

Teacher's behaviour in integrating Digital Storytelling (DST) Software into their teaching: Its impact & implications

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Abstract

“The incorporation of digital and new media technologies into the university classroom is clearly underway and will become of signal importance to the way students learn and teachers teach in the twenty-first century” (Clarke & Adam, 2010, p.173). To investigate the teachers' roles in using new technologies in their classes, this pilot study made use of semi-structured interviews with six individual English language instructors of an undergraduate freshman remedial English course at a university in Hong Kong. After applying the Levels of Use (LoU) interview protocol developed by Hall and Hord (2011), the indicative results possibly showed a direct relationship between each teacher's behaviour(s) and the integration of Digital Storytelling (DST) software into his/her classroom. The teacher's underlying pedagogical belief(s) and their perceptions of their students' digital capability were important determinants to the teachers' behaviours. The LoU user type results obtained also provided certain insights into appropriate strategies that may be implemented by course management to promote better DST software integration into ESL classrooms. This research also suggests that the role of teacher's behaviour(s) could be important in integrating DST into the classroom. It is suggested that conducting a follow-up study with a larger sample size, and further investigation into suitable facilitation methods by course management for the successful DST integration/implementation in higher education is necessary to verify these pilot findings.

Keywords: teacher's behaviour, Digital Storytelling (DST)

Introduction

Technology is usually seen either as a tool for enhancing learning (Carle, Jaffee, & Miller, 2009) or as a tool to be integrated into the classroom to benefit learners (Kim & Hannafin, 2011). The latter point has grown to be one of the key topics for discussion and debate in the field of education in the last thirty years (Lowther, Strahl, Inan, & Ross, 2008). It is pointed out that technology integration requires more than simply introducing hardware and/or software into an educational setting (Krueger as cited in Heo, 2009). Moreover, Heo (2009) suggests that a meaningful integration of technology into a classroom will involve putting authentic and meaningful technology-based activities into the curriculum. She goes on to emphasise that in her opinion Digital Storytelling (DST) is “one of the most promising, current approaches that promote authentic learning experiences” (p. 406) to achieve that aim.

Definition of Digital Storytelling

DST is defined as a multimodal language learning tool combining digital image, video, music, narration and writing by either an individual student or a group to create a script in the form of a story (Hafner, 2013). The idea for DST was first developed by a media artist, Dana Atchley, in the 1980s. He began adapting conventional storytelling techniques by using various software tools for his own artistic/ commercial performances and further developed The Center for Digital Storytelling in Berkeley, California in the early 1990s. The potential for DST as demonstrated through the Center’s workshops, consultancy and collaboration works soon drew interest from educators who applied it to their own teaching contexts (McLellan, 2006).

In education, DST broadly means the use of multimedia in educational settings for the production of multimodal narratives by students. Students can create digitalised stories, commonly ranging from one minute to ten minutes, using editing software (e.g. Windows Movie Maker, iMovie, Microsoft PhotoStory 3) that can combine and sequence both still and moving images and match them with appropriate audio (i.e. voice over, narration, background music), as well as text (i.e. titles, captions, subtitles, and end credits).

Research on teachers' perceptions as to the integration of technology into their teaching

Many scholars have previously investigated the potential benefits and drawbacks of technology integration on the affected stakeholders (generally teachers and their students). The main research foci concerning teachers have included their beliefs and practices on new/unfamiliar technology (Kim et al., 2013), external barriers to their implementation of technology (Ertmer, 1999), internal barriers to the same (Duhaney, 2001) and personal problems that they encountered in implementing the technology (Newhouse, 1999).

However, a review of this literature reveals relatively few studies focused on the perceptions or concerns of teachers on integrating DST into their teaching. Heo (2009) conducted an empirical study of the impact of DST on pre-service teachers' self-efficacy and personal dispositions towards education technology. Furthermore, Thang and her team (2014) inquired into four English language instructors' attitudes and acceptance of using DST in their teaching at a Malaysian public university.

The study by Clarke and Adam (2010) on Australian academics' perspective of and reflection on DST application is to some degree similar to the research reported on here. The means by which their six teachers under study taught media and communication studies was examined in semi-structured interviews in which questions as to their experience in utilising DST generally, their definition of DST in their classrooms and whether they had utilised it, as well as their perceptions of the benefits and costs of DST as a teaching and/or research tool were investigated. Although these factors are similar to some of the issues raised in this research paper, their focus was limited to the teachers' perceptions of DST. This research paper develops the teachers' perceptions one step further by examining how the instructors integrated DST into their teaching.

Research questions

This research paper focuses on the relationship between the behaviour of teachers and the manner in which DST is integrated into a genuine classroom setting. It builds on the findings of several studies that the behaviour of an individual teacher is one of the keys in the successful

integration of technology, including DST software (Keengwe, Onchwari & Wachira, 2008). This paper therefore aims to analyse and understand how teachers' behaviour influences the manner in which they integrate DST software and teaching in their classrooms. Specifically, it addresses the following issues:

- (1) Does the behaviour of a teacher influence his/her decision as to whether or not to teach the use of DST software in his/her classroom?
- (2) What factor(s) determine his/her decisions on integrating DST software teaching into his/her classroom?
- (3) What implications may there be for the leadership of an educational institution from the decisions and behaviours of teachers towards DST software?

Background of the study

Practical English for University Studies (PEUS), provided by the English Language Centre (ELC) at The Hong Kong Polytechnic University, is a compulsory English proficiency and communication course for sub-degree/degree freshmen who have obtained low passing grades in English in their matriculation examination. The idea of digital storytelling was piloted and introduced into the existing course in September 2012. The introduction encountered a number of major external barriers caused by both hardware and software, principally in terms of compatibility between older software and newer hardware. However, these issues have now been resolved.

Both Microsoft PhotoStory 3 (PS3) and Windows MovieMaker (WMM) were the recommended tools for instructors in their DST teaching within the PEUS course during the research period for this paper. To introduce DST to their students and to teach the use of the software, all instructors with or without prior experience in teaching and/or using the software were invited to voluntarily participate in two separate one-off workshops that were carried out before the beginning and in the middle of the semester respectively. Twelve teachers attended the PS3 workshop with a mix of experienced teachers who had taught the older versions of the course and novice teachers who had newly joined the ELC. At the second workshop, mid-

semester, only a few instructors joined the WMM workshop. This may be because whenever a teacher requested support in using the technology the course coordinator would provide assistance. Otherwise, the course coordinator adopted a hands-off approach towards the individual teacher's decision as to how to integrate DST software into their teaching.

The digital story, the only speaking assessment within the PEUS course, required students to individually produce a six-minute digital story within a seven-week period under the theme of heritage conservation. They had the freedom to pick any topic they wished within this overarching theme, including both tangible heritage (e.g. historical building) and intangible heritage (e.g. festival, arts, culture and customs) within the local context. The story could be produced using any DST software.

Theoretical framework of the study

In order to investigate the teachers' perceptions of using DST, the Levels of Use (LoU), the third Diagnostic Dimension of the Concern-Based Adoption Model (CBAM) as developed by Hall and Hord (2011), was used as the theoretical framework. Hall and Hord (2011, p.93) explain that LoU can be employed to describe “behaviors and portrays how people are acting with respect to a specific change (in innovation)”. They further stress that the LoU framework can be most effective for change facilitators to provide “appropriate interventions” to the participants involved if those facilitators understand and can apply the concepts of the framework. It is undoubtedly true that “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” (Thang et al., 2014, p.315).

Methodology

Background information of participants

Six English as a Second Language (ESL) instructors at the ELC took part in the research project. The instructors are divided into three groups: Ex-Teachers, In-service Experienced

Teachers, and In-service New Teachers, pivoted on whether they were teaching the course during the semester under investigation. Table 1 shows T1, T2, T3 and T4 were experienced in teaching the PEUS course while T5 and T6 were new and had never taught the course previously.

Table 1. Personal background of the ESL instructors

| Instructor (Group) | Gender (Age) | LoU Level | Teaching Experience (years) | DST Software taught in class | Problems encountered |
|--------------------|--------------|-----------|-----------------------------|------------------------------|----------------------|
| T1 (ExT) | M (48) | O | 13 | NIL | User's errors |
| T2 (IET) | M (49) | O | 20 | NIL | User's errors |
| T3 (IET) | M (32) | IVB | 9 | PS3 | User's errors |
| T4 (IET) | M (40s) | IVB | 12 | PS3 | User's errors |
| T5 (INT) | M (30) | O | 7 | NIL | User's errors |
| T6 (INT) | F (30?) | IVA | 5 | PS3 & WMM | No information |

Notes: NIL = no software was taught. ExT = ex-teacher. IET = in-serviced experienced teacher. INT = in-serviced new teacher. O = Non-user. IVB = Refinement user. IVA = Routine user.

Research design and instruments

A qualitative tool adopting the Levels of Use Interview Protocol (LoUIP) in the form of semi-structured interviews of the instructors was used. Questions in the LoUIP were derived from Hall & Hord's CBAM (2011), which was adopted as the theoretical framework for this research. Objectivity for this research is intended through the adoption of the LoUIP, but the data presented are interpretive.

LoUIP starts by posing the initial question – “Are you using the innovation?” - to distinguish between Non-users and Users. Next, the questions focus initially on seven dimensions which the participants were asked verbatim from the standard LoUIP while each of them may be followed up with open-ended, probing questions. The questions and the responses elicited create branches starting from the initial two principal user types (i.e. User and Non-user) based on key decision points as to behaviour that enabled all six participants to be classified into one of eight LoU behavioural levels. The former group are profiled into the first three levels: Non-use (O), Orientation (I), and Preparation (II) while the latter are profiled into Mechanical

Use (III), Routine (IVA), Refinement (IVB), Integration (V), and Renewal (VI) (Hall & Hord 2011, p.288-9).

Data collection and analysis procedure

The six instructors were interviewed individually in a face-to-face setting at the end of 2014 Semester I after they responded positively to an unsolicited email containing the research proposal, the LoUIP questionnaire and the request for assistance. Of all six interviews, two interviews were completed in 20 minutes whilst the rest took approximately 30 minutes within the timeframe suggested by Hall and Hord (2011).

All of the interviews were conducted in English and tape recorded. Each instructor's feedback was re-read later to determine the rating for the LoU categories using the following dimensions - Knowledge, Acquiring Information, Sharing, Assessing, Planning, Status Reporting, and Performing. The category determinations were then made by referring to the levels descriptor of each category in the LoUIOD. Finally, an Overall LoU rating was determined by the dominant ratings across the seven total possible categories.

Result

Of the overall LoU ratings of the six instructors, three (T1, T2, and T5) were ranked Level O while the other three were rated at Level IVA (T6) or Level IVB (T3 and T4) as shown in Table 1 above. In other words, three were non-users and three were users. Furthermore, the distribution shows no significant pattern with respect to either the teachers' previous experience with the course or their number of years of total teaching experience. Even though overall the teachers' views towards DST software were generally positive, their beliefs on two matters, namely the digital literacy of their students and their own pedagogical strategies, determined whether or not their use of DST software in class emerged as part of the analysis of the data.

The analysis below first provides two case studies of the Non-use instructors (Level O), and the Refinement instructors (Level IVB) respectively. It then examines what kind of teachers'

beliefs influenced their decisions as to whether or not to integrate DST software teaching into their language curriculum.

Case Study 1: Non-use Instructors (Level O)

The behavioural decision point of Level O is defined by Hall & Hord as taking no actions to learn detailed information about the innovation in question. T5, an in-service new teacher, took no actions in the Acquiring Information, Assessing, or Sharing dimensions either of the two available DST softwares. His responses to the Sharing dimension mainly focused on problems encountering by his students through casual conversations with other colleagues outside the classroom. Although Non-use users are described by Hall & Hord as having “little or no knowledge of the innovation” (p.100), T5 did have a general knowledge of PS3. He stated:

PhotoStory 3 is sufficient for the course purpose as it allows students to put pictures into the software with captions, music...

In responding to a hypothetical question as to whether he would teach PS3 in the future, he admitted that he had no plan to teach any DST software but rather would spend more time on teaching language were he to teach the course again in the coming semester. He found PS3 too technical for himself but believed that students had a better understanding and could learn by themselves. When explaining whether integrating DST software teaching into his general teaching contradicted his underlying teaching beliefs, he merely said:

... I'm unfamiliar with PhotoStory 3. Let students explore as they are more capable.

He then further explained:

...because they (students) have more exposure to I.T. as they have used it since junior/ secondary year.

His responses suggest that his beliefs as to students' literacy have influenced his decision on whether to merge DST software teaching into his overall language teaching.

Case Study 2: Refinement Instructors (Level IVB)

Hall and Hord (2011) explain that Refinement users, because of their understanding of both the short-term and the long-term effect of the innovation on their clients, will change their use of the innovation in order to enhance the positive impact on clients within their immediate sphere of influence. T4, an in-service experienced instructor, reported similar behaviour patterns:

I'm constantly modifying the lessons and making changes...I have four classes in a week. I looked at what works well on Monday and I try to benefit from Monday again on Tuesday and modify the depth as the week goes on. (I'm) constantly changing little bits and sometimes larger bits.

Apart from mentioning some minor user errors and challenges, his behaviours in both Acquiring Information and Performing dimensions closely match the level descriptors for the Level IVB categorisation: "Solicits information and materials that focus specifically on changing use of the innovation to affect client outcomes" and "Explores and experiments with alternative combinations of the innovation with existing practices to maximize client involvement and to optimize client outcomes" (Hall & Hord, 2011, p.288-9).

Indeed, he reported that he found himself more prescriptive as a result of following the course material and the samples of previous students' work provided, as well as "reviewing the programme (PS3) with students" when he taught the course for the first time. In the semester of the research, he incorporated more outside-sourced end-products available online using PS3 software into his teaching as practical examples in order to inspire the students.

Although he stated that he had "no plans to make drastic changes" in relation to teaching PS3 in class in the next year (Planning = IVA), "I'm hoping to find more examples so students can decide what they want to include or exclude". This matches the Performing description of Level VIB.

Teachers' common overall views on DST software

The two main DST software packages were generally described using the following adjectives: "basic", "free", "easy to use", "sufficient", and "stress reducer" as the strengths. Conversely, the

weaknesses were seen to be “time-consuming”, “dated”, and “stressor”. On the one hand, the software was regarded as stress-reducing because it allowed students to rehearse/record until they were satisfied. On the other hand, it was regarded as stress-inducing because the concept of combining multimodality as permitted by the software with traditional writing could be difficult for students. Overall, all the instructors considered either of the two software packages to be a potential useful tool for language learning.

Five of the instructors, with T6 as the exception, reported discussions among themselves focused on problems of saving files in the correct format, script writing, or recording confronted by their students; for example, T4 stated:

I don't think students have challenges with the software because it's way too easy... I think the challenges for the students were uploading, saving. I don't think the problems or challenges are with the software itself.

Teachers' beliefs & DST software teaching

As shown in Case Study 1, the non-user instructor T5 believed that the students had stronger I.T. knowledge than he had, so he opted for peer-sharing of software information and only acted as a general assistant instead of teaching either of the available DST software packages himself. His point, however, was flatly rejected by another non-user, ex-teacher T1, who gave his views on students' perceived digital literacy as:

Technical (in teaching the software) I didn't think it's that much of a problem... There's a lot of talk about this generation or now the generation coming are to be so-called digital natives. And I'm not convinced... In my experience, a lot of the students don't know how to make basic (stuff)... I think students are good at 'consuming' technology but I don't think they are good at producing stuff with technology, so they may be okay with PowerPoint but.. They can access materials online, send emails. They would have no problems but beyond that I think it will be problematic (for them). So bring it back to PEUS, I don't think we can automatically assume that they would be totally comfortable at... having no problems in using Windows MovieMaker. If I teach this class again, I would show them how to use it.

As a separate but related matter, both T1, and T2, an in-service experienced teacher, strongly favoured either guided discovery or independent learning respectively as a basis of their overall pedagogical style. T1 reported that when teaching DST before, he had shown his students an online ‘help forum’ for WMM where students could trouble-shoot for themselves. As he explained:

... Students remember by doing. If they really need help, I'll then give a lot of support.

The T2 pedagogical approach was to show the outcomes with examples given with the course pack before holding a discussion as to variables that might make good videos. He admitted that he “ask them (students) to seek help from each other”. He later stressed:

Students need to take charge of their learning.

Given these basic assumptions, it is interesting to note that T1 has changed his attitude based on his experience of teaching DST without having taught the DST software beforehand.

Discussion & Implications

As Hall (2013) explained, the LoU describes the different behaviour profiles of non-users and users of a new technology (in this research, either PS3 or WMM). In both case studies, the behaviours reported by the instructors of each representative user type closely matched the level descriptors provided in the LoUIOD. Their behavioural patterns under each of the seven dimensions permitted the researcher systematically to interpret their responses and categorise them by user type based on their Overall LoU ratings. Furthermore, it was possible for the researcher to identify the key behaviour or behaviours within the seven LoU dimensions that determined the approach of the instructors towards DST integration. In other words, the LoU framework is useful in identifying what motivates an instructor to act in a certain way when presented with the innovation and so does allow a researcher to shed light on whether a teacher's behaviour can influence his/her decision as to whether to teach the use of DST software in class. As such, the research suggests that the LoU framework can be a useful methodology for course managers to identify and potentially remove obstacles in the integration of DST into their classrooms.

Moreover, the overall positive feedback from the instructors on the software packages should rule out problems with the packages themselves as the reason they were not taught. It is likely that all the instructors considered the DST software potentially useful as a language teaching/learning tool. However, the very similar feedback from both non-user and user instructors as to the problems encountered by their students in the execution of their work suggests that adequate hardware (i.e. language laboratories) and software (i.e. video storage space) must be timely arranged in order to reduce resistance to the blending of DST software into the course curriculum by either teachers or students. Similarly, Clark and Adam (2010) concluded in their study that material support (such as computer laboratories and I.T. support) is essential for the effective implementation of DST.

On the other hand, it is apparent that the teacher's beliefs are key factors determining the teaching of DST software is integrated into his/her regular teaching. The evidence of T5's strong faith in and T1's false presumptions towards their students' digital capability/literacy certainly affected their final decision as to whether or not to teach the software. This was even more apparent when T1 reassessed his initial presumptions and stated that his plan would be to teach the DST software if he were to teach the course in the future. T1 considered his students to be 'digital natives'. The existence of such a so-called 'net generation' has been identified in several previous studies (Sandars & Morrison, 2007) as comprising those who demonstrate no hesitation in using technological devices for communication (e.g., mobile phone, and email), social media interaction (e.g. Facebook), and general entertainment (e.g., music/movie downloads). However, this research echoes earlier studies that suggest that assuming the 'net generation' can parlay their consumption skills into an equal ability to create such technological products is possibly a mistake. Messineo and DeOllos (2005) also found that the 'net generation' demonstrated less self-efficacy in utilising technology in a formal, academic setting than expected. This paper supports that conclusion and, therefore, strongly suggests that teachers should integrate or "review" the DST software as part of their overall pedagogy.

In addition, an important element is a teacher's underlying pedagogical beliefs in teaching and learning, especially when the instructors of both types (users and non-users) found that students could learn better through guided discovery or independent learning. As such, teachers' beliefs influence and may even determine their decisions on technology integration as

“...teachers’ beliefs and principles are contextually significant to the implementation of innovations” (Munby, 1984, p.28). Several other scholars in the field (Fullan, 1992; Veen, 1993) have also raised similar views.

According to Hall and Hord, the behaviour indices of LoU users can indicate what actions it may be appropriate for a relevant change facilitator to take in support of participants in their move from a lower level to a higher level of adoption of the innovation. Hall and Hord propose to first stimulate participants to actively seek information on the new innovation as the first objective for a change facilitator in order to move a Non-user (Level O) up to higher levels. Moreover, encouragement is suggested for Routine users (Level IVA) by means of praise or public recognition in order to strengthen the user’s effort. However, if the user falls behind, further encouragement as to how to refine usage is required. As Refinement users (Level IVB) are self-motivated to search for new materials, activities, or other resources refining use of the new technology, facilitators may offer suggestions or examples to them or reward them by showcasing their ideas to others.

Conclusion

This research using the LoU Interview Protocol not only illustrates that individual teacher’s behaviour(s) is/are likely to affect the level of integration of DST software into his/her language teaching, but it also suggests that the responses of the teachers to questions formulated under each of the seven behaviour dimensions may alert a course coordinator/leader to the teacher’s specific behaviour(s) that need to be addressed in order for DST to be taught effectively. Moreover, teacher’s beliefs in students’ technological capabilities and their own underlying pedagogy may also play important roles in determining whether DST software would be taught in the classroom.

Given the limited size and the nature of the sample (which is a opportunity sample), the researcher urges caution against over-generalising the comments provided by the instructors in this research. However, all the instructors had taught at least two classes each, while the experiences they had gained were from conducting classes for a large number of students with similar language proficiency, suggesting that there were no student-related biases in the

instructors' responses. This research also does not examine whether a teacher's own digital literacy might be a determining factor in his/her integration of DST software teaching into his/her classroom activities. This question will be explored in a follow-up study. Further research can also be conducted to explore whether students' performance in DST is affected by the different behaviours of teachers. Another avenue for further study could investigate what appropriate interventions/supports could be provided by management to ensure a more successful integration of DST teaching into the language curriculum.

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