for successful integration of technology into language learning there is a need to strive for “normalisation” which he described as this:

> When computers... are used every day by language learners and teachers as an integral part of every lesson, like pen or a book... without fear or inhibition, and equally without exaggerated respect for what they can do. They will not be centre of the lesson but will be part in almost all. (p. 23)

In a follow-up study, Chambers and Bax (2006) investigated factors impeding normalization in two different types of institutions and found that factors related to logistics, stakeholders’ conceptions, knowledge and ability, syllabus and software integration, and training, development and support hindered the normalization process in these institutions.

More than a decade has passed and these problems are still reported widely in a variety of studies. As Keengwe, Onchwari and Wachira (2008) wisely reminded us the true challenge of integrating ICT into the classroom depends to a large extent on the behaviour, attitude, and commitment of individual teachers. Thus, if a teacher has internal resistance to the use of technology it does not matter how sophisticated the technology infrastructure is, successful integration and normalization will not happen.
In Malaysian classrooms, there has been an encouraging use of ICT over the past years in the area of online teaching and learning. Kumar et al. (2008) found the relationship between actual usage of computer (AUC) and technological acceptance at the secondary level to be moderate; however, they discovered that the constructs of attitude, perceived usefulness, perceived ease of use (amongst others), showed a significant positive relationship with AUC. This implies that there was a general positive reception towards the use of technology although actual usage was only moderate. The question of why it was moderate seemed to come back to the issue of teachers’ reluctance to integrate more technology in their teaching (Ranjit Singh & Muniandi, 2012; Thang et al., 2010). The current study is an attempt to shed more light on this area by exploring qualitative data on the use of technology in the form of digital storytelling in a tertiary educational setting.

1.3. Research into teachers’ concerns towards the use of DST

Having discussed integration of technology in general, it is now necessary to explore teachers’ concerns about the use of DST, the innovation that is being implemented in this study. Before doing so, it is pertinent to offer a brief description of DST and to highlight how it is different from tools such as PowerPoint, Facebook, and blogs, which are already commonly used for teaching purposes.

DST differs from ordinary storytelling in that technology is used to aid the telling of a story. However, DST is not just a simple slideshow of photos set to music as is often mistaken to be; instead it adds a new dimension to storytelling by interweaving digital stories using a very interactive media (which may include digital audio, video, and multimedia images). Thus, more sophisticated technology is involved than in the case of commonly used tools such as blogs and Facebook. In addition, the process of creating a digital story involves a mastery of a wide range of technical and non-technical skills. This includes researching topics, writing scripts, storyboarding, and assembling the final product using video-editing software and other supporting tools to create the desired effects and sound (Ohler, 2006).

In a study to investigate the implementation of DST in the classroom after a training workshop, Dogan (2007) discovered that the teachers generally had positive reactions towards DST. However, disappointingly, almost half of the teachers did not actually use DST in their classrooms attributing that to several barriers: unconducive school environment, lack of access to technology and necessary software, and incompatibility of the computers’ operating system. Despite the low rate of implementation among these teachers, those who used it and even those who failed to use it were willing to consider using it in the future. A more positive effect of the use of DST was revealed by Heo’s (2009) study on a group of pre-service teachers. They found that teachers exposed to DST showed willingness to embrace and promote technology-infused learning environment and increases teachers’ self-efficacy towards the use of educational technology.

2. Research questions

This study will first identify the concerns of four ESL instructors before and after the implementation of the DST project to find out to what extent their concerns have changed. It further identifies reasons for the changes in their concerns and discusses them. Specifically, it seeks to answer the following research questions:

(1) What were the ESL instructors’ concerns before implementing the DST project?
(2) In what ways did their concerns change after they implemented the project?
(3) What reasons led to their changes in concerns?
(4) What were the challenges and problems (if any) that they faced in the process of implementation?
(5) What do they perceive as the benefits of using DST to teach ESL?

3. Background to the study

English for Social Sciences (ESS) is a compulsory course for all students at the Faculty of School Sciences and Humanities, Universiti Kebangsaan Malaysia (UKM) (the National University of Malaysia). Since its introduction in 2002, the course has been taught mainly through the face-to-face mode. However, course instructors are increasingly aware that for more effective and sustained language learning to take place, classroom-based instruction has to be complemented by independent learning. In view of this, the head of the school introduced DST as a project in the ESS course to replace a previous project, which required students to upload a summary of articles on a specific topic onto a discussion blog. This was because it was found that a majority of the students merely cut and pasted materials into their summaries resulting in blog discussions that were neither interactive nor critical.

The DST project for the ESS course recommends Microsoft PhotoStory 3 as the software application for creating digital stories. PhotoStory 3 is chosen because it requires a low threshold level of ICT skills and allows offline access. This is a group-based activity and it adopts Robin and Pierson’s (2005) procedural approach for creating and integrating digital stories. Figure 1 provides a description of the tasks and assessment involved.

To prepare the first batch of instructors for the course, a workshop was given to introduce DST and teach them how to use PhotoStory 3. Follow-up sessions were given by

![Figure 1. A description of the tasks and assessment involved in the DST.](image-url)
two research assistants who had a good working knowledge of PhotoStory 3 whenever there was a request. They gave advice and in a few cases conducted the DST introductory lessons for the instructors.

4. Theoretical framework of the study

The Concern-Based Adoption Model (CBAM), developed by Hall and Hord (2001) to enable facilitators to identify the needs of individuals involved in changes resulting from the introduction of an innovation, was used as the theoretical framework of this study. There are three dimensions in the CBAM: (1) Stages of Concern (SoC), (2) Levels of Use (LoU), and (3) innovation configurations (IC). For this study, only the SoC dimension to identify the four ESL instructors’ concerns during initial innovation adoption was used. Hall and Hord (2001) refer to the feelings and perceptions towards an innovation and the change process as “concern”. They further explain that innovations will inevitably create concern because “no matter how promising and wonderful the innovation, no matter how strong the support, implementers will still have moments of self-doubt about whether they can succeed with this new way, and whether they even want to” (Hall & Hord, 2001, p. 133). The CBAM is a notable instrument commonly used by researchers interested in having a better understanding of concern related to the implementation of innovations in view of its reliability and validity.

5. Research methodology

5.1. Background information of participants

A total of eight English as a Second Language (ESL) instructors took part in the project. However, only the data from the five instructors, who were not researchers, were analyzed to avoid biasness resulting from having a personal stake in the success of the project. Upon analysis, the data from the fifth teacher were not used due to a serious lack of consistency throughout. The instructors are labelled as T1, T2, T3, and T4. All of them had never heard of DST before it was introduced to them. Table 1 presents the personal background of these instructors.

5.2. Research design and instruments

A mixed approach involving the use of quantitative and qualitative tools was used in collecting data. The quantitative tool was the Stages of Concern Questionnaire (SoCQ) and

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Highest qualification</th>
<th>Years of teaching experience</th>
<th>Level of ICT skills</th>
<th>Classes taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Master’s degree</td>
<td>➤ 20 years</td>
<td>High (keen to use ICT)</td>
<td>1 LP class</td>
</tr>
<tr>
<td>T2</td>
<td>Doctoral degree</td>
<td>➤ 15 years</td>
<td>Moderate (show resistance to use of ICT)</td>
<td>2 LP class, 1 MP class</td>
</tr>
<tr>
<td>T3</td>
<td>Master’s degree</td>
<td>➤ 20 years</td>
<td>Moderate (keen to use ICT)</td>
<td>2 MP class</td>
</tr>
<tr>
<td>T4</td>
<td>Doctoral degree</td>
<td>➤ 20 years</td>
<td>Moderate (show resistance to use of ICT)</td>
<td>2 LP class</td>
</tr>
</tbody>
</table>

Notes: LP class = low proficiency students with bands 1 or 2 in the Malaysian University English Test (MUET). MP class = moderate proficiency students with bands 3 or 4 in MUET.
the qualitative tool was the interviews of the instructors. The SoCQ questionnaire is derived from CBAM (Hall & Hord, 2001), which has been adopted as the theoretical framework of this study. The mixed approach was used to allow data from the questionnaire to be triangulated with the data from the interviews, thus increasing the reliability of the findings. However, the study does not lay claim to be objective rather it has adopted an interpretive, qualitative approach which allows significant features to emerge (Holliday, 1997). The data reported in this paper are a representation of the emerging patterns.

5.2.1. The Stages of Concern Questionnaire

The SoCQ is a self-report survey composed of 35 items that are classified under four levels, i.e., Unrelated; Self; Task; and Impact, and there are seven stages within these levels

<table>
<thead>
<tr>
<th>Levels</th>
<th>Stages of Concern</th>
<th>Typical expressions of concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact</td>
<td>(6) Refocusing</td>
<td>I have some ideas about something that would work even better.</td>
</tr>
<tr>
<td></td>
<td>(5) Collaboration</td>
<td>I am concerned about relating what I am doing with what other teachers are doing.</td>
</tr>
<tr>
<td></td>
<td>(4) Consequence</td>
<td>How is my use affecting my students?</td>
</tr>
<tr>
<td>Task</td>
<td>(3) Management</td>
<td>I seem to be spending all of my time getting materials ready.</td>
</tr>
<tr>
<td>Self</td>
<td>(2) Personal</td>
<td>How will using it (the new innovation) affect me?</td>
</tr>
<tr>
<td></td>
<td>(1) Informational</td>
<td>I would like to know more about it.</td>
</tr>
<tr>
<td>Unrelated</td>
<td>(0) Awareness</td>
<td>I am not concerned about it.</td>
</tr>
</tbody>
</table>

Table 2. Stages of Concern: typical expressions of concern about the innovation.

Figure 2. Ideal Wave Motion Development of Stages of Concern (Hall & Hord, 2001, p. 143). Key: Stage 0 = Unrelated level; Stages 1, 2 = Self level; Stage 3 = Management level; Stages 4, 5, 6 = Impact level.
as shown in Table 2. Each stage is represented by five items in the SoCQ. Choices for respondents in the SoCQ come in the form of an eight-point Likert scale that ranges from “irrelevant” (0) to “very true of me now” (7).

5.2.2. Typical Stages of Concern profiles
Hall and Hord’s (2001) typical Stages of Concern (SoC) profiles depict hypothesized patterns of concern, which should occur if the change process has unfolded in a systematic manner. In the case of non-user, ideally, prior to the first use of an innovation, the intensity of concern is at the self level. However, when implementation begins, it is predicted that self-level concern would be reduced while management-level concern would increase in intensity. Over time, when one becomes an experienced and renewing user, impact level concern set in, and self level and management level concern reduce in intensity. This progression in the concern profile (as depicted in Figure 2) is an ideal evolution and may vary according to circumstances.

6. Data collection and analysis procedures
The four instructors were invited to complete the SoCQ at the beginning of the semester and again at the end of the semester. Their scores in the SoCQ were analyzed using the SoCQ Quick Scoring Device and Procedure (Hall & Hord, 2001). The raw scores for each scale were calculated and the percentile scores for each SoC were plotted in a graph. The concern profile of each instructor was analyzed based on the SoC graph and interpreted based on the overall shape of the SoC graph before and after the implementation of the DST project. Special attention was given to the high points (peaks) and low points (valleys).

At the end of the semester, each of the instructors was interviewed by a researcher and they were asked to describe their personal experiences prior to and after implementing the DST project. All of the interviews were conducted in English language and tape recorded. The data were then transcribed and analyzed for emergent themes and patterns in line with the research questions to give deeper insights into the patterns identified from the SoCQ. They were asked to give actual examples to support their responses to the following questions:

(1) Describe your good experiences with regard to the DST project?
(2) Describe your bad experiences with regard to the DST project?
(3) Do you feel that the DST project has benefited your students? If yes, in what ways? If not, why not?

7. Findings
This section presents the concern profile of each teacher, which is derived from an analysis of their responses to the SoCQ and the interviews. Both the SoCQ data and the interview data were described together to allow patterns of similarities and differences to be compared seamlessly.

7.1. Instructor T1 (good ICT skills)
T1’s profile obtained from the SoCQ, before she implemented the DST showed high initial concern (see Figure 3). This is very similar to the typical non-user profile as proposed
by Hall and Hord (2001). This finding is supported by her interview data, which revealed her initial concern about not having sufficient knowledge of DST. She explained:

Sometimes I might tell them to put something inside and later they kind of tell me it is not possible. Because I don’t know the capability, I, have not actually used photostory to develop a video. But now I know after I’ve gone through it.

Her profile further showed that her concern became less as the project commenced. Findings from the interview offered evidence to explain the decline in concern. In the interview, she said she used ICT in her teaching for almost every lesson and that she felt that her students had benefited from the project and she would recommend it to “other class in the future and would recommend it to other teachers.” She further described how the project benefited her students. She felt that the project made her students more independent:

They didn’t ask me when they encounter technical problem and all like this. They solve most of the problems on their own. . .

Some of them say that actually they have to write in Malay and they will go and ask their friends and they get their friends to help them to correct their English. I think in that sense, it is beneficial because they do make it a point to be more independent from the teachers and to ask help from other people.

In addition, she said the project increased language learning opportunities among the students:

One group did say when they have a discussion; they make it a point to speak in English. So that is very good and my students’ English is very poor. I ask them come out with captions and all that. They did come out with the sentences and all that.
The writing in the blog will help them to express their ideas in writing and they will get feedback not only from the teacher but from other students as well.

However, her concern for Stage 6 (Refocusing) as shown in her SoC profile is not in line with the typical non-user. It tailed up considerably after the implementation of the project, which suggests that she felt that the innovation was not very suitable for her students. Her explanation given during the interview helped to clarify this. She explained that her increased concern was due to the inability of her low-proficiency students to produce good digital storytelling. She complained that some of the digital stories they produced had very little language and narration. However, she was quick to point out that such problems did not occur in the case of students that were “conscientious” who “really did take the trouble to select visual, to come out with the captions, to write the narrative.”

Another factor that could have influenced her slightly higher concern for Stage 6 was technical problems such as “narration never appear,” “recording not showing,” “video that freezes,” and “photos that do not appear,” which she described in the interview as deterring and discouraging her students. However, she explained that this was not entirely the fault of the technology as such technical problems to a certain extent arose from her lack of technical knowledge and her students not following instructions and not consulting her until it was too late. Thus, it would appear that on the whole T1 has positive views of the technology but she felt that her lower proficiency students were not ready for it.

7.2. Instructor T2 (average ICT skills)

Figure 4 shows T2’s profile derived from her responses to the SoCQ. Before the implementation of DST, her profile appears quite similar to the typical non-user profile, except for Stage 2 (Personal) which is lower than that of a typical non-user. This is surprising as in the interview she said she was “worried, really apprehensive about the whole idea of having DST in the course,” which stemmed from her fear of not being able to find a balance.
I was thinking about the course objective where we have to equip the students with the second language skills on one hand and on the other and here we have our responsibility, our commitment to carry out research and so on.

Her profile indicated that her concern increased sharply for all levels after the implementation of the project. The interview data explained what caused this sharp increase in concern.

My experience with DST project, it was somewhat I think chaotic experience. Because we are not well prepared, we are not familiar with the photo story 3 software, and I never had the experience also to create digital story prior to this. So it was mind boggling and was just like what I said earlier it was very chaotic experience.

She was having difficulties grappling with the technology and the interview data revealed that she thought the other instructors were facing similar problems. This assumption was in reality not true as evinced from the interview data of the other teachers.

Interestingly, she admitted that several problems could have been minimized if she had been better prepared, trained, and informed. In addition, she agreed that overall, the project was a useful learning experience for her students and had helped in improving their ICT and language skills and also encouraged cooperation among them. She also agreed that her students enjoyed showcasing their products during presentations.

It would appear to a great extent that her resistance stemmed from her insecurity as she repeatedly stressed during the interview that she was worried about not being able to guide her students well and she attributed this to being unfamiliar with the software and time constraint and repeatedly emphasized:

If the instructors themselves are not well-versed with the software, or are not that technology-savvy, so we can’t expect the students to, you know... if we can’t guide the students well, how we can expect them to do well in the project.

Thus, it can be seen here that to T2, implementing the project was a stressful experience and her resistance increased at the end of the project despite being aware of its benefits for her students.

7.3. Instructor T3 (average ICT skills)

As shown in Figure 5, T3’s SoC profile prior to the DST implementation is quite similar to the typical non-user profile as put forward by Hall and Hord (2001) with high concern at the self and management levels. Thus, it would seem that she was initially concerned about the demands of the innovation and also the processes and tasks of using the innovation. Despite this, the interview data demonstrated that she had an overall positive attitude towards the innovation as she saw it as a good learning experience. She also saw it as benefiting her students in a variety of ways as shown below:

(Students) shared with the rest of the class about their learning experience, besides improving their language skills, some of them also improve their ICT skills.

They learned from their friends who are good in ICT.

(Students) improved in their writing.
Similar to T1 and T2, her SoC profile showed that her concern at Stage 4 (Consequence) and Stage 6 (Refocusing) shot up dramatically in the post-stage. The interview data helped to explain the cause of this. She stressed that the technical problems faced by her students in accessing the Internet made her feel that an alternative project might be less demanding and time consuming for her students. Her profile further revealed that her concern for Stage 5 (Collaboration) was higher than for Stages 4 (Management) and 6 (Refocusing) from the start and it increased even more at the post-implementation stage, which suggested that she seriously felt there was lack of collaborative efforts among teachers carrying out the innovation. She reaffirmed this in the interview.

7.4. Instructor T4 (average ICT skills)

As shown in Figure 6, T4’s SoCQ profile prior to the DST’s implementation is similar to the typical profile used but with higher scores in the management, consequence, and collaboration stages. These concerns went even higher in the after-implementation stage. These findings matched the interview data in which he said:

I think what I’m trying to say is we need a simpler task. Because not everyone is IT savvy. I think you need to convince the teacher first, the instructor first, that this is a good thing, you know. It’s like a car salesman. You have to believe in the product first only then you can sell it.

The interview further revealed that he faced difficulty in “grasping trying to figure out what is the thing you know” and this contributed to a large extent to his negative attitude towards DST, which he felt could be easily replaced by a discussion forum. He claimed that it would be difficult for students without computer and then changed his mind and said “well they do (have computers), but it’s difficult you know.” It is interesting to see
how he refused to accept the benefits of the technology by repetitively using the word “force” when describing benefits of DST.

I think probably it forces students to work together.

I think it’s one way to force them to learn IT and it’s not just the students, the teacher as well, the instructor.

The students would have to do it (task) on their own.

However, throughout he implied that whatever benefits the students obtained from DST could easily be derived from simpler means. For example he said:

They assigned their own roles and but I did tell them that whenever they deal with DST they have to use English. But for that matter it’s the same with other tasks. ... It is just my principle to get them to talk in English in the classroom as well as outside the classroom. So, it does not apply to DST only.

However, he finally admitted that the innovation could be effective when properly planned and that it was more beneficial to students of higher proficiency who are:

the active kind, students who are you know, talk a lot rather than students who are low, rather weak, I think they had a hard time trying to digest what they were supposed to do.

8. Discussion of findings

Similar to a non-user, T1 showed high concern for Stages 1 (Information), 2 (Personal), and 3 (Management); however, she denied being unable to handle the innovation. This contradiction could possibly be caused by the low proficiency level of her students, which she described as leading to the production of poor quality digital stories. This also explains why at the impact level her consequence concern was higher than the non-user
for both pre- and post-implementation stages. T1 also expressed high concern at the collaboration level. This was similarly expressed by T2 and T3 too and could be partly due to the lack of support given to the teachers.

T1’s concern for Stage 6 (Refocusing) which was very low at the pre-implementation stage tailed up after the implementation of the project suggesting that she felt the innovation was not very suitable for her students. Further probes revealed that although the teacher was actually positive towards the innovation, some negative experiences such as technical problems as well as the inability of less conscientious students to handle the innovation well led her to this increase in concern. Despite that, she explicitly stated that the DST had helped her students in becoming more independent and also increased their language and problem-solving skills. The problems identified by T1 were students’ low proficiency level and irresponsible attitude, and inadequate technical support.

The findings related to T2 shows that her profile prior to implementation was also close to a non-user similar to T1; however, in her case there was an intense increase in her concern profile for all levels after the implementation of DST. She strongly expressed her view that she believed that her students were not benefiting from the experience and all other teachers were facing the same problems. However, the findings revealed that her view was incorrect. Her overall attitude towards the innovation and ICT in general was very negative and she repeatedly stressed that she was not an IT-savvy person. Thus, it is evident she has strong resistance to the technology used. The same applied to T4 who felt that DST could be easily replaced with any other teaching approaches, which would produce the same positive results. However, he admitted that his students benefited from DST and he was not ready for the technology and if he was better prepared things would be better. His concern was also very similar to a non-user except for the sudden high upturn for refocusing, which was similar to that in T1 and T2.

Similar to T1, T2, and T4, the concern profile of T3 is also close to the non-user profile prior to implementation. Like T2 and T4, she also confessed that she was not a skilled ICT user. However, her overall attitude towards the innovation differed significantly from T2. She managed to maintain a positive attitude throughout the experience and described the experience as benefiting to both herself and her students. Similar to the other three teachers she displayed high concern on Stage 6 (Refocusing) in her post-implementation concern profile, which could be attributed to technical difficulties faced by her students as in the earlier cases. She reported that her students were facing difficulties in accessing the Internet and were handicapped by the inflexibility of PhotoStory 3. To resolve this she allowed her students to use any other appropriate software and she was impressed by the high quality and up-to-date “products” that they produced using more sophisticated software such as Movie Maker without support from her.

The findings obtained suggest that the students in the study were more technology-savvy than their teachers. Prensky (2001) and Tapscott (1998) would describe them as belonging to the “Net generation” which means they grew up with technology and are constantly surrounded by all sorts of technological gadgets. The findings revealed that they were able to reap benefits from the introduction of DST as an innovation. All four teachers admitted that DST had supported their students’ learning of English and improvement of ICT skills. They also found it encouraged autonomy and teamwork among them.

On the other hand, T1, T2, T3, and T4 would be described as belonging to the generation known as the “digital immigrants” who are still coming to terms with the rapid advances in technology and the need to use technology at work (Prensky, 2001; Tapscott, 1998). Thang et al. (2010, 211) in a study on the development of an online community of
practice among Malaysian Smart school teachers also found the teachers apprehensive and fearful of technology. Similar to T2 and T4, their lack of ICT skills had also led them to focus on the limitations of the technology used and not its strengths. This is even more surprising considering that these Smart schools are secondary schools, which are fully equipped with computer laboratories and whose teachers have all undergone special training in ICT.

Buckingham (2003) and Nahachewsky (2007) pointed out that resistance to an innovation can be detrimental to the successful promotion of technological use in the classroom as a teacher’s lack of confidence in his/her own ability to handle the technology can be transferred to his/her students thereby creating an unconducive learning environment. Thus, what constitutes “the failure” in T2 and T4 cases was not the technology but their attitude towards technology. This is in contrast to T1 and T3 who were more ready to accept the innovation and hence would most probably be willing to use it in the future voluntarily. Thus, readiness to accept technology is the most important factor towards integration of technology and achieving “normalisation” (as described by Bax, 2003). Other factors such as students’ low proficiency level, technology problems, and lack of collaboration are hindering factors but they can be overcome relatively easily.

The issue that we would like to discuss here is what has led to this strong resistance. One possible reason is related to what is generally accepted as an average Malaysian classroom where the teacher is always perceived to be the imparter of knowledge and know-how and the students are the receivers. However, as mentioned earlier, the new generation of students are the “digital natives” and the teachers are the “digital migrants.” Teachers who are unwilling to accept this change in role will be the ones that have the most resistance to technology as to them they will “lose face” if they are found to be lacking in front of their students. The data revealed that T2’s inability to recognize the distinction between herself and her students led her to insist that her students would face the same difficulties as she would. She was quite taken aback to find that her students were picking up the new technology with ease and were even experimenting with more sophisticated technological tools.

Many studies have pointed out that educational changes have to take into account the views of the teachers in order to be successful (Crawford, 2003; Fisher & Lewis, 1999; Flores, 2005; Fullan, 1992; Harris, 2001; Hess, Maranto, Scott, & Ferraiolo, 2002; Kirk & MacDonald, 2001). In case of the introduction of the DST, it was a directive from the chair of the school. The teachers were not consulted prior to its implementation for the first time (which was when the data for this study was collected). Many of the teachers were taken by surprise and some of them, especially those who lacked ICT skills, could not see the need for the relatively drastic change from their previous practice and had no clear idea how the changes would benefit their existing teaching environment and their social responsibilities (Fishman, 2000; Hiltz, 1988; Wilson, Sherry, Dobrovolny, Batty, & Ryder, 2002). T4 is a typical example of this type of teacher. He kept insisting that he could achieve whatever benefits that could be derived from technology through other means.

Rogers (2003) posited if teachers are seen as agents of change, it can help speed up the diffusion of innovation in schools. This is generally not the situation in Malaysia. The Malaysian education system is rather top-down even in public universities. Changes normally come about through directives from the Ministry of Education and in the case of universities through the Ministry of Higher Education or the University Authority Council. Efforts to improve teaching introduced from the lower level as in the case of the digital storytelling would usually be met with strong resistance from the start as the directive
had not come from the top (Thang, Hall, Murugaiah, & Azman, 2011; Thang et al., 2010). This could also be another possible reason for the resistance found among some of these teachers.

All four teachers’ dissatisfactions towards the DST project were also reflected by the sharp increase in Stage 5 (Collaboration) and Stage 6 (Refocusing). The findings revealed that contributory factors leading to this were technical problems and lack of support given to the teachers. Flores (2005) described this phenomenon as teachers feeling that their notion of professionalism was compromised as a result of the unclear position brought about by the introduction of a new educational reform. Coupled with the teachers’ lack of ICT skills, the situation would be aggravated and could lead to teachers’ resistance to the change initiatives as evident in the cases of T2 and T4.

Studies have shown that age, career stage, and generational identity do have an impact on how teachers respond to change in schools. Hargreaves (2005) found that older teachers have a tendency to resist changes in schools and would challenge the outcomes of change whilst the younger generation of teachers coming straight from teacher training would be more willing to accept change. This could have influenced the receptions towards technology in this study where all four teachers under investigation are lecturers with more than 15 years of teaching experience.

9. Implications, recommendations and conclusion

The limitations of the study also need to be considered. One of the limitations is the small sample size. This is unavoidable due to the small number of instructors teaching the course. However, since three of the instructors taught more than one class each, the experiences they gained were from conducting classes to a large number of students coming from different racial and social backgrounds. The study also does not explore sustainability of the teachers’ concerns over time due to time constraint. This, however, will be explored in a follow-up study. In addition to that, the data would have been richer if other possible causal factors affecting the results of the study such as the teachers’ past experience with technology and their students’ attitude towards the innovation were also taken into consideration. However, it has to be pointed out here that data from students were also collected and it was the choice of the researchers to concentrate on the data obtained from the teachers in this paper so that the findings can be discussed in sufficient depth.

Despite the limitations, the findings of the study are illuminating as they clearly show that the prime factor responsible for failure in the integration of technology is the teacher resistance to technology. Thus, it would appear that the implementation of technology by teachers who are technologically inexperienced may hamper the learning benefits that could have resulted under technologically experienced teachers. Kruger in an interview (eSchool News, 2007) underscored that this could possibly lead to abandonment of the technology and students’ loss of confidence in technology.

The President’s Council of Advisors on Science & Technology Board (1997) recommended that training should provide assistance on how to integrate computer use into the curriculum and give pedagogic support to reconcile the tensions between the traditional and new pedagogic methods for using technology. In the present study, the technical staff from the school should be enlisted to provide on-going support to the teachers to guide them through the change. The current practice of using two research assistants to demonstrate the use of digital storytelling software is not sufficient.

There is also a need for course administrators to be more receptive to the suggestions given by the teachers. This could be achieved by inviting the teachers to participate more
actively in the planning stage and even engaging them as joint stakeholders and not just as implementers of the innovation. These suggestions were recommended by So and Kim (2009) and are in line with the proposals of Brown and Duguid (2000), and Fischer and Giaccardi (2006).

The administrators should also provide incentives and recognition to teachers who have implemented the innovation successfully to motivate them. Presently, there is an end of semester competition to select the best digital stories produced by the different groups of students with certificates and monetary rewards being given to the students. The reward should be extended to the teachers of the groups concerned as teachers need recognition too.

Finally, we have to be aware that all efforts, despite how well-designed and executed, will fail unless resisting teachers change their deep-rooted attitude against technology integration. This is particularly serious in the case of teachers who have been teaching for a long time as is the case of the teachers in this study. This problem cannot be resolved overnight as changes in behaviours and practices take a long time to happen (Hargreaves, 2005). The first step towards that direction is for the teachers to believe in the innovation. Krueger (eSchool News, 2007) recommended having frequent workshops to motivate and support them. In addition, support in the form of collaboration among the teachers and sustainable technological infrastructure to address the technical difficulties faced by the students can help to create a more conducive environment for technology integration. Finally, introducing a transition phase to deal with emotional and social issues relating to change may help to make the process easier and less stressful for the teachers. As Harris (2001) pointed out, experiential learning before any reform takes place can help teachers experience the future tensions and dilemmas within the change process, enlighten them on possible problems and thus enable them to be more in control when the change takes place. It is our belief that with the introduction of these remedial measures, future introduction of technological innovations in UKM as well as in other institutions of higher learning in Malaysia will meet with greater success.

Funding

This work was supported by two research grants provided by Universiti Kebangsaan Malaysia [grant number UKM-PTS-2011-071], [grant number UKM-DLP-2012-032].

Notes on contributors

Siew Ming Thang is professor and chair of the School of Language Studies and Linguistics, Faculty of Social Sciences and Humanities, The National University of Malaysia. She graduated with a PhD in Education from the University of Nottingham, UK in 2001. Her areas of interest are learner autonomy, open learning, computer-enhanced teaching and learning, and learning styles and strategies. She has published extensively and her recent publications are available in the following reputable journals: CALL Journal, Educational Action Research Journal, AJET, IRRODL and IJPL. More information at www.ukm.my/smthang.

Luck Kee Lin is a lecturer at the School of Language and Linguistics, Universiti Kebangsaan Malaysia. His areas of specialization are in reading literacy and vocabulary studies in ESL/EFL and language use in the discourse of websites.

Najihah Mahmud is a graduate research assistant in the School of Language Studies and Linguistics at Universiti Kebangsaan Malaysia. Currently, she is a student of MPhil in English language studies at the same school.

Kemboja Ismail (PhD) is a senior lecturer of Applied Linguistics at the School of Language Studies and Linguistics, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia. Her
research interests include portfolio assessment, academic writing, and computer based learning and assessment. She is currently working with her research team in the areas of digital storytelling and face-to-face advisory discussions.

Noraza Ahmad Zabidi is a lecturer at The National University of Malaysia. She has 23 years working experience at the university. Her areas of research include TESL, CALL, reading strategies and vocabulary learning. Currently, she is teaching structures in context, foundation English and English for social sciences at the Faculty of Social Sciences.

References
Beggs, T.A. (2000). *Influences and barriers to the adoption of instructional technology*. Paper presented at the Fifth Annual Mid-South Instructional Technology, Middle Tennessee State University, USA.


