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Abstract

Purpose – The purpose of this paper is to report on SpeakApps, a major collaborative computer-assisted language learning project, developed based on an open source techno-pedagogical solution to facilitate online oral language production and interaction.

Design/methodology/approach – A mixed method approach was incorporated as part of the development process which included a comprehensive literature and practice review, user requirement survey of 815 learner, 61 pilot studies with 7,180 students, construction of qualitative teaching scenarios and a Delphi analysis.

Findings – Language learners have limited experience of using synchronous communication tools within language learning contexts. Improving usability features within the Open Educational Resources supported the notion of sustainability and that the provision of the mechanism to indicate quality were vital to support the integrity of open content.

Originality/value – The paper provides an overview of the operationalisation of an action-oriented approach to language learning which manifested as a design for learning development process. It illustrates the breadth of issues raised from technical to pedagogical when teacher and learner agency are central for development and sustainability.

Keywords User-centred design, Computer-assisted language learning, Synchronous communication, Language learning

Paper type Case study

Introduction

Trying to learn a language independent of the mode of delivery, i.e. in a traditional classroom or online is a challenge for many language students. Developing oral language competencies in a language are acknowledged as being particularly demanding. This challenge is further exacerbated when opportunities for the learner to

engage in informal language acquisitions situations are limited, for example in the case of lesser-used or minority languages. Within a formal acquisition environment such as the traditional classroom ensuring that each student has an opportunity to produce language, i.e. to speak, is not always possible. Furthermore, the ephemeral nature of speaking itself makes it difficult for language learners and indeed teachers in such environments to ensure that systematic progress is being made in the language as both are reliant on memory of what was said (Wells, 1999, p. 115). Therefore, feedback by teachers on oral production by students may be limited in such cases and learners often do not benefit from such feedback unless they have an opportunity to interact and to produce a further output. The computer-assisted language learning (CALL) literature posits that language learning supported by technology is as effective if not significantly more effective than traditional instruction methods (Grgurovic *et al.*, 2013; Sagarra and Zapata, 2008; Taylor, 2006, 2009; Yun, 2011; Zhao, 2003). However, Garrett (2009) suggests that within institutions the focus on the integration of CALL within language learning centres on costs associated with technological infrastructure and human resources as opposed to concentrating on pedagogical design. This paper provides an account of the process engaged in by the SpeakApps project to engage with both technological and pedagogical issues in the development of the multilingual online oral language environment. The paper initially outlines the theoretical framework underpinning the development of the platform which is aligned with an action-oriented approach to language learning. The main project pedagogical and technical outcomes of the project are then explored. An overview of the methodology adopted within the project to gather data from users to inform and iteratively develop both pedagogical and technical outcomes is then provided. Overview findings from three data gathering initiatives are presented and discussed. These findings illustrate a considerable breath of pedagogical, technical and contextual issues faced by the project team as part of the development process.

SpeakApps theoretical framework
The SpeakApps project received funding under the Lifelong Learning Programme of the European Commission to address an acknowledged gap within online language learning, i.e. the development of oral language competencies. Online language learning environments usually engage with three of the four language skills, e.g. writing, reading, listening (Appel *et al.*, 2012). Furthermore, the project implemented a pedagogical design associated with action-oriented approaches to language learning. These approaches stem from sociocultural and cultural historical activity theoretical approaches to language teaching and learning (see e.g. Blin, 2010; Blin and Appel, 2011; Blin and Thorne, 2011). Language learning viewed from this perspective moves beyond the notion of a language being simply a code with a set of rules to be learned and put into practice devoid of sociocultural contexts (Blin *et al.*, 2012, p. 2). Linell's (2009, p. 274) concept of language as action or languaging clarifies further the complexity of language learning as it "refers to linguistic actions and activities in actual communication and thinking". A key tenet of the SpeakApps pedagogical approach is that both learner and teacher agency are central to curriculum and task design (Engeström, 2006; Lipponen and Kumpulainen, 2011; van Lier, 2004). The agency of both teachers and learners underpinned the development of the SpeakApps platform, tools and pedagogical materials and was viewed as a key feature of promoting sustainability.

An overview of the SpeakApps environment

The SpeakApps environment is underpinned by the Moodle open source platform. There are a number of features, sections and resources within the environment including virtual classrooms where the SpeakApps tools can be used. A Mahara space is also available which provide supports to the SpeakApps community of teachers. The Open Educational Resources (OER) is available where the task-based language learning activities designed and categorised using the Common European Reference Framework for Languages (Council of Europe, 2001) can be accessed. Info blogs, technical and pedagogical user-guides and tutorials are also available on the platform. The project adopted an open source policy. The project's tools, Langblog, Tandem and Videochat were developed incorporating IMS Learning Tools Interoperability specifications, allowing them to be integrated into educational, content and social media platforms such as Moodle, Blackboard and Mahara. These tools are available for free download from the platform. The aim of Langblog is to facilitate and support oral production. Langblog is an audio/videoblog adapted from WordPress. Usability is a key feature of the Langblog tool, learners can easily record and upload audio or video files with no need for programme installation.

The Tandem tool facilitates synchronous interaction between a pair of students to complete and record oral tasks based on providing different but related content to learners. It retrieves user information from the environment (e.g. Moodle classroom, Mahara group), connects the students and assigns roles. The objective of Tandem is to encourage authentic, goal-oriented and synchronous communication. Videoconferencing is provided to learners via the Videochat system which supports the audio or video sessions of up to six learners without the need to install bespoke software. Autonomous learning is supported in the design of this system as learners can create a Videochat session independent of their teacher. All sessions can be recorded and archived. Videochat has two interfaces, the recorder and the player. The recorder incorporates a simple and user-friendly interface, which is in contrast to similar applications. Teachers can use the solo/mute buttons to listen to an individual learner or to the group within the player interface. A unique feature of this tool is that all participants whether learner or teacher share the same profile, i.e. all participants can be the initiator and facilitator of a Videochat session. The objective of this tool is to support autonomous and synchronous work by learners in small groups.

A significant feature of the SpeakApps project has been the development of a range of pedagogical materials. These materials are available in the SpeakApps OER. The OER is a repository of language activities that teachers can access to engage students in speaking practice. Activities within the OER have been validated within different educational and sociolinguistic contexts. Furthermore, following the project's open access principles all tasks are available for use and re-use. Teachers can adapt, change and/or combine tasks dependent on the learning outcomes that they seek to facilitate. Significantly, SpeakApps tasks can be used with other tools and the pedagogical materials can be exported from the OER in a variety of formats.

Methodology

The continued development and evolution of the SpeakApps platform involved a comprehensive engagement with target learners and teachers which was used to inform the design of the platform but also to validate, to evaluate and to refine pedagogical and training materials. Quantitative and qualitative methods were used

during this process. A comprehensive literature review of current practices, pedagogies and tools was initially engaged in by the project partners. An in-depth user requirements survey was designed, piloted and administered to learners. In total, 815 learners, 73 per cent females and 26 per cent males answered the user requirement's survey. The survey consisted of 39 questions to provide data on demographic profile, educational attainment, sociolinguistic contexts, language use, language learning challenges, language learning settings and the use of language tools and oral skills. The survey considered further the domain use of language (second language and native language), motivations related to language learning and the areas of oral language learning difficulty for learners, i.e. pronunciation, vocabulary, fluency, words recognition in voice stream, etc.). Data were also collected relating to technological access, competency and language learning activity using online tools and social networks. The survey was administered by the project partners to their networks of learners and the results were collated and filtered by language, i.e. Swedish, English, Irish, Catalan, Dutch and Polish.

Teaching scenarios with the project's language teachers were developed and thematically analysed to ascertain the practices and the challenges faced by teachers in their efforts to integrate technology into language teaching. A series of focused pilot studies were conducted to evaluate all of the SpeakApps tools and pedagogical materials. In total, 61 pilots were conducted with 7, 180 learner participating in the pilot process. The project partners collaborated with 20 institutions across a number of educational and language learning contexts, which broadened the validity of the pedagogical and technological framework of SpeakApps. Participants in the SpeakApps online teacher trainings engaged in evaluative surveys to provide feedback on the tools but also insights into pedagogical practices. A review board was constituted to consider specific pedagogical and technical questions based on a Delphi analysis approach, i.e. particular questions were asked of participants in an effort to reach and clarify specific views until the input of participants were exhausted. Presenting all the findings of these activities is beyond the scope of this paper, however, particular findings relating to the user requirements' survey, teaching scenarios and review board are reported on to avoid what Pettigrew (1990, p. 281) termed as "[…] death by data asphyxiation".

Findings
The overall findings of the survey are presented in this section. Findings for individual languages are not presented only in the case of significant divergence or to illuminate particular sociolinguistic context(s) unique to that language. The surveys demographic profile consisted of a cohort aged between 18 and 24 years of age with most learners having attained secondary or tertiary levels of education. The majority of respondents had little prior experience of using online or technology to assist in language learning with most activity in this domain centring on the use of online dictionaries and web site translators. Formal face-to-face acquisition environments, i.e. language classrooms in educational or cultural centres constituted the primary mode of learning. Across language groups students indicated a preference to learn outside of formal acquisition environments with their home selected as their preferred place to study. Access to the internet was readily available to respondents with Wi-Fi, DSL or cable connections in their homes. A wide range of devices are used by learners to access the Internet including smartphones, laptops and the more traditional desktop. Familiarity and engagement with social media was ubiquitous

with Facebook being the environment of choice. Linguistic skills engaged in online and within social media predominantly centred on writing, listening and reading skills, with very little engagement in oral skills. Students of the English language used this language most within social media. Activities engaged in online include reading and writing posts, watching video and chatting with friends by using instant or web messaging. The use of webcams by respondents was extremely rare with a minority of respondents reporting their application in language learning contexts. The majority of respondents considered that the internet had potential in supporting their language learning, but most viewed spending time immersed in a country where the language was spoken as the best means by which to learn the language. Further to this speaking a language directly with native speakers would facilitate further the speaking skills of learners.

A thematic analysis of teaching scenarios provided the following insight. Students employed strategies to avoid or bypass authentic interactions when using online tools such as Langblog by confounding the authenticity of the interaction, for example in the preparation and reading of scripted texts. This thwarting of the interaction limited and challenged teachers to provide constructive and developmental feedback to students. Synchronous interactions were key motivators to engage students in tasks, i.e. learners valued the opportunity to work together in linguistic interactions. Although autonomy of learning by the learner was viewed as essential, teachers felt that students viewed teacher feedback as essential in the learning process and access by teachers to recordings was seen as critical. Barriers to engaging in incorporating online or technology-assisted oral language learning centred on perceived and real technical issues and concerns relating to data protection. Technical issues associated with the storage of video files and the usability of tools continues to be barriers to the integration of CALL in language instruction. Concerns about learner privacy centred on task design where peer-to-peer activities were engaged in and learners had access to recordings.

The negotiated findings of the review board included recommendations relating to the development of peer evaluation and a validation mechanism to rate task quality. Two levels of feedback were viewed as important by the board; an initial rating based on social media nuances such as stars or likes and the provision of more in-depth feedback. The first indicator of quality was perceived to support the optionality of providing feedback but also to provide a simple way for users to recognise quality within the OER. The structure of detailed feedback should be centred on pedagogical and cultural appropriateness proposed sample criteria to frame this feedback includes:

Does the activity relate to real world communication activities?

Is the topic appropriate to the level of advancement?

Mechanisms to report a particular task for moderation was viewed as an important feature to address potential mal-use within the OER. Consistency of pedagogical terminology relating to the definitions and categorisations within the OER was recommended, it was viewed that adhering to international frameworks such as the CEFR potentially could diminish confusion amongst users. Simplification of features within the OER was also recommended to enhance usability, for example the reduction of the number of option in the task development cycle to two options from six. To reduce redundant data within the OER, i.e. defined as incomplete tasks, the review board recommended that task authors would be e-mailed within an agreed period time to complete outstanding tasks. Tasks not updated within this period would then be deleted or archived out of the OER.

Discussion

Although learners indicated prior general experience with a number of Web 2.0 synchronous communication tools such as Skype, their use of such applications for language learning was quite minimal. Indeed the range of online activities engaged in by learners appeared to be skewed towards the development of written skills with most actively engage in social media. This is in spite of the increasing numbers of technologies supporting synchronous voice and video communication. Additionally, learners the reported limited use of webcams this finding was particularly relevant to the project team, principally with respect to interface design but also with respect to designing for learning. The project team sought to create tasks and projects within the OER, which would essentially scaffold learners' experiences to ensure that they benefit from the affordances of the Videochat tool (Stockwell and Tanaka-Ellis, 2012). Designing for learning was considered with respect to oral production tasks where the project team considered the pedagogical process where students actively engaged in the manipulation of tasks aimed at production. With respect to this pedagogical support documentation made available to teachers focused on strategies where learners would engage in time limited production activities and how to provide concise and meaningful feedback. A challenging but yet not unexpected finding of the user requirements' survey related to the view held by learners that languages are best learned via immersion in the native language and through interaction with native speakers.

Facilitating authentic language interaction within the online environment was paramount within the project and the evaluation of pedagogical materials as part of the subsequent pilots engaged in was viewed as a means to support this endeavour. Further, to this the project team engaged with the development of a pilot MOOC to support the notion of telecollaboration where native speakers and learners of English and Spanish could engage in a series of specifically designed telecollaborative tasks and thus benefit from native speaker interactions. The development of telecollaborative tasks though cannot bridge specific sociolinguistic contexts unique to some languages. In the case of the Irish language, where the number of native Irish speakers is limited, telecollaboration was viewed to at best to support interaction between second language learners. Using the CEFR as a basis to construct and categorise tasks is also a challenge as it is by its very nature an overarching global framework devoid of sociolinguistic context. An important feature, therefore, of evaluating tasks was to ensure context- and cultural-specific linguistic elements whilst using the CEFR to categorise linguistic attainment and outcomes.

A key feature of the project related to the commitment to providing tools and pedagogical materials based on principles of open access, open source and open content. Key issues though for the provision of openness relate to the sustainability of practice and also to the provision of mechanisms to ensure the quality of resources (Downes, 2007). The findings of the review board emphasise in particular the necessity to provide potential users of the OER of the quality of tasks. Furthermore, the provision of these mechanisms were thought to support the development of community of practices where teachers could follow task authors and be informed of their latest task uploads thus engaging with sustainability (Downes, 2007). The simplification of design features within the OER recommended by the review board was also seen to provide enhanced usability within the environment and as a means to ensure continued and sustained user interaction.

Conclusion

A distinguishable feature of the SpeakApps project has been a commitment to engaging with an action-oriented approach to language learning where teacher and learner agency are viewed as pivotal components of the design and evolution of the tools and pedagogical materials. The operationalisation of the theoretical framework which included engaging with users from the outset in an iterative approach endeavoured to implement a learner-centred development process. Furthermore, findings derived from pilots and usability studies provided significant insight into the sociolinguistic status of individual languages which necessitated the adaptation of pedagogical materials in particular. Conole (2008, p. 188) in her analysis indicated that teachers in online environments can replicate traditional practice within the new online learning context as opposed to implementing and developing new learning experiences for students. Not only do learners' experiences with the use of synchronous tools of oral interaction need to be scaffolded but it is also clear that a scaffolding of practice is also required by language teachers. Technical and usability issues remain one of the most significant barriers to the integration of CALL within formal instructional contexts and the findings from a variety of stakeholders confirmed this. The development of the OER and the extensive testing of tasks across a multitude of educational contexts was an active engagement by project participants to employ a design for learning methodology, i.e. by making practice in the space available through open content (Conole, 2010). By ensuring that teachers and language learners were central in the design process the project attempted to ensure that this engagement promoted sustainability not only with the SpeakApps environment but also to the wider concept of CALL.

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