Journal of Academic Language & Learning
Vol. 15, No. 1, 2021, 1-12. ISSN 1835-5196

The use of embedded digital tools to develop English language proficiency in higher education

Fiona Perry
Student Learning Support, Australian College of Applied Psychology, Melbourne Vic 3000, Australia
Email: fiona.perry@acap.edu.au

(Received 30 July, 2020. Published online 23 January, 2021.)

Communication skills, including English language proficiency (ELP), are an essential graduate outcome and necessary employment outcome (Australian Universities Quality Agency [AUQA], 2009). An increasingly diverse student population has triggered the need to look beyond entrance requirements and ensure there is development of these skills throughout a student's degree (Arkoudis, 2014; Harris & Ashton, 2011; Johnson et al., 2015). In response to this, higher education providers (HEPs) have developed digital self-access resources. With so many HEPs moving to online delivery, it is essential to look at the effectiveness of these resources as well as to understand the processes required to roll them out. A literature review was conducted to characterise and evaluate current digital resources through the lens of second language acquisition theory, academic socialisation and genre-based pedagogy.

This review found benefits to students and staff when using embedded videos, technology for communication, quizzes, games and resource banks aimed at ELP development. There is evidence that, when well scaffolded, these tools offer an opportunity for language input, vocabulary growth and to learn cultural communication norms within the context of the discipline. In several studies, students reported gains in confidence when communicating in English. However, few studies measured or tested for improvements in language acquisition. The short term nature of many of the projects indicated a lack of a holistic, systematic approach to ELP development and measurement across the studies.

Key Words: ELP (English Language Proficiency), Digital Tools, Online Learning, Embedded.

1. Introduction

The AUQA (2009) argues that ELP and in particular, written and oral communication skills are not only an essential graduate outcome but also a necessary employment outcome. They argue ELP is increasingly important with the role international graduates play in meeting skill shortages in the Australian workforce. The demographic of students is changing with a much broader spectrum of students who are more diverse in levels of ELP, socio-economic background and with a rise in first in family students (Harris & Ashton, 2011). There is a rise in domestic and international students with more diverse language abilities and needs (Arkoudis, 2014; Johnson, Veitch, & Dewiyanti, 2015). This rise has caused concerns from academic teaching staff about ELP as they are unsure about how to address the issue (O'Loughlin & Arkoudis, 2009). There is a shift from the focus on ELP entrance requirements to a need to develop these skills throughout a student's degree to ensure students meet graduate outcomes and workplace demands (Arkoudis,

2014; AUQA, 2009). Not only is the background of higher education students changing; so is the way students study.

Increasingly, courses are being offered via online, blended or flipped delivery; a process that has been expedited by Covid-19. Even those that are delivered face to face rely on the use of learning management systems (LMS) to deliver course content. As a result, students are now able to access many online resources to support their studies at a time and place convenient to them. The increased use of digital tools, mobile devices and capabilities of LMS, may afford an opportunity to use these tools to develop ELP and communication skills. The objective of this review is to investigate the research question: How are HEPs using digital tools to improve ELP?

ELP is defined as "The ability of students to use the English language to make and communicate meaning in spoken and written contexts while completing their university studies" (AUQA, 2009 p.1). Digital tools or resources are digital objects designed for learning, accessibility and reusability that are usually stored and accessed online via programs or websites (Conole, & Oliver, 2006). In this paper, digital tools refer to videos, quizzes, interactive presentations, games, blogs, language learning software and video conferencing tools.

2. Literature review

ELP development in HEPs draws on four key research areas; academic socialisation, embedding of academic literacies, genre-based pedagogy and second language acquisition. The academic socialisation model proposed by Lea and Street (1998) acknowledges that academic skills are distinct for each discipline and on top of generic academic communication skills there is also a need to induct students to the language, discourse and texts of each discipline. For example, the language skills needed for a future teacher are markedly different from those required by a future engineer. This ties in with AUQA (2009), who posit each discipline has its own socio-cultural environment and students need to be orientated into this environment. A genre-based pedagogy can help students with this orientation to the discipline. In a systemic functional linguistics approach, genre-based pedagogy key text types are identified, and the linguistic features of these texts are unpacked (Wingate, 2012). They are then explicitly taught to students in a scaffolded manner within discipline subjects often using model texts (Paltridge et al., 2009). For example, this is often done in the discipline of Psychology where the features, language and structure of lab reports are taught within the first year units as part of the content. The genre-based approach has been criticised for its prescriptive nature, and it is argued that it should be taught alongside a critical view of those features. However, there is an agreement that writing instruction should be owned by the disciplines (Wingate, 2012).

Academic literacies can be taught in various ways. One way is to teach them as generic units with the idea that some academic skills, such as using evidence to support claims or referencing are universal (Hyland, 2002). However, in line with the academic socialisation and genre-based pedagogy, there is a move to embed academic literacy, including communication skills and ELP, within discipline subjects (AUQA, 2009; Dunworth, 2013). This may be in response to studies that show standalone academic skills workshops and opt-in supports are often not attended by the students who need the support (Kennelly et al., 2010). A possible explanation for this is that often students at the early stages of their degree do not place value on attending these workshops or accessing support (Kokkinn & Mahar, 2011). Furthermore, Arkoudis et al. (2012) argue a contributing factor to low attendance could be that programs are viewed as being 'remedial'.

Arkoudis et al. (2012) define "embedded" as "an approach that refers to collaborative design of a curriculum in which the development of ELP is incorporated within the teaching" (p.44). This is usually done via a partnership between academic language and learning advisors (ALLAs) and academic teachers. O'Loughlin and Arkoudis (2009) argue that, without institutional support and leadership, it can be challenging to achieve embedding and that institution support helps academic teaching staff and students to understand that they both have a responsibility to develop ELP.

Regarding academic staff perceptions of ELP, there is agreement about the importance of developing communication skills; however, there are different expectations and practices for assessing and developing ELP across disciplines (Arkoudis et al., 2012). For example, the use of Post Entry Language Assessments tasks and formative assessment tasks are common forms of assessment and are often linked to workshops and access to resources. *The Good Practice Report: English Language Proficiency* (Arkoudis & Doughney, 2014) is a crucial document that has conducted a thorough review of ELP needs and practice in the Australian context. The report made eight key recommendations for best practice in this area in regard to funding, assessment and sharing of practice. Several of these report recommendations are related to the use of digital tools to foster ELP. Firstly, it is recommended that ELP work is targeted at all students, not just international students. Secondly, ELP policy and programs need adequate organisational leadership and whole institute support. Thirdly, technology and learning analytics should be utilised and considered. Fourthly, development of ELP and, in particular oral language, needs to be embedded into the curriculum and assessment in a variety of ways. Finally, findings should be shared via seminars, and videos should be used as a tool to aid unit coordinators with strategies for developing ELP. Although it is vital for all students to have access to ELP development, the large number of students with English as additional language present in higher education justifies the consideration of second language acquisition principles.

The theory of communicative language teaching ties into ELP as the focus is equipping students with the skills, knowledge and strategies they need to communicate (Nunan & Richards, 2015). Guidelines for communicative language teaching outlined by the National Capital Language Resource Center (NCLRC) (2017) include providing appropriate input in context, using language in authentic ways and designing task-based activities with a purpose to encourage collaboration. Tasks should be integrated with subject content and explicitly address grammar requirements. Teaching should also include opportunities for feedback and address the cultural aspects of language use (NCLRC, 2017).

In regard to the research question and the extant literature, digital tools may provide an opportunity to embed ELP tools and resources within the course content to foster academic literacies. This could impact rates of uptake and enable all students to access ELP development. In this paper tools and resources will be analysed through the lens of communicative language teaching and academic literacies to assess whether they foster language acquisition and communication skills.

3. Methodology

This paper takes the approach of an interventionist literature review (Hart, 2018). This approach allows the researcher to gather practical information for stakeholders about how to proceed. According to Hart (2018), the purpose of an interventionist literature review is to "to use all available, valid and reliable evidence to make decisions in reaction to a condition" (p. 93). Information is gathered and classified and used to inform practice, identify gaps for further research and hopefully answer questions. An interventionist literature review allows a mixed-methods approach that can provide a current and accurate snapshot of the research. This approach fits the research question "How are Higher Education Providers using digital tools to improve English Language Proficiency?" because it allows us to gather information about what is currently being done in the field, and then inform multiple audiences. This paper hopes to make the following contributions to the field: Firstly, to inform ALLAs and learning designers about which digital tools are being used and how effective they are, and to identify potential challenges and ways to overcome these challenges when designing digital tools. Secondly, to provide HEPs with information about: where investment needs to be made, and potential areas for further research to assist ELP development.

This review followed a systematic approach (Neuman, 2014). Firstly, when searching databases, the focus was on peer-reviewed journal articles. This meant excluding book chapters, reports and

conference papers. The primary search for this literature review was conducted using the Melbourne University Discovery database. Key terms entered into the database included ELP, Embed*, digital resources* and university*. In addition to the Discovery database, key industry journals were also searched, including those recommended on the TESOL (Teaching English as a Second or Other Language) Melbourne University library guide.

Furthermore, the Journal for Academic Language and Learning was also searched as this is the primary journal for publication of research conducted by ALLAs in Australia. It was considered important to include this in the search to give an Australian perspective to the review and also because ALLAs are the primary practitioners for developing and implementing projects in the area of ELP. Secondly, the reference lists of these articles were then searched for relevancy to the research question, and two further articles were identified for the review, bringing the total numbers of articles to 20. Thirdly, exclusion criteria were used to ensure articles were relevant and recent. Only articles from the last ten years (2009–2019) were considered. In addition to this, articles relating to secondary schools or other non-higher education settings were also excluded. This search generated three articles related to second language acquisition for languages other than English. Although this was not the original intention, it was decided that the articles would be included as they made relevant and significant findings concerning digital tools and language acquisition that could be applied to ELP. This search strategy resulted in a total of 17 journal articles to be reviewed.

Once the articles were identified, they were coded in a qualitative manner (Neuman, 2014). Initially, articles were coded by methodology, theory, participants and results using a concept-driven or deductive coding approach. However, after this initial code, it was determined that a more specific data-driven, inductive approach was needed. To best answer the research question, seven codes in total were used: four codes for digital tools and three for process and implementation. Firstly, for digital tools, this included the code videos, counting those generated by teaching staff and students, instructional videos and recordings of lectures and tutorials. The next code was technology for communication which included: blogs, live documents, instant messaging, video conferencing, VoiceThread, wikis and social media. The third code was Learning Management Systems (LMS) including Moodle, and resource banks, which refer to any website or page used to house a collection of learning resources or to link out to other learning tools. The final code for tools used was language learning software and games.

In addition to coding by the tools, articles were also coded by process and implementation. It is crucial to identify the challenges faced by teams in the creation and process of implementing digital tools to offer insights for others looking to implement similar projects. A thematic analysis identified three codes for process and implementation. They included resourcing and institution support, relationships and communication and finally, access and technology issues.

4. Findings and discussion

Video was the most common tool mentioned in the literature, followed by LMS and resource banks, then tools for communication and finally, software and games. Themes to emerge related to design, location and student perception of tools. Secondly, in regard to the coding by process and implementation, there were implications for the need for institution support, clear communication and considerations for access to technology.

4.1. Video

Videos were the most common type of digital resources used in the literature, with ten articles mentioning them. Refer to Table 1 for a summary of how video was used.

Table 1. The categorisation of how video was used in reviewed articles.

Use	Articles
Instructional videos	Berns et al. (2016); Howard & Scott (2017); Marsh & Campion (2018); Nallaya et al. (2018)
Storytelling (video-clips as part of game/documentary)	Berns et al. (2016); Hafner & Miller (2011)
Presentations	Bardon et al. (2018); Berns et al. (2016); Nallaya et al. (2018); Savas (2012); Sato et al. (2017)
Lecture and tutorial recording	Bardon et al. (2018)
Created by teaching staff	Bardon et al. (2018); Berns et al. (2016); Howard & Scott (2017); Nallaya et al. (2018); Sato et al. (2017); Thies (2016)
Created by students	Hafner & Miller (2011); Sato et al. (2017); Savas (2012)

Both staff and students reported in several articles the benefit of using the video as a tool for self-reflection (Hafner & Miller, 2011; Sato et al., 2017; Savas, 2012; Thies, 2016). By creating videos, individuals were able to watch themselves perform and then reflect on the content. This resulted in many re-recording videos to address areas of self-identified weakness (Hafner & Miller, 2011; Sato et al., 2017; Savas, 2012; Thies, 2016). For example, in Savas' (2012) study, pre-service English teachers recorded micro-lessons and reported watching and re-recording lessons back of themselves. As a result of this, 95% of students increased confidence in their English proficiency and teaching skills. In the Sato et al. (2017) study, video was used with students learning Japanese. Students were required to record video comments in response to a prompt. Surveys showed students found the ability to plan what to say and to record multiple times helped with reducing anxiety and enhancing accuracy. This was also demonstrated in Hong Kong, where students who were required to create scientific documentaries commented in surveys that they often had to do retakes which forced them to reflect on their oral English skills (Hafner & Miller, 2011). This theme of reflection also came up in videos created by academic staff. Thies (2016) reported teaching staff used videos to record reflections on a collaborative ELP curriculum project. Staff identified the videos as being a useful reflection tool, and management identified the possibility of these videos being used in the future as a tool for staff training and development to build staff capacity in embedded curriculum design.

Students reported a high level of satisfaction when creating and viewing videos. A variety of reasons were reported including the convenience of being able to watch videos on demand and being able to slow down, speed up and re-watch content (Berns et al., 2016; Howard & Scott, 2017; Sato et al., 2017). Students also perceived the task of creating videos to be highly authentic and beneficial, as it developed teamwork, communication and job-ready skills and gave them a larger audience than just the teacher (Hafner & Miller, 2011). In the Sato et al. (2017) study, students were able to respond to prompts via video comments, and they reported that being able to plan and prepare for responses gave them more confidence and increased the amount they participated compared to speaking in class. Furthermore, when videos were combined with principles of gamification such as levels, time limits and scoring systems student motivation levels were high (Berns et al., 2016)

As there are many factors to contribute to language development, is it difficult to attribute gains purely to the use of video resources. Savas (2012) measured students' (pre-service teachers) perceptions of ELP gains as a result of creating videos. The participants reported videos to be useful

in developing all key skills. Pronunciation was reported as having the highest rate of improvement with 95%, followed by speaking (92.5%), vocabulary (82.5), grammar (77.5) and listening (77.5). These reported gains led to students feeling more confident in teaching the English language. Student perceptions were not the only method used to measure language gains.

Nallaya et al. (2018) measured students' overall grades and teaching staff feedback in a unit where instructional videos were used as part of interactive presentations to scaffold academic research and writing skills. Compared to previous years, when videos were not used, there was an improvement in the number of distinctions and high distinctions from 12% to 33% and 39% in the two trimesters following the introduction of videos. Furthermore, staff reported there were gains in students' writing skills. Despite this result, videos were part of a broader suite of interventions that also could have influenced this gain.

Two of the reviewed papers did not look at ELP, but the learning of another language; however, they used more thorough measures of second language acquisition than other studies. Berns et al. (2016) measured the impact of a series of short videos packaged together into a hybrid games-based app for students learning German. A pre- and post-test as well as a writing task was used to determine language gains. Results found significant improvements to both vocabulary and grammar, with the improvements to vocabulary higher than grammar. It was also reported that improvements tended to be bigger for students who initially scored lower on the pre-test.

Furthermore, Sato et al. (2017) compared the results of a traditional face-to-face class to an online cohort of students studying Japanese. They used an oral proficiency interview to measure language gains and paired this with the students' perceptions. The study used a range of digital tools, including VoiceThread (video and audio commenting software) and Google Hangouts (instant chat and video conferencing software). Videos were used mainly in VoiceThread and video conferencing. Results from the interviews showed face-to-face proficiency to be equal to online in most areas of proficiency. However, online students outperformed face-to-face students in the areas of communication strategies for negotiating meaning and text type, which refers to the quality and organisation of language discourse.

This increased use of communication skills could be because students were noticing and reproducing not only oral language but also gestures and body language appropriate for communicating. It is possible that noticing this type of behaviour is easier in videos as they can be more intimate than a classroom setting, and the repeated viewing offers multiple times to receive the input.

In terms of participants' perceptions of second language gains, online students reported listening and speaking skills as higher than face-to-face students. This could be since online students had more opportunity for practice and language output than face-to-face students (Sato et al., 2017). Although both these examples were teaching languages other than English, they point out valuable findings about digital tools and language acquisition.

4.2. Learning Management Systems (LMS) & Resource Banks

LMS and Resource banks were the second most common digital tool in the literature, with eight studies mentioning them**.** Resource banks included websites or platforms such as shared folders used to organise learning materials. LMS and resource banks linked out to other digital tools including presentations, videos, quizzes, google documents and hangouts, recordings, games, web tools, language tests, blogs and videos (Bardon et al., 2018; Hafner & Miller, 2011; Howard & Scott, 2017; Johnson et al., 2015; Kızıl, 2017; Murray & Hicks, 2016; Podorova, 2016; Sato et al., 2017)**.** Although there was no direct reporting on ELP gains concerning LMS, there were some key themes that emerged for how LMS are designed to house these tools. Many students reported there was too much information and the resources were hard to locate and access (Howard & Scott, 2017; Murray & Hicks, 2016; Podorova, 2016; Sato et al., 2017). There was a clear need for clean, straightforward design and for students to be orientated to the space and shown

how to navigate it (Savas, 2012). However, one benefit of the resource bank was that it helped enhance staff knowledge and relationships (Bardon et al., 2018; Johnson et al., 2015; Nallaya et al., 2018) The resources uploaded to LMS and resource banks modelled for teaching staff how to develop ELP within the context of a unit. This aided in building staff relationships as resources identified language and learning experts that could support academic staff resulting in departments collaborating.

4.3. Digital tools for communication

Across the reviewed articles, there were a variety of digital tools used for communication including forums, blogs, wikis, online live documents that can be edited in real-time by multiple users, instant messaging, video conferencing, VoiceThread and social media (Berns et al., 2016; Howard & Scott, 2017; Kızıl, 2017; Marinescu, 2013; Marsh & Campion, 2018; Murray & Hicks, 2016). Key themes emerged concerning how tools were designed and learner satisfaction. Firstly, participants reported high levels of satisfaction and motivation with authentic communication tools. Communication tools were viewed as authentic by participants when they were perceived as useful, having a real audience and likely to be used again in the future (Berns et al., 2016; Kızıl, 2017; Marinescu, 2013). In fitting with this, LMS forums were rated as unhelpful, confusing and unproductive by students (Howard & Scott, 2017). Easy to access resources, including those that were open resources or had easy log-ins, were preferred (Nallaya et al., 2018). In Berns et al. (2016) and Sato et al. (2017) students indicated that they found the instant and collaborative nature of communication and feedback that digital tools enabled highly beneficial. In particular, this was demonstrated in the Sato et al. (2017) study where teachers could go into live documents and provide formative feedback while students were still working. This could explain the gains demonstrated in language proficiency and communication strategies shown in those studies.

4.4. Language learning software and games

Throughout the review, several language learning web tools and games were used. They varied from links to outside tools like Quizlet (Lander, 2016) and Language Perfect (Howard & Scott, 2017), to quizzes (Bardon et al., 2018; Marsh & Campion, 2018) and unique gaming software developed especially for the course (Berns et al., 2016). With respect to improvements in language acquisition, quizzes and language software demonstrated gains in vocabulary and also paraphrasing and summarising skills (Bardon et al., 2018; Lander, 2016; Marsh & Campion, 2018). However, in Howard and Scott's study (2017) software and quizzes were found to be not as effective with learning sentences or more complex grammar points. The vocabulary was presented in isolation and did not demonstrate how words fit into phrases or sentences. In terms of quizzes, Bardon et al. (2018) did not report on participant scores; however, they did point out that quiz results were used as a form of diagnostic assessment and were helpful to staff to plan future activities such as workshops and skill-building activities embedded into units. These tools were reported as highly motivating for participants and they found the instant feedback and competitive factor motivating (Berns et al., 2016; Howard & Scott, 2017; Lander, 2016; Nallaya et al., 2018). Furthermore, Berns et al. (2016) found that language gains were most significant for students who scored lower on the initial pre-test, suggesting this tool could be most effective for less proficient students. This could be due to the focus on vocabulary development. Although games were reported to be highly motivating for students, it was also found that they were less familiar with this type of digital tool than expected (Marinescu, 2013) and that games are most effective when they have been scaffolded and modelled for students (Berns et al., 2016).

4.5. Process and implementation

When coding for process and implementation, several themes emerged in the literature. First, was the need for ongoing resourcing and institution support. Several articles argued that institution support and a holistic approach to ELP and academic skills development was integral to the development of effective programs (Hafner & Miller, 2011; Johnson et al., 2015; Marsh & Campion,

2018; Murray & Hicks, 2016; Podorova, 2016; Thies, 2016). Despite this, three papers reported they experienced difficulty getting support and interest from stakeholders, including disciplines and management (Harris & Ashton, 2011; Murray & Hicks, 2016; Thies, 2016). Underpinning this difficulty in gaining buy-in was reported misunderstandings about who is ultimately responsible for the development of ELP in higher education settings (Harris & Ashton, 2011; Marsh & Campion, 2018; Murray & Hicks, 2016; Podorova, 2016; Thies, 2016). There were challenges with developing relationships and communication with stakeholders when designing and rolling out digital resources (Marsh & Campion, 2018; Nallaya et al., 2018). Many projects lacked thorough evaluations or mentioned plans for further evaluation which could be due to lack of long term institute support and increasing casualisation of staff in higher education. However, there were also some reported benefits to relationships and an increase in institutions awareness of ELP as a result of the implementation of these projects.

Multiple studies reported that development and implementation of ELP programs and tools resulted in bringing teams together and a more consistent approach to developing ELP (Bardon et al., 2018; Johnson et al., 2015; Podorova, 2016; Thies, 2016). The digital tools were also reported to improve the skills of teaching staff in how to make ELP development a part of course content, and some reported improvements in skills using technology (Bardon et al., 2018; Thies, 2016).

Many of the tools reviewed in the literature required high resourcing including notable amounts of online teacher interaction (Sato et al., 2017) additional one-on-one marking and feedback (Murray & Hicks, 2016), co-teaching (Harris & Ashton, 2011), development of unique software (Berns et al., 2016) and training of staff (Podorova, 2016). Across the studies, teaching staff reported high workload as a challenge in developing and implementing ELP tools (Marsh & Campion, 2018; Murray & Hicks, 2016; Sato et al., 2017; Thies, 2016).

Technology requirements and issues being able to access resources was another theme that came up in the process and implementation of ELP projects and tools. Several factors impacted participants' access to tools, including unstable internet connections (Murray & Hicks, 2016) and issues with software and server connections (Sato et al., 2017). Murray and Hicks (2016) also reported technical problems with testing that granted access to ELP resources. Other technical issues that came up included participants reporting limitations in what they wanted to be able to do with the technology (Hafner & Miller, 2011). Technical problems were not the only factor that negatively impacted access to resources.

The design and location of tools also had a significant impact on the participants' perceptions and usage of digital tools. Participants in several studies reported frustration finding resources or being unsure about how, when or why to use them (Bardon et al., 2018; Howard & Scott, 2017; Nallaya et al., 2018; Podorova, 2016). Participants in Sato et al. (2017) reported frustration with having too many log-ins. In Murray and Hicks' (2016) study, access to resources was linked to a Post Entry Language Assessment. This caused issues as some students did not want to take the test, had technical problems taking the test, or they took the test and scored too highly to be granted access. As a result, some teaching staff asked students to retake the test and intentionally fail to be able to access the resources. A suggestion to address the above issue was for digital tools to be explicitly modelled and scaffolded to students (Bardon et al., 2018; Berns et al., 2016; Hafner & Miller, 2011; Kızıl, 2017; Sato et al., 2017; Thies, 2016). Marsh and Campion (2018) also demonstrated the benefits of having open resources as a way to overcome access issues.

4.6. Link to the extant literature

In response to the recommendations made in the Good Practice Report, some positive steps are being made in the reviewed articles. All but one of the tools analysed (Murray & Hicks, 2016) had resources embedded within the course and available to all students, which addresses the first key recommendation that ELP work should include all students. However, the lack organisation

leadership continues to be an issue with continued calls for further support and investment. Learning analytics and technologies are being used to try and develop ELP, although few papers reported on this (Berns et al., 2016; Howard & Scott, 2017; Lander, 2016; Nallaya et al., 2018). Furthermore, there was reporting of academic staff using learning analytics to inform teaching (Bardon et al., 2018). In terms of increasing oral language assessment, those articles that used video as either a form of formative or summative assessment showed positive outcomes of self-assessment and language gains and confidence (Hafner & Miller, 2011; Savas, 2012). The recommendation about presenting and sharing findings is an area that is still lacking; many projects had limited measuring of effectiveness and limited sharing of results. There was also a recommendation to record short videos for unit coordinators about strategies for designing curricula to enhance ELP. Interestingly, the projects in the literature seemed to have jumped this step. ALLAs have worked with disciplines and gone straight to using videos and other embedded tools within the course content. This appears to have had a flow-on effect of modelling for teaching staff how to build ELP into the course. Several studies reported this finding and also noted the content enhanced teaching staff's knowledge and built relationships within institutes.

When applying the guidelines of the communicative language approach to the reviewed studies, several areas are well-represented in the literature. All of the articles provided ample opportunities for appropriate and authentic input that was in context; in particular, the options for re-watching and slowing down recordings. All tasks had a clear purpose and those that were more authentic, such as student-generated videos, games and technology for communication, resulted in high motivation from participants. Several tools allowed for a mix of collaboration between students and staff. Video allowed for a deep level of cultural aspects of language to be developed and reflected on. In terms of the delivery of effective feedback, some digital tools such as quizzes and games allowed for instant feedback. The use of live documents such as google docs and VoiceThread also allowed for formative and peer feedback. However, there was little reporting on the impacts or how much this happened. Finally, addressing grammar in an explicit manner that related to the discipline is one area that was lacking in the literature. Many of the papers focused on developing vocabulary and speaking skills. When papers did address grammar through tutorials and video content it was often divorced from the discipline and went back to a more generic skills approach as opposed to a genre-based approach. This approach could explain the lower levels of uptake of resources in some of the papers. This fits with the findings of the extant literature that students often fail to see the value of generic skills units. Not only were grammar resources generic in approach they often required prior knowledge of grammar meta-language and assumed the student had formally studied grammar before, making the resource inappropriate for native English speakers or those with developing literacy skills. There needs to be a collaboration between language specialists and discipline experts to map grammar demands and use discipline-specific texts. This process is time-consuming and expensive, which could explain its absence.

4.7. Research question

In terms of the proposed research question: How are Higher Education Providers using digital tools to improve English Language Proficiency? The following can be inferred: the digital tools that are being used by HEPs include a mix of video, games, quizzes, technology for communication and resource banks. In terms of how they are used, tools were embedded within courses; however, they were not always directly related to the discipline or context. It was found that in terms of ELP development, there are many opportunities for language input and output. The most substantial improvements were shown in vocabulary and in those tasks that were authentic. It is difficult to generalise these findings as there was a lack of reporting on language acquisition with most research reporting on student and teaching staff perceptions.

The paper has identified the pedagogical, design and technical implications for the future development of digital tools to develop ELP. It is imperative that tools are scaffolded and modelled for

staff and students and if possible, they should be demonstrated in a blended classroom environment. They need to be positioned within the discipline to been seen as useful and relevant by students. They should be easy to access, easy to navigate and at the point of need for students. Access to the internet and technical requirements cannot be assumed and must be part of the design considerations. Digital tools can provide rich opportunities for language input and output at times that are convenient for students. Technology that is used in an authentic matter is highly motivating for students and allows for collaboration, peer and self-assessment. Finally, using embedded digital tools is a good way to develop staff skills and connect staff formally and informally. In can provide informal professional development on digital tools as well as how to embed ELP skills within their discipline. However, the longevity and impact of these programs will be determined by the level of investment and the overall level of institutional support.

5. Conclusion

This paper demonstrates there is some evidence that digital tools offer an opportunity for language input, vocabulary growth and to learn cultural communication norms within the context of higher education disciplines. However, there is still uncertainty in the higher education sector about whose responsibility ELP development is. The lack of holistic, long-term institutional support for ELP development and the evaluation of projects prevails. In answering the question: How are digital tools being used to develop ELP? Videos, technology for communication, quizzes, games and resource banks are the most common. There were some measured gains in language and learner confidence in communicating in English. However, most of the research focused on student's perceptions of improvements rather than measured improvements.

In regard to the contribution to the field, the paper suggests digital tools offer the opportunity for authentic, task-based learning that enhances ELP for all students. It provides an alternative pathway or possible backdoor to embedding academic skills within the discipline by plugging resources into the course content and the LMS' at the point of need for academic teaching staff and students. With the increasing casualisation of academic staff, the LMS or resource bank available to staff and students is increasingly important. For staff who have limited time to prepare materials and to learn about unique language and literacy demands of a unit, these tools can be highly valuable in learning how to scaffold ELP and to create connections with ALLAs.

There is limited data on the impact of digital tools on ELP in higher education, and there is much scope for further research. There needs to be more systematic and long term measurement of ELP development throughout a student's degree. In addition to this, it would be interesting to measure what impact tools like VoiceThread or H5P (interactive video software) and annotation software could have when combined with lecture and tutorial recordings.

Finally, despite the acknowledgement in the literature that ELP interventions and policies need to be targeted at all students, the focus is still predominantly on international students. There needs to be more research and tools developed for the increasingly diverse local student population and the unique language and literacy needs they have. For the above to happen, there needs to be a significant investment of time and resources underpinned by whole institute support and awareness of ELP.

References

Arkoudis, S. (2014). *Integrating English language communication skills into disciplinary curricula: options and strategies*. Office for Learning and Teaching website https://melbourne-cshe.unimelb.edu.au/__data/assets/pdf_file/0010/1805185/Arkoudis_S_NST_report_2014.pdf

Arkoudis, S., Baik, C., & Richardson, S. (2012). *English Language Standards in Higher Education*. ACER.

Arkoudis, S., & Doughney, L. (2014) *Good Practice Report – English Language Proficiency.* Australian Government Office for Learning and Teaching. https://ltr.edu.au/resources/GPR_English_language_2014_0.pdf

Australian Universities Quality Agency. (2009). *Good practice principles for English language proficiency for international students in Australian universities*. Association for Academic Language and Learning http://www.aall.org.au/sites/default/files/Final_Report-Good_Practice_Principles2009.pdf

Bardon, M., Ianna, T., Lee, A., Nolan, K., & Salem, K. (2018). LANTITE: A driver for innovative literacy and numeracy practices. *Journal of Academic Language & Learning*, *12*(1), A254–A266.

Berns, A., Isla-Montes, J.-L., Palomo-Duarte, M., & Dodero, J.-M. (2016). Motivation, students' needs and learning outcomes: A hybrid game-based app for enhanced language learning. *SpringerPlus*, *5*(1), Article 1305. https://doi.org/10.1186/s40064-016-2971-1

Conole, G., & Oliver, M. (Eds.). (2006). *Contemporary perspectives in e-learning research: Themes, methods and impact on practice*. ProQuest Ebook Central https://ebookcentral.proquest.com

Dunworth, K. (2013). Discussion Paper 3: In-course student English language development. In International Education Association of Australia, (Ed.) *Five Years On: English Language Competence of International Students* (pp. 52–74). International Education Association of Australia (IEAA).

Hafner, C. A., & Miller, L. (2011). Fostering Learner Autonomy in English for Science: A Collaborative Digital Video Project in a Technological Learning Environment. *Language Learning & Technology*, *15*(3), 68–86.

Harris, A., & Ashton, J. (2011). Embedding and integrating language and academic skills: An innovative approach. *Journal of Academic Language & Learning*, *5*(2), A73–A87.

Hart, C. (2018). *Doing a Literature Review: Releasing the Research Imagination* (2nd ed.). Sage.

Hyland, K. (2002). Specificity Revisited: How far should we go? *English for Specific Purposes*, *21*(4), 385–395. https://doi:10.1016/s0889-4906(01)00028-x

Johnson, S., Veitch, S., & Dewiyanti, S. (2015). A framework to embed communication skills across the curriculum: A design-based research approach. *Journal of University Teaching & Learning Practice*, *12*(4), 1–16.

Kennelly, R., Maldoni, A. M., & Davies, D. (2010). A Case study: Do discipline-based programmes improve student learning outcomes? *International Journal for Education Integrity*, *5*(2), 61–73.

Kivunja, C., & Kuyini, A. B. (2017). Understanding and Applying Research Paradigms in Educational Contexts. *International Journal of Higher Education*, *6*(5), 26 -41. https://doi.org/10.5430/ijhe.v6n5p26

Kızıl, A., S. (2017). EFL Learners in the Digital Age: An Investigation into Personal and Educational Digital Engagement. *RELC Journal*, *48*(3), 373–388. https://doi.org/10.1177/0033688216684285

Kokkinn, B. A., & Mahar, C. (2011). Partnerships for student success: Integrated development of academic and information literacies across disciplines. *Journal of Academic Language and Learning*, *5*(2), A118–A130.

Lander, B. (2016). Quizlet: what the students think – a qualitative data analysis. In S. Papadima-Sophocleous, L. Bradley, & S. Thouësny (Eds.), *CALL communities and culture – short papers from EUROCALL 2016* (pp. 254–259). Research-publishing.net https://doi.org/10.14705/rpnet.2016.eurocall2016.571

Lea, M. R., & Street, B. V. (1998). Student writing in higher education: An academic literacies approach. *Studies in Higher Education*, *23*(2), 157–172. https://doi.org/10.1080/03075079812331380364

Maldoni, A. M. (2018). "Degrees of deception" to degrees of proficiency: Embedding academic literacies into the disciplines. *Journal of Academic Language & Learning*, *12*(3), A-102-A-129.

Marinescu, R. (2013). Future opportunities for learning English through new media and e-tools *The 9 th international scientific conference e-learning and software for education* https://doi.org/10.12753/2066-026x-13-171

Marsh, J. D., & Campion, J. (2018). Academic integrity and referencing: Whose responsibility is it? *Journal of Academic Language & Learning*, *12*(1), A213–A226.

Murray, N., & Hicks, M. (2016). An institutional approach to English language proficiency. *Journal of Further and Higher Education*, *40*(2), 170–187. https://doi.org/10.1080/0309877X.2014.938261

Nallaya, S., Delaney, L., Savelsberg, H., & Lancione, C. (2018). Developing a self-regulated curricula of scaffolded academic and information literacies in a digital learning environment. *Journal of Academic Language & Learning*, *12*(1), A179–A192.

Neuman, W. L. (2014). *Social Research Methods: Pearson New International Edition : Qualitative and Quantitative Approaches* (7th ed.). Pearson.

Nunan, D., & Richards, J. (2015). *Language Learning Beyond the Classroom* (1st ed.). Routledge.

O'Loughlin, K., & Arkoudis, S. (2009). Investigating IELTS score gains in Higher Education. *IELTS Research Reports*, *10*, 95–180. https://www.ielts.org/teaching-and-research/research-reports

Paltridge, B., Harbon, L., Hirsch, D., Shen, H., Stevenson, M., Phakiti, A., & Woodrow, L. (2009). *Teaching academic writing: An introduction for teachers of second language writers*. The University of Michigan Press.

Podorova, A. (2016). Academic Language Feedback toolkit: Making progress with post-entry language skills development. *Journal of Academic Language & Learning*, *10*(1), A141–A154.

Sato, E., Chen, J. C. C., & Jourdain, S. (2017). Integrating Digital Technology in an Intensive, Fully Online College Course for Japanese Beginning Learners: A Standards-Based, Performance-Driven Approach. *The Modern Language Journal*, 756–775. https://doi.org/10.1111/modl.12432

Savas, P. (2012). Micro-teaching Videos in EFL Teacher Education Methodology Courses: Tools to Enhance English Proficiency and Teaching Skills Among Trainees. *Procedia - Social and Behavioral Sciences*, *55*, 730–738. https://doi.org/10.1016/j.sbspro.2012.09.558

Thies, L. (2016). Building Staff Capacity through Reflecting on Collaborative Development of Embedded Academic Literacies Curricula. *Journal of University Teaching & Learning Practice*, *13*(5), 1–25.

Walter, M. (2013). The Nature of Social Research. In *Social Research Methods* (3rd ed.). Oxford.

Wingate, U. (2012). Using Academic Literacies and genre-based models for academic writing instruction: A 'literacy' journey. *Journal of English for Academic Purposes*, *11*(1), 26–37. https://doi: 10.1016/j.jeap.2011.11.006