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Autonomous language learning through a mobile application: a user evaluation of the *busuu* app

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Abstract

Studies into the use of mobile applications (apps) for language learning have found positive results on language improvement and learner engagement, but they have mostly focused on small samples of learners using apps that were selected by a researcher / educator rather than on learners using apps of their own choice. This article presents the results of a large-scale survey (n=4095) into the use of one of the most popular language learning apps in the market: the *busuu* mobile app (over 60 million registered users). Data were collected through an online questionnaire with 30 items. The survey was distributed both in English and in Spanish. The results provide a profile of *busuu* app users, show patterns of use, and what app features learners find most valuable for language learning. Most users are at beginner level and learn for personal interest. They find the app has helped them improve their knowledge of the language they are learning, with vocabulary as the main area of improvement. The high expectations from users and the fact that a third of respondents use *busuu* as their only language learning source suggest that a large proportion of users consider apps a reliable tool for language learning.

Introduction: apps for language learning

In the decade or so since smartphones were introduced, these and subsequent devices such as tablets have become ubiquitous: they are now used by large proportions of the population in most developed countries. Mobile applications (commonly referred to as apps) can be installed on these devices, and offer an enormous market of educational resources, including language learning. Early claims about the potential of apps for language learning included the possibility to learn, practise, and enhance both language skills and knowledge of the areas where target languages are spoken

(Rosell-Aguilar, 2009). Several researchers have identified benefits of apps for language learning (Burston, 2014; Godwin-Jones, 2011; Kim & Kwon, 2012; Lafford, 2011) based on their potential to engage learners in activities identified in the fields of Second Language Acquisition Theory (SLA) and Computer-Assisted Language Learning (CALL) as conducive to language learning such as noticing, negotiation of meaning, learning by doing, focus on form and collaborative learning (Skehan, 2003; Doughty & Long, 2003). Apps can provide opportunities to engage in interactive, meaningful and engaging tasks, promote collaborative, rewarding, and challenging tasks and provide opportunities to produce target language, as advocated in CALL theory by Oxford (1990), Meskill (1999), Skehan (2003) and Chapelle (1998). Due to the use of mobile devices to operate app, the study of language learning apps falls within the field of Mobile-Assisted Language Learning (MALL).

As with every language learning resource, the quality and potential for language learning of apps varies enormously. Some researchers have highlighted drawbacks about language learning apps, questioning the match between pedagogical and technical qualities and claiming that they can provide very fragmented language practice (Pareja-Lora et al., 2013). Others have claimed that learning activities on mobile apps are basic and mostly replicate what has been done before with other technologies (Burston, 2014), and noted that most apps focus on cognitive processes and receptive language skills and lack the opportunities to engage in socio-cognitive activities or opportunities for collaborative learning (Kim and Kwon, 2012).

Whilst it is arguable whether apps can at this point be considered as a single solution to language learning, they can effectively support learner autonomy and interest in learning a language (Goodwin-Jones, 2011). Apps can provide a good supplement for language learners who are enrolled in formal instruction as well as a good starting point for beginner independent learners.

They can also provide regular practice for language learners who are no longer formally studying a language but wish to keep practising it (Rosell-Aguilar, 2017).

Literature review

Previous research on the use of apps for language learning.

Since the appearance of apps that can be used for language learning, many researchers have investigated the student experience of learning with them. A common finding among these studies has been a very positive attitude towards learning with apps (Brown, Castellano, Hughes & Worth, 2012; Castañeda & Cho, 2016; Khaddage & Lattemann, 2013; Kim, 2013), particularly highlighting flexibility, convenience (Zou & Li, 2015), portability, and the ability to personalise student learning (Steel, 2012).

Research has also found improvements in several language skills such as vocabulary acquisition (Steel, 2012; Yildiz, 2012), reading and writing (Steel, 2012; Morgana, 2015), translation activities (Steel, 2012); listening practice, writing and, to a lesser extent, speaking (Morgana, 2015); phonological awareness and listening comprehension skills (Yildiz, 2012; Kim, 2013); and verb conjugation and grammar (Castañeda & Cho, 2016). Apps were also found valuable by learners of character-based languages: Rosell-Aguilar & Kan (2015) reported that the majority of participants in their study of 137 learners using an app to learn Chinese characters felt that they had improved their recognition of characters and words as well as their ability to write the characters. The effectiveness of apps has also been found comparable to face-to-face teaching at elementary level: in a comparative study with 164 children learning Spanish in primary education using *Duolingo*, Rachels and Rockinson-Szapkiw (2017) found that there were no significant differences between the group that used the app and the control group that received tuition without using the app.

Autonomous use of language learning apps may be quite different to how those apps are used within a classroom context. Mobile devices foster learner autonomy and ubiquitous learning in informal settings (Chen & Kessler, 2013), yet while there has been a body of work that looks at mobile device activity in the classroom, there has been a significantly smaller amount of research examining how learners engage in mobile learning outside of the classroom and there have been calls for more studies into student use of apps outside formal tuition (Steel, 2012; Stockwell & Liu, 2015) as learners' own use of apps may be quite different from what the app designers imagined (Stockwell & Hubbard, 2013). In a study looking at mobile app use with 140 learners of Chinese, Mason and Zhang (2017), found that 94% of learners utilised apps independently and the majority of them recognised the value of apps to support their language learning, but learners only used a proportion of the functionalities available.

Two further examples of research into autonomous use of language learning apps are the *Duolingo* Effectiveness Study (Vesselinov & Grego, 2012) and the research into the use of apps by distance learners by Rosell-Aguilar (2016). The first study looked into the learning experience and outcomes of 88 native speakers of English learning Spanish at beginner and intermediate level using the *Duolingo* app, which found high levels of satisfaction. The learners' main reason for learning was personal interest and the results showed statistically-significant improvements in language ability as well as confidence. Participants who studied because they wanted to travel achieved the largest improvements, and those whose motivation was personal interest the least. In addition, learners who were at beginner level made bigger gains than advanced learners. The second example was carried out with 85 distance learners of Spanish (Rosell-Aguilar, 2016). The main area of language learning for which respondents used apps was vocabulary (82.26%), followed by translation (66.13%), and grammar practice (58.06%). The majority of language apps users in his study stated that they used apps informally, as and when the opportunity arose. The study found high frequency of app use

among the respondents, with 44.26% using at least once a day, and 36.07% several times a week, and female respondents used apps less frequently but for longer periods of time. All respondents stated that they felt that apps had improved their knowledge of Spanish.

The study reported in this article focuses on the use of a well-known, popular app: *busuu*.

Previous research into the effectiveness of the busuu app

The *busuu* app is part of the *busuu* network for learning languages, which also comprises a website. *busuu* has over 60 million registered users (Busuu, 2016). It offers 12 different languages organised in levels according to the Common European Framework of Reference for languages (CEFR). The app runs on Android and iOS operating systems. Learners have to register to use it and can choose to learn one or more languages. Learners can use the free materials or upgrade to a premium paid-for membership. The activities within the app practise reading, writing, and listening skills as well as vocabulary and translation. Activity types include drag and drop, multiple choice, filling in blanks, and free writing, which can be shared with other users to obtain peer feedback and corrections. The app can be used offline if users download learning units.

Research into the use of *busuu* has been limited, but some studies have taken place. In a pilot study using the *busuu* app, Kétyi (2013) surveyed 59 Hungarian students of German who were given a free 7-day premium membership trial. The service was well received, with 79% of participants rating it as either good or very good. The most beneficial aspects identified were learning vocabulary, revising and practising the language, making language learning playful and easy, the use of audio for pronunciation, and the selection of topics and vocabulary. Some participants found the tasks too easy and repetitive, though. After the free trial, 92% of participants indicated that they would not pay for premium membership. In a follow-up study, Kétyi (2015) compared an

experimental group of 51 students using the premium version of the *busuu* app with a control group of 43 students who did not use the app. The app users utilised it about once a week for an average of between 10 and 15 minutes. Over 73% of them considered the app helpful for language learning. Respondents found the app particularly useful for vocabulary and practising writing skills. The experimental group saw a rise in motivation and a statistically-significant increase in their target language performance, whereas the control group did not. Despite this, the vast majority of participants indicated that they would not pay for the app after the trial period. In a separate study, Malerba (2015) found that learners particularly appreciated the flexibility of learning at their own pace, but the limited number of activity types was their main reason for abandoning such language learning platforms.

In a study with 21 students of English as a Second Language using *busuu*, Liu et al (2013) found that 52% of participants extended their use of *busuu* outside the classroom. Their use tended to last between 30 and 60 minutes (some longer) per session. The students' favourite features within *busuu* were engaging with others, learning new vocabulary and practising their reading and grammar. The authors of this report did not specify whether students had used the desktop or app version of *busuu*. They advocated further research on site-specific features to determine which design features have the best potential for language learners.

The largest study into the use of *busuu* so far was carried out by Vesselinov and Grego (2016). Their study tracked the Spanish language improvements of 144 autonomous learners using *busuu* over two months, with pre- and post-tests used as measurements. After this period, 84% of participants had improved their written proficiency and 75% had improved their oral proficiency. The most successful participants were those that invested the longest time using the service. Factors such as age, gender, level of education, ethnicity, device used, native language, or reasons for studying Spanish did not have a statistically-significant effect. The study also measured levels of

user satisfaction with very positive outcomes. Participants used both the web version (58%) and the app version (42%) of the service but the report authors did not provide an analysis of the data results based on the version used.

The study presented in this article has a much larger number of participants and focuses on app-only users, hence providing a more specific picture of this area.

Research questions and methods

Research questions

More research is needed to understand the ways learners engage with apps of their choice for autonomous language learning. The main questions this research sought to address are:

- Who uses the *busuu* app?
- How do they use it?
- What features do they like best / least?
- Does the app meet users' expectations?
- What patterns of use of the *busuu* app can be identified from respondents?

This research aims to create a realistic picture of autonomous users in their own settings, as opposed to previous research, which had either mostly focused on learners using publicly-available apps because they had been directed to by their teacher, or focused on both the app and web version of *busuu*, and not just the app.

Methods

An online survey was developed based on a previous study into use of apps for language learning (Rosell-Aguilar, 2016) but tailored to the specific features of the *busuu* app. The survey consisted of 30 items, most of which were multiple-choice, with four open follow-up questions asking participants to provide further details depending on their replies, and three standalone open questions (Appendix 1).

The research was approved by the University Human Research Ethics Committee (Ref: HREC/2016/2212/Aguilar). The questionnaire was hosted at the university survey site with servers in the UK, complying with European regulations on data hosting and storage. An agreement was entered into with the Head of Education at *busuu*, who offered to distribute the link to the survey. Nothing was asked for in exchange, other than being able to see a summary of the main (anonymised) results.

The survey was available in two languages: English and Spanish, both with the same questions in the same order. A link to the relevant survey asking potential participants to take part was sent as an in-app message by *busuu* to their registered users, therefore ensuring that respondents were active app users (as opposed to users of the website) before the start of the research. The users were selected among those who had chosen to use the English or Spanish interface within the *busuu* app. No incentive was offered for taking part in the study. The surveys were open for three weeks in May 2016 and a total of 4095 unique valid responses were collected: 2265 for the English survey and 1830 for the Spanish one. As none of the questions in the survey were compulsory, not all questions received the same number of responses.

The results were first analysed using the online survey's own statistics tools. In addition, SPSSv21 was utilised for comparative statistical analysis. Bias analysis was not possible as no information

about app non-users was collected. The responses to open questions were categorised following the thematic analysis process suggested by Braun and Clarke (2006).

Results

The results from both surveys are presented here in relation to the research questions. Where relevant, distinctions will be made between the data from the English language survey and the Spanish language survey.

Who uses the busuu app?

A profile of respondents is presented in Figure 1.

Figure 1: participant profile by sex, location and age.

Most respondents (79.1%) were learning one language. A further 14.6% were learning two languages, 3.5% three, and 2.8% more than three languages. Participants were asked to select which language they were learning with the *busuu* app. Those who had indicated they were learning more than one were asked to select the main one they were prioritising. In Table 1, the languages studied are presented in three columns: all respondents, respondents to the English-language survey and respondents to the Spanish-language survey.

Language studied	All respondents	English survey	Spanish survey
English	1585 (40.5%)	638 (29.8%)	947 (53.4%)
French	531 (13.6%)	298 (13.9%)	233 (13.1%)
German	433 (11.1%)	286 (13.4%)	147 (8.3%)
Spanish	325 (8.3%)	311 (14.5%)	14 (0.8%)
Japanese	281 (7.2%)	197 (9.2%)	84 (4.7%)

Italian	271 (6.9%)	114 (5.3%)	157 (8.9%)
Turkish	159 (4.1%)	139 (6.5%)	20 (1.1%)
Portuguese	151 (3.9%)	43 (2%)	108 (6.1%)
Russian	87 (2.2%)	52 (2.4%)	35 (2%)
Chinese	58 (1.5%)	36 (1.7%)	22 (1.2%)
Polish	31 (0.8%)	24 (1.1%)	7 (0.4%)

Table 1: Languages studied with the *busuu* app by respondents.

In addition, 80% of all respondents indicated that they did not live in a geographical area where the language is spoken, whereas 20% did. This varied to a large extent between the English and Spanish versions of the survey. In the English version results, the split between those who lived in a target-language-speaking area and those who did not is 71/29% whereas in the Spanish version the split was 90.7/9.3%.

Participants were asked to select the level they consider themselves to be in the language they are learning with the *busuu* app. Most learners identified as Beginner / A1 (2067, 52.8%), followed by Elementary / A2 (912, 23.3%), Intermediate / B1 (641, 16.4%), Upper Intermediate / B2 (204, 5.2%), Advanced / C1 (68, 1.7%), and Nearly Fluent / Fluent / C1 (25, 0.6%).

The respondents' reasons for learning the language they selected were varied. Respondents were allowed to select more than one reason. The most popular, selected by 29% of respondents, was 'personal interest'. This was followed by 'I want to use the language when I travel' (17.1%), 'relevant to my career aspiration or profession' (16.1%), 'I want to study / live overseas' (15.2%), 'I want to use the language to communicate with family / friends' (11.2%), and 'relevant to my current studies' (7.1%).

The replies to the question about whether participants paid for *busuu* premium membership (n=3596) were as follows: 593 (16.5%) did, 2614 (72.7%) did not, and 389 (10.8%) did not know whether they pay for premium membership or not.

How do learners use the app?

Participants were asked which device they used most often to access the *busuu* app. Most respondents (63.4%) used their smartphones and a smaller proportion (35%) used tablet devices. Only 1.6% expressed a preference for the smartwatch version of the app. With regards to the length of time participants had been using the app, 43.2% had been using it for less than a month, 31.6% between one and six months, 7.2 between seven and 12 months and 18.1% over a year.

Respondents were asked how often they used the app and how long they normally spent using it at a time. Figure 2 shows the replies to these questions correlated with gender to allow comparisons with previous research (Rosell-Aguilar, 2016).

Figure 2: Frequency and length of use of the *busuu* app by respondents.

To ascertain whether users perceived using the app as a formal or informal language learning activity, they were asked whether they use the app mostly in planned learning sessions (e.g. routine evening sessions) or more informally, as and when the opportunity or need arises. One third of respondents (33%) selected the former and the remaining 67% the latter. Furthermore, participants were asked what else they did to learn the language they are learning with the app. Some 23.9% were using the app to supplement other, more formal, activities such as being registered on a course at school / college / university, or taking part in private tuition or conversation classes. A further 40.2% were not registered on a course but used additional language learning resources independently, and 35.8% claimed that the *busuu* app is the only resource they use to learn the language. Those who used additional resources independently were asked to indicate what other

resources they use (participants were allowed to select more than one resource). The most popular were websites (27.9%), followed by books or ebooks (23.9%), other apps (17.4%), DVDs or online videos (12.3%) and CDs/mp3s/podcasts (22%).

As a follow-up question, respondents were asked to select what types of app they used in addition to *busuu* from a number of choices. Respondents were asked to select all that applied and a total of 5363 responses were collected, presented in Table 2.

Other apps used	Percentage	Examples
Self-study language apps	47.0%	<i>Duolingo</i> (50.8%) <i>Babbel</i> (13.9%) <i>Rosetta Stone</i> (8.9%) <i>Speakeasy</i> (4.6%) Others (21.7%)
Translation apps	19.4%	<i>Google Translate</i> , <i>iTranslate</i>
Dictionary apps	16.3%	<i>WordReference</i>
News apps in target language	6.5%	<i>BBC News</i>
Flashcard apps	5.8%	<i>Quizlet</i> , <i>Memrise</i>
Language exchange apps	3%	<i>Tandem</i> , <i>HelloTalk</i>
Other apps	2%	<i>YouTube</i> , <i>Skype</i> , <i>Facebook</i> , <i>Twitter</i> , <i>Instagram</i>

Table 2: apps other than *busuu* used by respondents.

What features do users like best / least?

Participants were asked to select up to three features that they liked best and least among the *busuu* app activity types, presented in Table 3. Among the 5.8% who selected 'other' in the least-liked features, the most common comment related the fact that premium membership is required to access the full content of the app. Other comments referred to some software glitches or crashes, the chat facility, and lack of oral practice exercises.

Best-liked features		Least-liked features	
Vocabulary practice	20.3%	Writing practice	14.8%
Listening practice	16.6%	Grammar practice	14.2%
Grammar practice	15.1%	Correcting other members' writing	12.0%

Reading practice	13.0%	Listening practice	11.5%
Writing practice	12.1%	Reading practice	11.3%
Translation practice	9.0%	Translation practice	10.8%
Feedback on own writing	6.9%	Vocabulary practice	10.5%
Correcting other members' writing	6.5%	Feedback on own writing	8.8%
Other	0.5%	Other	5.8%

Table 3: best and least-liked features of the *busuu* app.

The quality of the automated feedback that users receive from the app (which within the app is limited to whether the answer is right or wrong) was positively regarded. Of the 3751 participants who replied to the question about feedback quality, 43.8% considered it 'very good' and a further 32.3% rated it 'good'. Some 14.4% rated the feedback 'OK' and 2.5% and 0.7% rated it negatively as 'not very good' and 'very bad' respectively. The remaining 6.3% claimed that they did not receive any feedback.

Respondents were provided with a number of choices about what else they would like the app to provide. They were allowed to select all the choices they considered relevant. A total of 19,482 responses were collected, and the results appear in Figure 3 in order of popularity. The comments provided by those who selected 'other' mainly refer to making the premium content free. Other comments that recurred suggested the use of video materials as stimuli for activities and the provision of audio and text chat for communication among learners and native speakers.

Figure 3: additional features users would like the *busuu* app to provide.

Does the app meet users' expectations?

The participants' most popular expectation when they downloaded it was to improve their speaking skills (selected by 15.6% of respondents), followed by listening skills (13.6%), reading (11.5%), and writing (11.1%). The fifth most popular expectation (with 10.8% of responses) was to become

fluent in the language, followed closely by improving vocabulary (10.8%), grammar (9.8%), and translation skills (8.6%). The remaining expectation, selected by 6.3% of respondents, was to meet people with whom to practise the language. Finally, 1.9% of respondents indicated that they had no expectations when they downloaded the app. The app is well rated in terms of meeting expectations, with 30.5% of respondents stating that the app is better than they expected and 61.9% rating it 'as expected'. Only 7.7% of respondents rated the app 'worse than expected'.

To produce an overall snapshot of how useful participants found the app, they were asked to what extent they agreed with the statement 'using the *busuu* app has helped me improve my knowledge of the language I'm learning'. A total of 3,541 participants responded to this question. Some 25.4% strongly agreed, 57.4% agreed, and 15.3% neither agreed nor disagreed. In contrast, only 1.5% of participants disagreed and 0.5% strongly disagreed. Similarly, participants were asked to rate the overall quality of the *busuu* app. Out of the 3565 responses received to this question, 38.7% rated it 'very good' and 47.5% rated it as 'good'. Some 12.4% of participants gave the app an 'OK' rating and only 1.5% gave a negative rating: 1.2% rated it 'not so good' and 0.3% rated it 'very bad'.

When asked to select the area that participants thought they had improved the most, 27.7% selected 'vocabulary'. This was followed by 'speaking' (16.2%), 'listening' (12.9%), 'grammar' (11.1%), 'reading' (8.6%), 'writing' (7.6%), 'pronunciation' (6.8%) and 'translation' (3.9%). A further 5.1% of respondents selected 'none'.

Patterns of use

Respondents were able to select one of four categories to describe the length of time they had been using the *busuu* app and how frequently they used the app, ranging from multiple times per day to

less than once a week (as presented in Figure 2). This data was cross referenced to identify six sub-groups (Table 4):

5. How long have you been using Busuu?		6. How often do you use Busuu?				Total	
		Several times per day	Every day	Several times a week	About once a week		Less than once a week
Q5	<1 month	229 ²	450 ²	449 ⁵	276 ⁶	263 ⁶	1667
	1-6 months	81 ¹	177 ¹	421 ⁴	290 ⁴	270 ⁴	1239
	7-12 months	11 ¹	34 ¹	93 ³	66 ³	76 ³	280
	>1 year	22 ¹	90 ¹	193 ³	163 ³	239 ³	707
Total		343	751	1156	795	848	3893

Superscript indicates group membership

Table 4. Cross-tabulation of questions 5 and 6

1. Consistent users: those who have been using the app for more than one month, and use it every day (or more frequently) (n = 415).
2. Enthusiasts: they use the app frequently (at least once every day), but have been using the app for less than one month (n = 679).
3. Committed users: they use the app several times per week and have used the app for a period of more than 7 months (n = 830).
4. Casual users: they have been using the app between once and six months and use it several times a week or fewer (n = 981).
5. Probing users: those who have been using the app for less than a month but have used it several times a week (n = 449).
6. Visitors: they use the app infrequently (once a week or less) and have been using the app for less than one month (n = 539).

Group membership (1-6) was used as a new independent variable to determine whether patterns of usage reflected users' attitude towards the *busuu* app in the Likert-type items. One-way analysis of variance (ANOVA) and post-hoc Tukey honest significant differences (HSD) tests were then used to identify statistically significant differences between groups. Due to the number of statistical tests

being carried out, Bonferroni correction was used to identify a stricter level of significance to reduce the likelihood of type I error ($p < .003$). Findings are presented in Appendix 2.

One-way ANOVA suggested that the six groups were appropriate for identifying different response patterns in the data. Patterns of use were indicative of users' attitudes towards the app and its utility for language learning, as there were significant differences ($p < .001$) for fifteen of the items for which significance testing took place.

The largest effect sizes were associated with three items. The first item indicated that those who have been using the app for the longest time tend to use it for longer periods each time they engage with a study session. The second item indicated that the longer individuals use the app, the more likely they are to indicate that it has had a positive effect on their language learning (Table 5). Finally, the third item indicated that the longer that individuals use the app for, the greater the likelihood that they will pay for premium content.

	‘Using the <i>busuu</i> app has helped me improve my knowledge of the language I’m learning’					Total
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	
Consistent users	128	195	26	4	3	356
Enthusiasts	213	303	58	5	1	580
Committed users	186	462	126	9	1	784
Casual users	189	554	155	15	7	920
Probing users	90	251	53	4	1	399
Visitors	75	242	117	13	5	452
Total	881	2007	535	50	18	3491

Table 5. User groups' attitudes towards the *busuu* app

The most unique group across all items was group 6, the visitors, which was significantly different from all other groups in four items. This group were the least likely to upload examples of their writing and request feedback, used the app for a shorter period than other groups, and were therefore the most likely to state that the app had not had a positive impact on their learning.

Other results: paying for content, further thoughts, and assessment

Among those participants who pay for premium membership, their main reasons for paying were to gain access to additional content (35.6%), because it represents good value for money (27.4%), to motivate them to keep using it given that they're paying for it (14.4%), and access to support (14.3%). Among participants who do not pay for premium membership, their main reasons for not subscribing to this service were the belief that language learning apps should be free (43.2%), not having a way of paying (29.4%), finding the cost too expensive (9.8%), and concerns about the safety of online payments (6.1%).

A total of 1,146 participants provided responses to an open question asking them to provide any further thoughts on the app. The thematic analysis categorised the replies into 5 groups: positive, negative, comments regarding cost, requests for further content or functionality, and other. Some responses were coded into more than one category as some participants' comments covered several of these, so the total number of comments categorised amounted to 1,279. Of these, 46.8% were positive. Comments in this category ranged from generally positive such as 'OK', to very enthusiastically positive, such as 'awesome', 'revolutionary' or 'perfect'. Respondents praised the quality of teaching ('the quality of the texts is very good, usually consistently the right level for me'), the flexibility provided by the portability of app ('I can practise any time'), its interface ('a very easy app to use'), the ease of being able to practise different language skills within one app ('*esta aplicación me ofrece aprender varios idiomas y no solo uno*' [this app offers me several

languages to learn, not just one]), and the community formed among learners and native speakers ('really like the community aspect'). Some learners also mentioned how motivating using the app had been for them ('*es muy gratificante*' [It's very satisfying], '[it] has inspired me to further my journey in learning other languages').

A total of 6.4% of comments were categorised as negative. The issues most commonly mentioned in this category included quality of teaching ('the grammar lessons are not clear', 'it's missing an incredible amount of creativity'), software bugs / crashes, problems logging in, customer service, finding the level too difficult for beginners, particularly for languages with characters other than the Latin alphabet such as Russian, Chinese and Japanese learners ('for beginners [it is] hard to recognize new characters and its [sic] meaning'). Other comments included poor interface ('Not as interactive or intuitive as I would have liked'), and lack of variety in activity types ('*ejercicios repetitivos y aburridos*' [boring and repetitive exercises]). Some respondents compared the app to other apps (mostly *Duolingo*) unfavourably and several commented on the app giving access to fewer tools than the website version of *busuu* ('the PC version is a worthy learning tool... the mobile app is very poor').

Some 14% of responses were categorised under 'cost'. These comments refer to the pricing for the premium membership being too high or a preference for a one-off payment rather than a monthly subscription. The majority of comments on this section reflect the respondents' beliefs that apps for language learning should be free. Among the 200 comments (17.2%) categorised as requests for further content or functionality, the most common were requests for more grammar explanations / practice, oral practice and pronunciation exercises. Many respondents also missed the ability to use synchronous audio / video chat with native speakers, which used to be available on the app and remains available on the website version. Other requests include the addition of further languages, the use of more video, certification of attainment, and provision of online tutorials. Finally, 200

comments (17.2%) were categorised as 'other'. Some of these referred to the participants' experience of using the app: there were some reflections on issues relevant to informal and distance learning such as self-management, discipline, keeping motivated, commitment, and effort ('I need more self discipline to be more consistent using the app', 'I need to commit more time', '*yo soy la que debo esforzarme más*' [it's me who needs to make a bigger effort]).

The final question asked participants whether they would be interested in taking some form of assessment leading to a certification in the language they study if *busuu* offered one. Most of the 3,579 respondents to this question showed an interest in assessment: 41.6% chose 'yes' and 51.8% 'yes, but only if it was free'. The remaining participants (6.6%) selected 'no'.

Discussion

The results gathered have provided a rich amount of data in response to the research questions. In this section, the results are discussed in relation to previous research and their contribution to the field of language learning with apps.

The data collected provided a profile of the *busuu* app user. The language of tuition marked an important difference among respondents, highlighting the fact that a number of learners learn a language with that same language as the medium of instruction. The results suggest that a large number of users, Asian learners in particular, choose to learn English through an English interface. This is supported by the fact that 29.8% of respondents to the English-language survey were learning English, whereas only 0.8% of those who took the Spanish-language survey were learning Spanish. With regards to language level, CEFR levels A1 and A2 accounted for 76.1% of respondents. This supports the claims that apps attract and can best support learners at beginner level (Vesselinov & Grego, 2012, 2016). The most popular reason for learning in this study was 'for personal interest', which had been identified as a popular response but less effective for language

learning with apps by previous research (Vesselinov & Grego, 2012). It was counterintuitive that 'relevant to current studies' was the reasons for using the app that received the lowest percentage, as it might have been anticipated that supporting formal learning would be a popular reason to use apps, particularly as almost 24% of respondents reported being registered on a formal tuition course. The split among those users who use the app when the opportunity arises and those who used it in planned study sessions was consistent with previous findings by Rosell-Aguilar (2016).

With regards to how the app is used, the correlation between gender and frequency and length of use of the app shows that female users tended to use the app less frequently but for a longer periods of time, which is also consistent with previous research by Rosell-Aguilar (2016). The frequency of reported use was similar to that of Lui et al's (2013) research but much higher than previous studies into the use of *busuu* (Kétyi, 2015). One key difference between the participants in Kétyi's research and this study is that Kétyi introduced his participants to the app, whereas the participants in this research are already familiar with it. This probably explains the difference in terms of frequency of use and also in willingness to pay for the premium service. Other results, such as finding using the app motivating or the repetitiveness of the activity types as a drawback, were consistent with Kétyi's findings as well as Malerba's (2015).

The overall positive impression of the app (82.8% agree or strongly agree that using *busuu* has helped them improve their knowledge of the language and 86.2% rated the app as good or very good) matches the findings from previous research into the use of apps for language learning (Brown, Castellano, Hugher & Worth, 2012; Castañeda & Cho, 2016; Khaddage & Lattemann, 2013) and into the *busuu* app in particular (Kétyi, 2013, 2015; Vesselinov & Grego, 2016). Also consistent with Kétyi's research is the fact that learning vocabulary was the skill that users considered to have benefitted from most. The results show that users like many of the features, but not all features are popular with all learners: for example, whereas 12.1% of respondents considered

writing practice as one of the best features, it was also considered one of the least liked features by 14.8% of them. Learners preferences and different aims for learning the language may account for these differences.

Desire for 'real' interaction ranks high on learners' wish lists. Recent developments by other providers, such as *Duolingo's* chatbot, bring the learner one step closer to interacting, albeit with limitations, in the target language. Even though this interaction was, at the time the study was carried out, limited to textual output, learners can make use of the speech-to-text tool on their devices to enhance the oral element of the interaction. The recently-released 'friends' feature on *busuu* provides the opportunity for learners to interact both in writing and in speech in a closed environment with chosen peers and gain confidence without exposing themselves to making errors in public.

The expectations about the potential of apps for language learning suggest that a number of users now consider apps a credible and reliable source of language learning. This was supported by the finding that over a third of participants used *busuu* as their only source of language learning. These facts show a certain level of expectations about the amount and quality of features that apps can provide which may be difficult for some providers to achieve at this point, but paves the way for further developments and directions in language learning through apps. The issue of mismatch of expectations and what can be achieved with apps for language learning is likely to continue for some time. Whilst it is unlikely that a learner would pick up a grammar or exercise book and expect it to provide a full language learning experience inclusive of interaction with other target language speakers, it seems that this expectation is held by some language learning app users. Perhaps this expectation is not altogether unreasonable: users know that they can use their mobile devices to interact with other people in real time using text messaging, audio and video calls, as well as social media, so it makes sense that these should be incorporated into the learning experience. In part, this

assumption is fuelled by the publicity materials from some app providers who continue to market them as full language learning solutions.

The findings of the correlation between patterns of use and attitudes towards the app were consistent with some of the results found in previous research, such as the effect that the amount of time spent of the app has on performance improvement (Vesselinov & Grego, 2016), or in this case the belief that performance has improved.

The responses to the open question inviting participants to provide further thoughts were also very positive and the number of negative responses was relatively low. These comments highlighted the high expectations that users have of what can be achieved from using an app, as the requests for more grammar, more interaction, more variety of activity types demonstrate. The respondents' comments on convenience also echo previous results by Zhou & Li (2015).

The fact that respondents were overwhelmingly interested in some sort of certification of their informal studies with the app supports the idea that learners are willing to accredit their informal learning (Law, 2016). With nearly half of these indicating that they be willing to pay for the accreditation, this is a direction where app developers might want to go to monetise their business.

Limitations, further research and conclusion

Limitations

Since no previous research into language learning from a commercial app using in-app messages as the call to participate has been published before, it is not possible to comment on the return rate and its comparability to previous studies.

An error during the upload of the survey meant that two questions that had been asked on a previous iteration of the research (Rosell-Aguilar, 2016), were left off the survey. This error was noticed only after responses had started to be received, and it was decided not to change the survey at that point. These questions asked learners where and when they used the app. This information would have been very useful to provide a fuller picture of app use.

The data collected for this study is self-reported and therefore subject to the limitations that such research methods have (Paulhus & Vazire, 2007). Although no incentive was offered for participating in the research and it was clearly stated that the study was carried out by a university researcher, it is a possibility that some respondents may have been inclined to offer positive responses due to the fact that the call for participants came from within the *busuu* app. The questionnaire did not manage to capture the voices of the infrequent visitors who did not take up the app as part of their language learning and which features dissuaded them, and how these could have been improved.

The anonymous nature of the data collection meant that the data collected could not be matched to data available to *busuu* on factors such as actual frequency of use or performance (as opposed to the reported use).

Further research

Some of the limitations of this study listed above provide possible lines of inquiry for further research: a smaller study could select a number of users to complete the survey and, with their permission, correlate this information with the performance data that *busuu* collects from its users. It would also be of interest to survey users who have stopped utilising the app to find out why they did so. The relatively low participation in providing feedback to peers and the fact that users listed providing feedback as very low on their list of favourite features may be worthy of further

investigation. Finally, this study has focused on the affordances of *busuu* as an app and not on the social aspects that the web version has as a Language Learning Social Networking Site, which merits further research.

Conclusion

This article advances the field of mobile apps for language learning by providing a large-scale study of autonomous app users, as advocated by Steel (2012). It is innovative in its methods, by sourcing the data collection directly from within the app. The information gathered about issues such as choice of device, gender differences in usage, reasons for learning, best and least-liked features, and self-reported improvement provides the first profile of autonomous language learning app users, their behaviours and preferences, and their views of language learning through mobile apps. This research is also the first statistically-supported attempt to categorise learners by their use of the app. The pattern findings provided new information about use of the app, such as the fact that the longer users have been using the app, the longer their study sessions tend to be. Another new finding was the fact that the longer learners have been using the app, the more likely they are to pay for premium content. These data enhance our knowledge of the field and have the potential to improve the learning experience of language learners, as well as being of use to language teachers and app developers.

One final observation arises from the fact that many of the features that language app users wish for are already available to language learners through their mobile devices. The device native tools (making calls, messaging, etc.) as well as the wide range of apps and services for finding partners for exchanges (e.g. the *Tandem* app), participating in one-to-one tutorials (*iTalki*), watching and listening to authentic content (news apps, *YouTube*...), and much more, can create an immersive environment for the language learner and some do use these features. However, many learners seem

to want an all-in-one solution within the same app rather than engage in app-smashing to achieve this. Apps such as Apple's *Health* app provide a dashboard that can incorporate activity tracked from other fitness apps (e.g. swimming or running) into a single interface, and this is a model with great potential for language learning. A single app that incorporated, for example, grammar explanations from one app, exercises from another, vocabulary from a flashcard app, availability of partners from an e-tandem app, and culturally-rich authentic content from media apps into a single dashboard would provide a single-solution immersive environment for language learners. Whether this is the future of language learning through apps remains to be seen.

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Appendix 1: Survey

Survey on use of Busuu: This research survey aims to find out more about your use of the Busuu app. It should take 5-10 minutes to complete. The survey is part of research carried out at The Open University into the use of language learning apps, i.e. it is not a market research survey on behalf of Busuu. Your answers will be completely anonymous. You may withdraw from the survey at any time by exiting this page. You may skip questions if you wish. To find out more about this project, data protection, and how the data will be stored please follow this link: [Link was provided].

1 Are you?

Male

Female

I don't identify as either male or female

2 How old are you?

Under 18

18-25

26-35

36-45

46-55

56-65

Over 65

3 Where do you live?

UK / Ireland

Rest of Europe

USA / Canada

Mexico / Central and South America

Africa

Middle East

Asia

Australia / New Zealand

Rest of the world

4 Which device do you mostly use to access the Busuu app? (Please select one)

Smartphone (Galaxy, iPhone or similar)

Tablet (iPad, Kindle Fire, Samsung or similar)

Smartwatch (Apple Watch or similar)

5 How long have you been using the Busuu app?

Less than a month

Between 1 – 6 months

Between 7 – 12 months

Over a year

6 How often do you use the Busuu app?

Several times a day

Every day
Several times a week
About once a week
Less frequently than once a week

7 How long do you normally spend using the Busuu app at a time?

Less than 5 minutes
Around 5 minutes
Around 10 minutes
Around 15 minutes
Between 16 and 30 minutes
Over 30 minutes

8 How do you use the Busuu app? (Please select one only)

Mostly in planned learning sessions (e.g. routine evening sessions)
Mostly informally, as when and where the opportunity or need arises

9 How many languages are you learning / practising with the Busuu app?

1
2
3
More than 3

10 What language are you learning with Busuu? If you're learning more than 1, please select the main one you are focusing on at the moment

Chinese
English
French
German
Italian
Japanese
Polish
Portuguese
Russian
Spanish
Turkish

11 How would you describe your level in that language?

Beginner (A1)
Elementary (A2)
Intermediate (B1)
Upper intermediate (B2)
Advanced (C1)
Nearly fluent / fluent (C2)

12 Why are you learning this language? (Select all that apply)

Personal interest
Relevant to my career aspiration or profession
Relevant to my current studies
I want to study / live overseas
I want to use the language when I travel
I want to use the language to communicate with family/friends
Other

13 Do you currently live in a country / area where the language you're learning is spoken?

Yes
No

14 As well as using the Busuu app, what else do you do to learn the language?

I'm registered on a course to learn this language at school / college / university / private tuition / conversation class

I'm not registered on a course but I use additional resources independently

The Busuu app is the only resource I use to learn the language

If you use additional resources independently, which ones are they? (Select all that apply)

Books / eBooks
CDs / mp3s / podcasts
DVDs / online video
Websites
Other apps
Other

15 What other apps do you use to learn / practise languages? Select all that apply

None
Duolingo
Babbel
Rosetta Stone
Speakeasy
Other self-study Language Learning Apps
Language partner apps (e.g. Tandem, HelloTalk)
Flashcard apps (e.g. Quizlet, Memrise, Educards)
Dictionary apps
Translation apps
News apps in the language I'm learning
Twitter
Other (please specify)

16 What features do you like BEST in the Busuu app exercises? (Select up to 3 answers)

Vocabulary practice
Grammar practice
Reading practice
Writing practice

Listening practice
Translation practice
Feedback on your writing from other members of the Busuu community
Correcting other members' writing in your own language
Other (please specify)

17 What features do you like LEAST in the Busuu app exercises? (Select up to 3 answers)

Vocabulary practice
Grammar practice
Reading practice
Writing practice
Listening practice
Translation practice
Feedback on your writing from other members of the Busuu community
Correcting other members' writing in your own language
Other (please specify)

18 What do you think of the automated feedback you get about your performance whilst using the activities in the Busuu app (e.g. when an answer goes red if you make an error)?

Very good
Good
OK
Not very good
Very bad
I don't get any feedback

19 Do you post your writing exercises for comment by other users?

Yes
No

Why?

If "Yes", what do you think of the feedback you get from other users?

Very good
Good
OK
Not very good
Very bad
The quality varies a lot
I don't get any feedback

20 Do you provide corrections for other users?

Yes
No

21 Do you use the My Vocabulary tool to store words or phrases you want to go back to?

Yes
No

If “Yes”, do you actually use My Vocabulary as a revision tool?

Very often
Often
Occasionally
Rarely
Never

22 What more would you like to get from the Busuu app? (select all that apply)

More grammar explanations
More grammar exercises
More reading practice
More writing practice
More listening practice
More translation practice
More written interaction with native speakers
Speaking practice
Pronunciation explanations
Pronunciation exercises
Placement test
Spoken interaction with native speakers
Small group classes with professional teachers
One to one classes with professional teachers
Other (please specify)

23 What expectations did you have of the Busuu app when you downloaded it? (select all that apply)

I would improve my writing in the language
I would improve my reading in the language
I would improve my listening skills in the language
I would improve my speaking skills in the language
I would improve my translation skills in the language
I would improve my grammar in the language
I would improve my vocabulary in the language
I would be fluent in the language
I would meet people to practice the language with
I had no expectations

Has the Busuu app met your expectations?

Better than expected
As expected
Worse than expected

24 To what extent do you agree with the following statement: “Using the Busuu app has helped me improve my knowledge of the language I’m learning”

Strongly agree

Agree
Neither agree nor disagree
Disagree
Strongly disagree

25 Which areas do you think you've improved thanks to using the Busuu app? (select all that apply)

Grammar
Vocabulary
Writing
Reading
Speaking
Listening
Pronunciation
Translation
None

26 Which area do you think you've improved MOST thanks to using the Busuu app? (select one only)

Grammar
Vocabulary
Writing
Reading
Speaking
Listening
Pronunciation
Translation
None

27 Please rate the overall quality of the Busuu app

Very good
Good
OK
Not so good
Very bad

28 Do you pay for premium membership?

Yes
No
I don't know

If Yes, why?

Good value for money
Access to additional content
Access to support
It motivates me to keep using it since I'm paying for it
Other

If No, why?

I think language learning apps should be free
Too expensive
I don't have a way of paying
I worry about the safety of online payments
I was not aware of this
Other

29 Please share any other thoughts you have about learning with the Busuu app.

30 If Busuu offered the possibility of taking some form of assessment leading to a certification in the language you study, would you be interested? (Please note that your answers will NOT be used to target any promotional content regardless of what you reply).

Yes

Yes, but only if it was free.

No

Thank you very much for taking part in this survey.

Appendix 2. One-way ANOVA with eta-squared effect sizes

Items		Sum of Squares	df	Mean Square	F	Sig.	η^2
<i>Nationality</i>	Between Groups	43.304	5	8.661	36.587	.000	.000
	Within Groups	920.128	3887	.237			
	Total	963.432	3892				
1. <i>Are you male/female/identify as neither?</i>	Between Groups	6.877	5	1.375	5.128	.000	.008
	Within Groups	1038.819	3873	.268			
	Total	1045.696	3878				
2. <i>How old are you?</i>	Between Groups	606.575	5	121.315	54.175	.000	.006
	Within Groups	8679.668	3876	2.239			
	Total	9286.243	3881				
4. <i>Which device do you use to access the Busuu app?</i>	Between Groups	14.729	5	2.946	11.191	.000	.003
	Within Groups	953.689	3623	.263			
	Total	968.418	3628				
7. <i>How long do you normally spend using the Busuu app?</i>	Between Groups	390.899	5	78.180	40.358	.000	.030
	Within Groups	7473.486	3858	1.937			
	Total	7864.385	3863				
8. <i>How do you use the Busuu app?</i>	Between Groups	61.975	5	12.395	60.505	.000	.021
	Within Groups	777.850	3797	.205			
	Total	839.824	3802				
9. <i>How many languages are you learning with the Busuu app?</i>	Between Groups	64.217	5	12.843	29.309	.000	.009
	Within Groups	1679.640	3833	.438			
	Total	1743.857	3838				
11. <i>How would you describe your level in your main target language?</i>	Between Groups	184.492	5	36.898	34.235	.000	.014
	Within Groups	4126.868	3829	1.078			
	Total	4311.360	3834				
13. <i>Do you currently live in an area where your main target language is spoken?</i>	Between Groups	14.998	5	3.000	19.283	.000	.007
	Within Groups	592.356	3808	.156			
	Total	607.354	3813				
14. <i>As well as the Busuu app, what else do you do to learn the language?</i>	Between Groups	5.237	5	1.047	1.804	.109	.002
	Within Groups	2194.381	3779	.581			
	Total	2199.618	3784				
18. <i>What do you think of the automated feedback you receive about your performance while using Busuu?</i>	Between Groups	61.279	5	12.256	7.016	.000	.008
	Within Groups	6438.950	3686	1.747			
	Total	6500.229	3691				
19. <i>Do you post writing exercises for comment by other users?</i>	Between Groups	47.532	5	9.506	41.471	.000	.016
	Within Groups	845.406	3688	.229			
	Total	892.938	3693				
23. <i>a. Has the Busuu app met your expectations?</i>	Between Groups	28.732	5	5.746	17.841	.000	.017
	Within Groups	1094.783	3399	.322			
	Total	1123.514	3404				
24. <i>“Using the Busuu app has helped me improve my knowledge of the target language?”</i>	Between Groups	63.690	5	12.738	26.056	.000	.030
	Within Groups	1703.750	3485	.489			
	Total	1767.440	3490				
27. <i>Please rate the overall quality of the Busuu app</i>	Between Groups	30.783	5	6.157	11.831	.000	.016
	Within Groups	1827.045	3511	.520			
	Total	1857.828	3516				
28. <i>Do you pay for premium membership?</i>	Between Groups	35.001	5	7.000	26.849	.000	.035
	Within Groups	921.902	3536	.261			
	Total	956.903	3541				