Technology for Supporting Language Learning

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ABSTRACT

Technology always played a role in classical language learning. With the rise of web technologies and smartphones there are many possible fields where technology can be a support in this process. We use a multi-method approach to gain insight in the field of language learning and to research the aspect of motivation for using an app on a regular basis. We started by exploring the broader domain and ran two open-ended interviews with teachers to gain insight from their expert point of view. Based on that foundational information we ran observations of language learning classes. Further on we observed two state of the art online communities for language learning. For exploring the aspects for using an app we conducted a survey and we also collected qualitative data. As the result of the research we propose four key aspects for general language learning application: Learning Goal and Path, UI Design and Usability, Social Interaction and Achievement System.

Author Keywords

Language learning, motivation theory, smartphone application, language acquisition

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Human Factors; Design; Learning

INTRODUCTION

Language learning is one of the most important learning processes in human life. While it is important, for some people, language learning, especially for their non-mother language, could be difficult. That is where people started to learn how to teach and/or learn new language to other people.

The traditional way to learn it is via class, where there is teachers who teach you step by steps on how to learn a language. As technology advanced, support tools for learning language are developed. Within this research, we will focus our research on mobile apps for learning language, and what motivates people to use it on a regular basis.

Nowadays, there is a lot of application for language learning within different platform, e.g., desktop, web, and mobile. Although use of this tools has increased in the last years it seemed interesting for us, how and for what purpose this tools are integrated in the language learning process. Particularly of our interest is to find out what motivates both language teachers and people learning a specific language to take advantage of these technologies.

For the fact that all four of us are doing this research in a second language (but having different native languages) it is also of a personal interest for us if there are differences among different languages. What makes this topic even more applicable is our interest both as people trying to learn a language and possible designers of such technology.

There is recent literature about key motivation factors and design principles for apps that shall be used in a regular (daily) manner, especially for sport activity apps. As the research goal of this paper, we want to find out key motivation factors and design principles for apps in the field of teaching, especially in the area of language learning, and what different or additional aspects have to be considered and with respect lead to a better learning experience with better results.

In our study we use different research methods as described in the Section 3. According to our research goals we will first focus on motivational theories as well as on language acquisition theories to gather some deeper information about our field of interest. As a theoretical background "social interactions theory" may be interesting for us, because it does not only try to explain language development by emphasizing the role of social interaction between the developing person and linguistically knowledgeable adults but it has a strong focus on the role of feedback and reinforcement.

We gather some deeper information about our area of research by conducting interviews with experts. Thereby we do not only see teachers as our experts but also students and pupils. In parallel we apply various observations on language learning classes as well as on common online communities. To get information about the technology used for language acquisition we conduct a survey. And as our last method we use technology probe on the popular language-learning app DuoLingo[1].

As the result of our paper, we found out four key aspects of language learning application: Learning Goal and Path, UI Design and Usability, Social Interaction and Achievement Systems which reflects the result of all the methods conducted within our work. In the conclusion, we also give some remarks for further work and limitation of the paper.

We structured our research as follows: next section provides related works. Research Approach section explains our proposed approach method in detail, and Result Section provides the results of each step of our research and the key aspects. Finally in the last Section we provide the conclusion and future work.

RELATED WORK

Several research works related to language learning support are typically explain about the challenge, features, implementation and evaluation of the second language (L2) learning support systems, without relating them directly to the learning theory and provides suggestions regarding key aspects in the language learning.

In his report, Amaral et al. [3] explores the motivation and prerequisites of a successful integration of Intelligent Computer-Assisted Language Learning (ICALL) tools into current foreign language teaching and learning (FLTL) practice. The motivational part which is included within this research are taken from quantitative research, and not mentioning any relation with the motivational theory. Ogata et al. [11] in his report also describes a computer supported collaborative learning (CSCL) within a ubiquitous computing environment, with L2 learning as the test-bed. This paper only explains a little regarding L2 motivation, and also not mention any motivational theory.

Other example of the research is from Nagata [5]. This paper presents BANZAI, an intelligent language tutor program specifically for Japan as L2. It is designed to develop learners' grammatical and sentence production skills in Japanese as well as to instill cultural knowledge about Japan. This research is more focused on the technical side of the L2 learning support and has little concern of the L2 motivation. Heift [6] in their report discusses about building a flexible Web-based grammar practice environment around an Intelligent Language Tutoring System (ILTS). Once again it does not concern the

[1] www.duolingo.com

motivation behind the learning the L2 and providing key aspects in language learning, but more focused on the technical implementation of the language learning support application. Several other examples of similar works could be found in the literature [3][9-13].

While these researches are important, none of them provide the explicit important aspects for language learning supports system. We also aims to provide the motivational theories from psychology research point of view to enriched our result, since we argue that it is an important part of L2 learning, as stated by Hekler et al. [8].

RESEARCH APPROACH

As described in the introduction, our aim doing this work was to explore how the language learning process is working and what factors could have an influence on it. Also we try to research the motivational aspects of this area. The information we get should lead us to some basic "implications" on how to deal with different factors in designing technology for regular usage.

We framed our research interests as follows:

1. What are the key factors for language learning?

2. What are the key factors for designing successful language learning applications for regular use?

In the first part of the research we targeted to create a generalized overview on various different languages as a second language. In the later part and future work we figured out that based on the results one can suppose to focus on one explicit language. Whereas finding new insights how to motivate and support users using an additional technology tool for language learning is a major goal of this research another main goal is to run, execute and learn from the different methods we used in this research for the purpose of the User Research Methods course.

For our research we decided on a process split into 3 phases. Our aim during first phase is to get a deeper insight into the domain of language learning. We started by exploring the broader domain doing literature research. Our insights are described in detail in the previous section.

To deepen our knowledge we ran two open-ended interviews within the second phase with teachers. Thus gave us insight from their expert point of view. Based on the foundational information we collected from literature and the expert interviews we started our second stage. We conducted two different types of observations and had two more interviews with students trying to learn a language. To get quantitative information about technology used in the language learning process we created a survey.

In the third phase we used the data gained so far to apply another method. We used a mixture of technology probe and experience sampling method to get information about

daily usage of a language learning app as well as information regarding motivation and further factors.

In the following there is a detailed description of all the methods we applied. In the chapter "Results and Discussion" we will not only show our results but also have a discussion about the used methods.

Research Phase 1: Exploring Domain

Literature Review
Our literature review, we aim to have a better understanding of the domain of language learning. We focused on general Motivation Theories, and Learning Theories that are more common used in language learning.

Motivation Theories applicable to Language Learning

There are a lot of different motivation theories. Some of them explain motivation and the process of generating it in an neurobiological view, others take a psychological stance. As in the field of language learning the theory of Gardner in 1985 and 2001[17][18] should be mentioned, which as first points out the aspect of integration as one major motivation causes. This theory was grounded in the field of social psychology and many other following theories in language learning based on this theory. For our research this theory gives us a point in language learning motivation, but it does not include other aspects that are also necessary for our work.

Another interesting theory is the Self-Determination Theory by Deci and Ryan [19]. It was one of the first theories in language learning motivation research that includes a definition for extrinsic and intrinsic factors on motivation and also take in account of their interplay. Extrinsic factors such as grades, achievement/reward systems, opinions of other people and so on. These factors have an impact on the motivation from the outside. On the other hand there also exist the intrinsic factors, which is the motivation from within the people. The factors include their own interest, curiosity, and so forth. From this theory we can learn that there are different kinds of factors that affect the motivation of the students and not all can be identified exactly.

There are also some other interesting theory related to the language learning, the most notable of them are Attribution Theory [20], Goal Theories [21], The Neurobiology of L2 Motivation, [23], Willingness to Communicate [24] and Task Motivation [4], and The internal structure of Language Learning Motivation [5][7]. Attribution theory argued that the subjective reasons to which we attribute our past successes and failures considerably shape our motivational disposition. Goal Theories, which is seen as the central of L2 motivation research, introduce the concept of "goal salience" as central component, conceptualized as a composite of the specificity of the learner's goals and the frequency of goal-setting strategies used. The neurobiology of L2 Motivation provide a novel line of research into L2 studies, based on brain scanning and neuroimaging to direct

psychological investigation of the various mental process. The willingness to communicate is seen as a more situated conception of L2 motivation, along with the task motivation theories. This kind of researches is considered as a newer paradigm in the motivational theories for L2 learning. For the internal structure of language learning motivation, Csizér et al. [2] provides a comprehensive summary about this in his paper. He proposed to have seven types of language learning motivation: integrativeness, instrumentality, and vitality of the L2 community, attitudes towards L2 speakers, cultural interest, linguistic self-confidence, and Milieu.

A Process-Oriented Approach for Motivation

As traditional motivation theories have their focus rather on task motivation, they neglect another, but essential aspect of Motivation, its temporal variation.

When you consider that the motivation in a single lesson changes while the time passes, what impact could it have over a longer period of time, like a whole semester or over several years. While language learning can't be done properly in short time, we were looking for some theories that include this matter. In our literature research we found a theory that fits well for our purpose, it also includes the time issue: "A Process-Oriented Approach to L2 Motivation Research" by Dörnyei [6]. The L2 in the name is stands for second language learning.

This approach consist of three phases that were reiterating:

1. Preactional stage (Choice Motivation)

2. Action stage (Executive Motivation)

3. Postactional stage (Retrospective Motivation)

The first stage includes the setting of goals, forming intentions and launching actions. This phase reverses to choice motivation because the motivation leads to a selection. For this many influences on the motivation must be considered and that is also very important to our research. This influences are mainly in this phase: goal properties like relevance, specificity and proximity, learner beliefs and strategies, the environment, expectancy of success and attitudes toward the language itself.

In the second stage the generated motivation should be maintained and protected while the action lasts. This phase includes the generation and execution of subtasks, ongoing appraisal of the achieved knowledge and action control in the meaning of self-regulation. The influences in this stage are: the learners group, the classroom reward- and goal structure (this also includes the cooperative and competitive aspects), self-regulatory (learning strategies, self motivation...) and the quality of the learning experience.

The third stage should give the learners a retrospection of how things went. Influences in this stage are the received feedback, grades, self-confidence and self-worth.

This approach mainly addresses the common classroom situation, but the process itself should not change in the other forms of language learning like online learning and self-study. But the influences differ from each form of language learning slightly. So this approach gives us the knowledge about the motivation process, its generation of motivation and the influences that affect it.

Expert Interview

Based on related work a short guideline was created to interview to experts to get some deeper understanding of the domain. One of the participants is a schoolteacher for mid-school pupils in an Austrian school and teaches two different languages to mainly German native speakers. The second participant is a private teacher for a grown-up language learning class for German. All students of the second teacher attend the class on a voluntary basis and have decided to learn German for their own benefit.

The interviews were conducted by two researchers and took place at a participant's commonplace. The interviews were audio recorded and one researcher lead the interview while the second one was taking notes. After the interview both researchers wrote down their additional note and afterwards the notes were collated to a single document.

We had a rough interview-guideline that covered the most important facts we found in literature but we also tried to encourage our interviewees to talk freely. We asked about the basic principles of language learning, how the process of language learning evolves. We also asked about the role of technology and what could make successful design of such technology. Further on we asked about differences between different languages and what are important factors of learning in a group vs. learning alone (at home).

Both experts argued that motivation is a key for teaching language and that the tools they choose to activate motivation during their classes and within the homework depend on the difference of extrinsic (have to learn because of school, job, etc.) and intrinsic (personal benefit) drivers for learning a language. The students of the first type have to be motivated in another way than the latter because the latter choose to learn a language because of their personal benefit knowing a new language.

Research Phase 2: Exploring the Language Learning Process

Observation

Interviews alone are not sufficient to meet all the needs of work/task analysis. It is vitally important to observe users doing work in their natural settings, and to gather and document examples of that work. [16]

Participant observation is a widely used method in many different disciplines, e.g. sociology, cultural anthropology, psychology or communication studies. Its purpose is to get familiar with a group of individuals and their practices through an intensive involvement with people in their cultural environment, usually over an extended period of time.

Observation is defined as "the systematic description of events, behaviors, and artifacts in the social setting chosen for study". Observations enable the researcher to describe existing situations using the five senses, providing a "written photograph" of the situation under study. Participant observation is the process enabling researchers to learn about the activities of the people under study in the natural setting through observing and participating in those day-to-day or routine activities of participants in the researcher setting." [14]

It is typically used in qualitative approaches and consists of an "observation of some social event, the events which precede and follow it, and explanations of its meaning by participants and spectators, before, during, and after its occurrence. [15]

In our case not only the traditional form of observation in a real life scenario is conducted but we also observed practices of people in an online forum.

In-Class Observation

Our first observation will target language learning classes to gain an insight of the language teaching and learning process in a class environment. We will observe both teachers and students to investigate the learning methodology itself. Also interesting issues will be the atmosphere in the class and the motivation of the students.

For this purpose we conducted two 50 minutes each in-class observations of English classes in a Vienna based mid-school. To ensure the teachers won't bias the way how she structures the class we decided to select classes from teachers who did not participate in the expert interviews. Two researchers conducted the observations at the same time. The teachers introduced us at the beginning of the class with a general notice that we are students and want to learn how to teach. During the observations we were sitting in a backside corner of the classroom outside the main viewing angle of the students.

Both researchers were taking notes during the observations individually. Both the teacher and the students were observed to investigate the methodology of language learning itself. After the class both observation notes were analyzed together by the two researchers. Open coding the notes enabled us to identify and label different actions and situations happened during the observations.

Online Observation

To contrast the findings from observations and student interviews we observed two state of the art online communities for language learning. There are a lot of language learning communities, for several languages on

the internet. Some of them consist of websites, blogs and forums.

We choose to observe mainly forums for getting an idea of the most common learning issues, problems and community behavior in these communities. This observation should be done in two stages. We started by observing the users without their knowledge to get an insight, learn how the site works, what "rules" are there and how people communicate in this virtual room. In a second stage we took active part in the communities to get more detailed information by practicing with them. This also allows us to get data for our technology probe method and the survey. Because of their relevance (determined by their size, the languages they offer, how well known they are, etc.) we choose the two online learning communities Buusu (http://www.busuu.com/) and Babbel (http://www.babbel.com/).
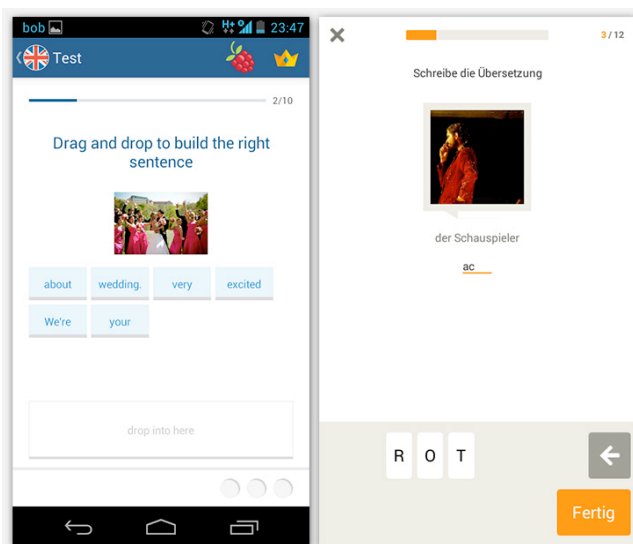

Figure 1: Example of an exercise in Buusu app (left) and Babbel app (right) - in both apps there are many different types of exercises

Buusu has a very big language learning online community, according to their website they have more than 30 million users. Currently they are providing 12 different languages with A1, A2, B1, B2 levels to learn. So it's focus is on starting the language learning process (A1, A2) with some mid level (B1, B2) extensions. At the website you can find vocabulary, grammar, writing, listening, speaking and pronunciation exercises. The access to all the Buusu features is divided to a free and premium membership. While in the free membership you can only learn one language, have no access to the grammar section and and additional learning material (video courses, classes with natives…). It also provides an App for android and iPhone, to learn with your tablet and/or smartphone. After registration you get a free 14 days premium membership. After this period you have to pay a monthly fee to keep your premium membership.

As we have discovered in the expert interview, grammar is an important point to start your language learning, therefore it is investable to get a premium membership if you only use this website to learn a new language. The learning sections of the website are well guided to find your way across the learning material they provide. At the beginning you have to set a goal for your learning and your progress is always visualized in a graphic at the main page. One of the key features to this website is that some of your exercises will be posted on a website intern blog like system, where natives of this language can correct them, this include writing and speaking lessons. For correcting an exercise and complete exercises you earn blueberries. These blueberries are a sort of achievement system, so the users gets motivated to help others. An "thank you" button is also included. Other features that are also mentionable are the messaging system, a short overview of some native that are currently online and you can try to contact them. Another motivation attending feature are the friends list with showing the actual high score (blueberries) of your friends. Several snapshots of Busuu application could be seen in the Figure 1.
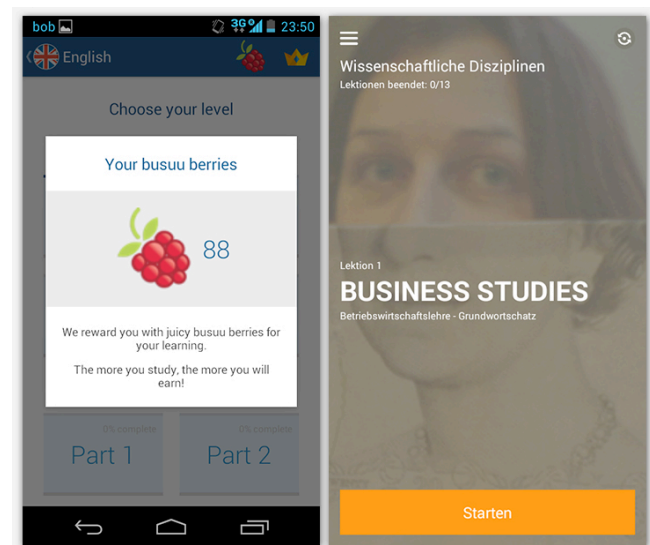

Figure 2: In Buusu (left) there is a reward system (buusu berries), wheras in the Babbel app there is only information about the progress of the user

Babbel also supports twelve different languages. Their beginner courses are going up to level A2 according to the Common European Framework of Reference for Languages[2]. Further courses correspond with levels up to C1. There are many different types of exercise (example see Figure X), supporting the learning of grammar, vocabulary, building sentences, listening, writing and pronouncing. There are different courses for different situations (e.g. on the telephone, numbers, etc.) and every first lecture of each

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[2] http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp

course can be accessed for free. Further lectures need to be paid. Prices vary from about 5 to 10 Euro per month. If one is sure about using Babbel there is no way around paying for the service because the free lectures are very limited. Several snapshots of Babbel application could be seen in Figure 2.

There are only very few advise but for it is really very simple at the beginning that shouldn't lead to any problems. Learning progress is only achieved on trial and error. On Babbel users have a user profile that shows personal information about them as well as their progress in learning that language. There is a big online-community that supports each other - there is a big forum that is heavily used for problems in real life. In difference to Buusu, Babbel has no achievement system but heavily supports learning with friends and other members of Babbel. The Android app (with almost the same coverage as the online system) has been downloaded over a million times.

Student Interview: Language learners

The previous methods showed distinct differences between learning a second language as a formal school student or on a voluntarily basis for the own benefit. To follow up the identified issues we conducted two interviews with students to have another angle of view from their expert knowledge as participant of the task of question.

The first interviewee is a pupil from one of the observed classes. The second interviewee is a grown-up woman of 26 years learning Italian as an additional language. The first interview was rather short with about 15 minutes. The second one was for about an hour at the participant's home. Similar to the teacher's expert interviews we conducted in a pair of two with one running the interview and the second talking note.

The first interview was agreed to run very spontaneously on the hallway of the school and therefor we didn't had an interview guideline to assist during the interview. Thus for the second interview an interview guideline was created based on the first student interview and the existing knowledge from the other methods. Both interviews were conducted in a very open-ended way asking both interviewees to tell us how they see themselves during the process of learning a language and what helps them to achieve their goal and what does not.

Survey

Based on the findings and results from the qualitative methods we created an online survey to get more information from a broader audience and to underpin or reveal the prior results with quantitative results.

The survey was build up with 20 questions grouped into four sections. Starting with personal questions about the participant's context the survey addressed questions about the language the participants are learning and what motivates them to learn that language with the aim to

enable us to verify the findings from the qualitative methods before.

To distinguish between scholastic and grown-up participants, whereas grown-up means students of every age learning a language after the standard school education, we asked the participants to classify themselves as scholastic students or after-school students. To verify the selection we asked in a later stage to select the type of class they are attending ranging from normal governmental school classes to individual language learning events with friends.

The next part focused on the technology tools the participant uses and which tool provides what kind of support and helps learning the language. In case the participant does not use any technology to support language learning we asked questions for the reason why she does not use any tools and if any tools had been used in the past what disadvantages lead to the decision to stop using them.

Recruitment of participants for the survey was done by sending invitations to fellow teachers and asked them to distribute the invitation amongst their students and posting the survey link to online language learning communities again asking users to distribute the invitation to others.

Before publishing the survey we ran a test survey with three fellow students asking them to complete the survey and give us feedback on ambiguous questions or on any other aspect the found hard or unclear to answer. The survey was available from mid December 2013 to mid January 2014 and we aimed for 50 valid responses. The average completion time of our test participants was about 8 minutes therefore we defined a lower end threshold of 4 minutes for valid responses.

During the active time 56 responses were collected, containing 1 not fully completed survey we marked as invalid responses. Three responses were marked invalid because the respondents selected in the first place that they are attending a formal governmental class but later selected to study within a small group of max.

Table 1 List of survey responses (Note that a response can be considered invalid because of multiple reasons)

Total responses	56
Not fully completed	1
Ambiguous answers to class type	3
Total valid responses	52

Research Phase 3: Overview of Current Apps

Technology Probe

Technology Probes is a method for gathering information about users and usage (interaction) of certain technologies [2]. Furthermore it's a technique applied in order to co-design a technology together with its future users. Users get to work and interact with very basic technology with the goal to get an understanding of the user requirements and

their wishes in a real-world setting as well as the goal to think about the technology and its interaction together with the users.

Technology Probes are usually a reduced application on existing hardware (tablet, smartphone) and offer the possibility to log the users interaction.

We are using technology probe to log the usage of a selected language learning application, to see how it is used by the users, this means:

- Users should make notes on a interval driven basis: they should answer some predefined questions everyday before going to bed (at least after they used the app)

- We don't use a reduced application but an existing software - our aim is not to design a specific software but to gain insight in usage and design principles

- User should interact on their familiar devices with the language learning software - we want to get information about the users requirements and wishes as well as to which level the app could fulfill that requirements

Afterwards we will have an conclusive interview with our participants to verify our assumptions and to gain further information about usage patterns and motivational aspects.

For this procedure we choose Duolingo. Duolingo is a very widespread application both on Android as well as on Apple Smartphones. Apple actually chose the app as the "app of the year 2013". On Google Play Store this app has over 10.000.000 installations. Another aspect that is important for us because of limited resources is the fact that it is free to use.

RESULTS AND DISCUSSION

Research Phase 1: Exploring Domain
From this phase, we get relevant information related to language learning, which answer our first research question. One of the important results from our literature research is that we found out that setting learning goals and providing a way for the learners to reflect about their efforts is an major key aspect for generating and maintaining the motivation.

In our expert interview, both interviewee argued that motivation is a key for teaching language and that the tools they choose to activate motivation during their classes and within the homework depend on the difference of extrinsic and intrinsic drivers for learning a language. The students of the first type have to be motivated in another way than the latter because the latter choose to learn a language because of their personal benefit knowing a new language.

Research Phase 2: Exploring the Language Learning Process
As we know better about the language learning and the motivation behind it, we then try to find out more about the process of language learning. From the student interview, we found out the interviewee feels that the learning within the class is often very restrictive. We also found that while currently they are not using smartphone as language learning support, they are open to the idea and might do it in the future.

In other hand, we found that UI design and usability is important from the online observation. The community criticized the mobile platform since it is developed in inconsistent manner with the more mature web platform. After they improve the design, the application gains more users and become more popular. Another point that we got from the online community is that the social interaction could provide you with more motivation as it is implemented and used heavily by the users. This fact is also supported by the result of surveys as could be seen in Figure 3, where 56% of users prefer to interact with other users while learning with application.
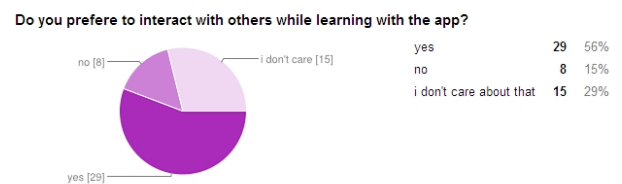

Do you prefer to interact with others while learning with the app?

yes	29	56%
no	8	15%
i don't care about that	15	29%

Figure 3 User preferences for interaction with other users

Another finding that we get from the survey is related to the motivation for learning the L2. We found out that there are five main motivation for language learning, which are communicating with foreign people, needs for speaking to the local people, need for works, interest in culture and the hobby to learn new language. These results could be found in the Figure 4.

Why are you learning this language?

I am still going to school	4	4%
I need it for work/study	18	17%
I learn the language for communication with people from foreign countries (friends, etc)	23	22%
I am foreign and like/need to speak the local language	23	22%
I like learning languages (hobby)	16	16%
interested in the culture	16	16%
Other	3	3%

Figure 4 User preferences for interaction with other users

During this research we identified four key aspects that should be considered when one is creating a smartphone app for language learning and could positively influence the users language learning experience and provide help for a long term motivation to keep users attention.

Research Phase 3: Overview of Current Apps
In the technology probe that we are running, three participants are agreed to conduct the experiment in the beginning; however, one of them is dropped out of the experiment due to personal reason. The basic usage data of the DuoLingo application that we are collected could be seen in the Table 2.

Table 2 Technology Probe on DuoLingo Apps

	D1	D2	D3	D4	D5	D6	D7
P1 Time (Minute)	10	10	10	20	15	12	15
P1 Score (Points)	73	22	42	23	25	25	15
P2 Time (Minute)	10	29	30	40	45	20	50
P2 Score (Points)	10	35	57	65	43	55	79

The closing interview with the users provide several important points to back-up key aspects findings from other research methods that we have employed, such as the needs of good usability and GUI design, importance of learning goal and paths visualization, and achievement system. However, the participants are not agreeing that social interaction is important. Overall result of the technology probe could be accessed in our website[3].

Key Aspects for Language Learning Support App
Base on the result from the three phases of researches that we have explained above, we identified four key aspects to be considered in the process of creating smartphone application for language learning to answer our second research question. These aspects could positively influence the users language learning experience and provide help for a long-term motivation to keep users attention.

Learning Goal & Path
In our literature research we found out that setting learning goals and providing a way for the learners to reflect about their efforts is a major key aspect for generating and maintaining the motivation. Our research results indicate that this is good guideline to follow is to properly take care of the user's specific goal of learning a language and using which path the users wants to achieve the goal. 22% (23 responses) of the survey participants stated that they learn the second language because the want to communicate with others (friends, colleagues) in foreign countries. Equally the same 22% (23 responses) answered that they are learning a new language because the live in a foreign country and want to speak the local language.

This was also proven by our technology probe experiment as our participants pointed out that goals are very important

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to them. One of the technology probe participant said: "One of the main reason why the learning with DuoLingo feels enjoyable is because it provide us with a clear goals and path to follows to the goal." To improve the motivational effect a visualization of the users effort will help. It also allows the user quickly and easily recognize and evaluate their progress. When achieving a goal, new goals should be set to repeat the motivation process.

UI Design and Usability
In App (Application) design, we mainly focused on the motivation process so far. This is, as mentioned before very important, but some fundamental aspect of how to design an app for common use should also be considered. As we figured out in our experiment that "easy to use" is also very important to our participants. A technology probe participant stated in the closing interview: "It's very simple, I just opened it - and suddenly I get used to it!".

In our online observation we observed the change from the Buusu App. At the beginning their design wasn't consistent from webpage to App and every language got their own App. This was criticized in the AppStore comments (Android PlayStore). After they improved their design and combined all languages in one app, the community responses changed from complaining to praising, except the fact that the App has purchasing options that are necessary for an effective use. This point isn't included in our research question so we ignored that fact. The aesthetics in the app design will also be a point to consider as it also differs from our research we suggest reading further works regarding this topic to include this aspect as well.

Social Interaction
As our survey stated that 22% of our participants from the survey learn a language to communicate with people from foreign countries and also 22% learn a language because they are foreign in a country and want to learn the local language. Another point is that 56% of our participants from the survey prefer to interact with other while using a learning App.

We also observed in our online observation that the possibility to communicate with others (see Buusu and Babbel) the main feature in this big online communities. This brings us to the point that social interaction is an main aspect for language learning. Some ways to provide this are e.g. tandem learning (two people with different native languages teach each other their native language), group learning, pen friend from other country and a lot more.

Another implementation of social interaction and motivation can be to generate motivation through competition. As already implemented in Buusu with friends high score and the display of your efforts to the whole community. Cultural information are also interesting for some people and their exchange can help a lot in learning a language in you are interested in it [22]. But as we found in

our survey that 29% of the people do not care about social interaction, so this aspect is not that important that the two above.

Achievement Systems

An achievement system within a language learning app could help keep the user motivated and provide a challenge to move on with more difficult tasks and try new sections of the learning process. Achievement systems are very common in today's smartphone apps and a lot of resources ease the implementation of such a system.

The interviews showed that in traditional language learning, and learning in general, grades are tools to provide an award like system for the students. Both teachers pointed on the importance of having a proverbially mirror for the students and showing them that and how the progressed in their language experience.

In the technology probe one participant explained: "Challenge to get into next level and get more points makes me want to use it everyday, even after I finished with the experiments!" This shows the benefit of having a system like the Buusu berries that focuses users attention when it comes to have users active for a longer and regular basis.

CONCLUSION AND FUTURE WORK

his research is based on different quantitative and qualitative research methods (Expert Interviews, Observations, Survey, Technology Probes) and was done from different points of view - both the view of an language teaching professional and language learning students to overcome all aspects involved in the process of language learning and to identify the key issues that influence the individual language learning student.

The four identified key aspects UI Design & Usability, Learning Goal & Path, Social Interaction, and Achievement System can provide valuable help for future language learning app development. Our aim was to provide a foundational overview and basis for general language learning using free application which are available for mobile and web platform, and the initial result from our research provides an encouraging support for the importance of these four aspects in the language learning application

However, the conducted experiments are done with limited resources and time and involving rather small sample size of participants, covered applications and languages involved. Therefore more research is needed to in the further work to address this limitation by including an extended sample of population and also provide evaluation for the key aspects. Further works could look for special focus on the importance of the key aspects on a specific language or language family. At last, as it is common that paid apps are often feature enriched and developed more properly, future work could provide the possibility to include, or concentrate on, those apps and contrast them with the results from this study.

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