Authentic oral language production and interaction in CALL: An evolving conceptual framework for the use of learning analytics within the SpeakApps project

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Abstract. This paper sets out to construct and present the evolving conceptual framework of the SpeakApps projects to consider the application of learning analytics to facilitate synchronous and asynchronous oral language skills within this CALL context. Drawing from both the CALL and wider theoretical and empirical literature of learner analytics, the framework sets to theorise and problematise one construct, such as the authenticity of language production and interaction during a CALL mediated session. It is considered within this paper that a CALL learning analytics approach is usefully conceptualised from a student-centred perspective as opposed to an interventionist perspective based on action-oriented approaches to language learning. The paper considers that structured data –usually represented by statistics from Virtual Learning Environments (VLEs) or Learning Management System (LMS)– and unstructured data (user generated content) can be harnessed to support the oral language learning process. The paper considers the implications of using this framework with the SpeakApps platform.

Keywords: SpeakApps, language learning analytics, conceptual framework, online oral language learning.

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1.   Introduction

The SpeakApps project, funded by the Lifelong Learning Programme of the European Commission, was designed to engage with some of the challenges and issues faced by language learners by providing both technical and pedagogical solutions for teachers and learners in the project's target languages. The emphasis of many online language learning environments is usually to enhance three of the four language skills, such as writing, reading, and listening (Appel, Santanach, & Jager, 2012). The SpeakApps project's objective was to develop a bespoken online environment designed specifically to enhance the oral language competencies of its users and to support teachers by providing access to contextualised task-based activities and resources.The principle outcome of the project is the SpeakApps platform: www.speakapps.eu. The platform is Moodle based and combines virtual classrooms with the SpeakApps tools (Langblog, Tandem and VideoChat), with a Mahara space to support the SpeakApps community of teachers and an Open Educational Resource (OER) which houses the task-based language learning activities designed and categorised using the Common European Reference Framework for Languages (Council of Europe, 2001). Furthermore, info blogs, technical and pedagogical user-guides and tutorials are available on the platform. The SpeakApps tools can also be downloaded from the platform and have been designed using Learning Technology Interoperability standards, thus facilitating their integration across a wide variety of LMS and other virtual spaces.

The SpeakApps project is currently engaged in its second iteration and its objectives include the integration of five new languages into the SpeakApps platform, the engagement with new language education sectors, the enhancement and the design of a scalable digital language learning environment and the dissemination of SpeakApps methodologies and solutions to the wider community. The SpeakApps project partners are developing a research agenda based on their current work in the area of online oral language learning but have also expanded this to consider broader educational based questions such as the use and the application of learning analytics within this domain. This paper briefly sets out the SpeakApps conceptual framework and the means by which this framework is evolving to consider learning analytics in the context of the SpeakApps platform.

2.   Method

The evolution of the conceptual framework underpinning the SpeakApps project can be considered as being aligned to Maxwell's (2013, p. 39) considerations of such frameworks to include the fundamental concepts, assumptions, theories

and expectations which inform the research. This conceptualisation is guided not only by the theoretical literature but also expands to draw from the experiential knowledge of the researchers and the empirical findings from the research itself. The activities engaged in to evolve the framework include a review of the learning analytics and CALL literature, the completion of thought experiments by the researchers to consider, and the problematisation of the use of learning analytics to further authentic language production, interaction during a CALL mediated session, and the design and implementation of pilot studies to test and refine the framework. The following section outlines the overarching SpeakApps conceptual framework and the findings of the research conducted to evolve the framework with respect to learning analytics based on the literature review.

3. Conceptual framework discussion

A fundamental cornerstone of the original SpeakApps conceptual framework was based on the acknowledgment that developing oral language competencies is particularly challenging, independent of the learning environment. This assumption was further evidenced as part of a comprehensive need analysis of 815 learners within the SpeakApps project. A further belief based on the experiential knowledge of the project team was that providing sufficient opportunities and space for the learner to produce language and to receive feedback is a significant challenge which learners and language teachers navigate on an ongoing basis. Additionally, the literature emphasised that the ephemeral nature of speaking itself contrives to complicate the monitoring of progress by learners and teachers, as both must rely on the memory of what was said (Wells, 1999, p. 115). Furthermore, the range of opportunities available for learners to practice a language beyond the classroom can be quite restricted (Gardner, 2001). The status and context of use of some languages can impede students in their oral interaction of that language on a daily or indeed a regular basis, as in the case of some minority languages such as Irish.

The provision and use of authentic material in the learning process, which is used to underpin meaningful language interaction opportunities, was considered particularly important (Brandl, 2002) where access to formal and informal acquisition opportunities in the target languages are limited to learners. This understanding was of particular relevance in the design and contextualisation of tasks developed and made available in the SpeakApps OER. Designing context-driven tasks facilitates the learner to consolidate language meaning from context which in turn can lead to deeper understanding (Ellis, 1995). The SpeakApps task-based approach incorporates the use of these materials in the target language and guides learners to practice a language with respect to real life experiences and

scenarios. The SpeakApps pedagogical framework is situated in action-oriented approaches to language learning where teacher and learner agency are viewed as critical and are at the centre of curriculum and task design (Engeström, 2006; Lipponen & Kumpulainen, 2011; van Lier, 2004).

Action-oriented approaches are drawn from sociocultural and cultural historical activity theoretical approaches to language teaching and learning (see for example Blin, 2010; Blin & Appel, 2011; Blin & Thorne, 2011). A review of the literature was undertaken to commence the initial expansion of the conceptual framework to consider the integration and use of learning analytics within the SpeakApps environment. The review revealed the following insights and challenges in considering developing learning analytics based on the SpeakApps platform.

3.1. Learner agency, data sources, oral language constructs and privacy

Fundamental to the action-oriented language learning approach is the notion of learner agency. Maintaining the agency of the learner was viewed as key in some areas of the analytics literature. Adopting a learner-centred approach to analytics is claimed to support inquiry-led and active learning, which implies that the learner reflects on the analytical data and actively determines a course of action. It was considered by the SpeakApps researchers that a learning analytics objective of being purely interventionist and prescriptive could potentially inhibit learner agency; the objective of learning analytics in SpeakApps should be to facilitate feedback and adaptation (Chatti, Dyckhoff, Schroeder, & Thüs, 2012). The SpeakApps LMS provides a wide variety of data based on user activity. The analytics literature advocated the use of both structured and unstructured data in the development of a comprehensive analytics approach (Dawson, 2010; Siemens & Long, 2011). The SpeakApps platform is, however, a closed environment and access to unstructured data from the platform is, therefore, limited to engagement in Mahara. Metrics are available from the LMS and could possibly be modelled in a variety of ways to establish possible correlations between behavioural data and language proficiency as benchmarked by the CEFR. The experiential knowledge of the SpeakApps researchers problematised that those who engage more with language activities correlated to enhanced proficiency. From this basis, measuring online behavioural characteristics using LMS metrics may provide correlations between online language activities and proficiency.

Conceptual limitations are well documented in the analytics literature related to such an approach and include (a) the contested notion of using (only) LMS metrics

as an indicator of learning, (b) the corruption of these metrics, (c) the validity and reliability of models and the considerations of learner characteristics, and (d) the quality of feedback received by learners based on such approaches (see Gibson, Kitto, and Willis (2014) for further discussion). Developing the platform to encompass a personal learning environment may provide a greater opportunity to include data related to students' engagement with other online resources; this presents a further challenge with the integration and aggregation of multi-formatted data from a variety of sources (Chatti et al., 2012).

Challenging as integrating multi-sourced data may be, there is also a specific need to develop a privacy and ethical framework to protect learners and to ensure that they are active agents and collaborators within this process. SpeakApps researchers, whilst exploring if the authenticity of language interaction could be measured using a learning analytics framework, considered the following activities in oral production as potential areas where learning analytics could be applied to provide feedback to the learner:

- listening and responding to questions measured in the turns of interactions and transitions;
- new language forms and meaning, i.e. application in a variety of contexts;
- intonation and pronunciation.

4. Conclusions

The SpeakApps conceptual framework has at its centre the notion of action-oriented approaches to language learning. The platform in its current form gathers LMS behavioural data. Furthermore, the platform stores audio and video files created by both learners and teachers. The analysis of SpeakApps richer multimedia data is potentially targeted at a wider breadth of stakeholders including learners, teachers, institutions and researchers. The objective of learner analytics in SpeakApps is linked to the objective of facilitating learner agency in the language learning process. This paper, however, did not consider the means or techniques (i.e. statistics, data mining or visualisations) to analyse SpeakApps data. Initial considerations examine the use of pattern modelling and the use of statistics to underpin this analysis. SpeakApps researchers in the next phase are setting out to operationalise how the SpeakApps data can be collected, pre-processed and analysed whilst concurrently establishing and considering ethical and privacy issues of learners and the use of their data. Learners' expectations with respect to the use of data and the principle of informed consent is central to promoting active and collaborative student engagement. There are significant issues associated with the implementation of learning analytics within a learning environment, the

breadth of which is beyond the scope of this paper. However, in the evolution of the SpeakApps conceptual framework, a consistent focus on learner agency is being maintained.

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