การศึกษาแอปพลิเคชันในสมาร์ทโฟนเพื่อการเรียนรู้ไวยากรณ์ภาษาฝรั่งเศสและภาษาเยอรมัน

INVESTIGATING MOBILE LEARNING APPLICATIONS FOR FRENCH AND GERMAN GRAMMAR LEARNING

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บทคัดย่อ

การศึกษาครั้งนี้มีจุดประสงค์เพื่อศึกษาคุณลักษณะของแอปพลิเคชันสอนภาษาฝรั่งเศสและภาษาเยอรมันที่ใช้กับสมาร์ทโฟน กรอบความคิดของการพัฒนาแอปพลิเคชันที่มี 2 ขั้นตอน ได้ถูกนำมาใช้เพื่อวิเคราะห์คุณภาพของแอปพลิเคชัน 4 แอปพลิเคชัน คือ Babbel, Busuu, Rosetta Stone และ Duolingo โดย Babbel และ Busuu เป็นแอปพลิเคชันที่มีค่าใช้จ่าย ส่วน Rosetta Stone และ Duolingo เป็นแอปพลิเคชันที่ไม่มีค่าใช้จ่าย ภาษาอังกฤษเป็นภาษาที่ใช้เป็นสื่อกลางในการสอนของทุกแอปพลิเคชัน ผู้วิจัยให้ความสำคัญกับส่วนที่เกี่ยวกับไวยากรณ์รวมถึงรูปแบบของภาพและเสียง ผลการศึกษาแสดงให้เห็นว่าทั้งแอปพลิเคชันที่มีและไม่มีค่าใช้จ่ายนำเสนอเนื้อหาไวยากรณ์พื้นฐานและคุณลักษณะต่าง ๆ ที่มีคุณภาพใกล้เคียงกัน นอกจากนี้ผลการวิเคราะห์ยังชี้ให้เห็นแนวทางในการปรับปรุงแอปพลิเคชันสอนภาษาฝรั่งเศสและภาษาเยอรมันให้ดีขึ้นเพื่อส่งเสริมให้ผู้เรียนสามารถเรียนรู้ได้ด้วยตนเอง

คำสำคัญ: แอปพลิเคชัน; ภาษาฝรั่งเศส; ภาษาเยอรมัน; การเรียนการสอนผ่านสมาร์ทโฟน

Abstract

This research aims to explore features of mobile applications and basic grammar content for French and German learning. The framework of two-step learning application development was employed to analyse the quality of the four selected applications: Babbel, Busuu, Rosetta Stone and Duolingo. Babbel and Busuu are paid applications while Rosetta Stone and Duolingo are free ones. English is used as medium instruction in all applications. The grammar part, visual and auditory forms in these applications were the focus. Surprisingly, both free and paid applications offered similar quality of basic grammar

content and features. The findings of this study suggest a possible guideline for improving a better French and German application to support autonomous learners.

Keywords: Applications; French Language; German Language; Mobile Teaching and Learning

Introduction

Due to the current spread of COVID-19, teaching and learning patterns have completely turned into a digital form. Teaching class is now converted into an online virtual class where learning could be either synchronous or asynchronous. This influences teaching strategies and students' learning behavior. Undeniably, teaching and learning media must be adapted to be applicable with online learning environment. Furthermore, currently, communication technology has been rapidly developed, allowing learners to study at any place at any time (Ubiquitous and Seamless) [1-2]. Adopting this technology in media production such as a mobile application for self-learning and sharpening language skills outside the classroom could promote the users to become autonomous learners as well as encourage lifelong learning attribution. After an exhaustive investigation, there is only one application teaching German language but no French language teaching application developed dedicatedly for Thai learners were found from App Store and Play Store. For the benefits of Thai learners, the researcher insists that the lack of opportunity must be addressed in urgent.

Sweeney and Moore [3] advise that it is vital to use digital media in teaching and learning a foreign language as it is modern and effective. Learning via mobile applications would play an important role in the 21st century. Although many applications have been dominantly created by professional media developers, experiences and opinions from instructors are not any less important. The media developers and the instructors hold different viewpoints regarding ways to maintain learners' focus. While the instructors give attention to teaching content, the media developers consider enjoyment more important. At present, these applications have some limitations, such as dull presentation, teaching strategies that massively focus on "memorizing" vocabulary, and insufficient basic grammar lessons that beginner-level learners should understand. It is, therefore, crucial that applications be improved to better serve the learners' needs as well as to fit in today's world.

Literature Review

Mobile-Learning

Since the 21st century, information and communication technology (ICT) has been utilized [4-5]; in producing more powerful teaching media. It can be used in both formal and informal learning, such as learning via applications on a mobile device. This encourages mobile learning as well as effectively motives learners [6]. The key characteristics of learning via mobile device is to learn at any time at anywhere [4, 7] It is suggested that using intelligent or educational technologies is a way to create a smart learning environment [8] and consequently cause a flow experience. This is vital for developing learning competence, i.e., cognitive ability, language ability, and communication competence. Elaish et al. [6] propose that mobile learning is an advancement in teaching. It has evolved from face-to-face traditional

classroom to web-based distant learning, and subsequently to mobile-assisted learning. Moreover, Isal et al. [2] believe that mobile learning is a solution that bridges formal and informal learning together. Learners can build up their knowledge both during and after formal classes as an extension of the classroom [9] and will gradually become autonomous learners. Bower [10] suggests that the main attributions of mobile learning are agility, accessibility, and modernity. Isal et al. [2] point out that usability goals of mobile learnings include being user-friendly and promoting more effective learning.

Kearney et al. [11] discuss three key pedagogical features of Mobile-Learning, i.e., personalization, authenticity, and collaboration. With mobile learning, learners can get specific kinds of experience, i.e., to choose topics and subtopics they want to learn without worrying about other learners' conditions. Teaching media and learning exercised in the application presents real situations and text written by native speakers. Another point worth highlighting is the feasibility of instructor-learner, learner-learner, and instructor-instructor collaboration. Laurillard [12] proposes that mobile devices have changed the physical relationship between learners and instructors as well as changed objects of learning. With this learning method, the instructors no longer posit in the center because the learning process does not necessarily happen in the classroom and the learners can select learning topics and media by themselves. Apart from this, ICT also enables collaboration and/or exchange of information regardless of educational institutions users belong to. The learners are, therefore, able to help and advise one another. Nevertheless, the efficacy of learning solely depends on the learners as they are the ones who set learning objectives and effective learning processes [9]. Motivation is the key factor that leads to success in learning. The learners must have autonomous motivation, i.e., to have motivation from the inside (high volition) or to have controlled motivation or to have motivation from external factors such as appraisal and rewards [13]. A Study conducted by Thedpitak and Somphong [14] identifies that learner are positive about learning from mobile applications. This type of learning could reduce stress and subsequently makes the learners eager to learn more. Elaish et al. [6] see mobile learning as an adaptation of various kinds of persuasive technology. This could help elevate learners' motivation. Furthermore, Judge et al. [15] conclude that mobile devices have made learning more practical. Thanks to the highly developed technology, mobile phones are now equipped with touch screens and a user-friendly user interface. This could contribute to learners' positive attitude towards language study.

In addition, mobile learning induces more communication among instructors, among learners, and among learners and instructors [16]. With a mobile-learning setting, there are no distance limitations. The instructors and the learners from different institutions in different countries can freely exchange information, consult, or share teaching and learning exercises, as well as cooperate to complete learning activities using social networks. Lastly, mobile learning could enforce the development of cognitive competences [17-18], particularly critical thinking. However, mobile learning comes with limitations [10] that require thorough consideration before deciding to use it. Affiliating technology in learning, the instructors should contemplate the learners' availability in terms of IT literacy and required physical equipment. Apart from this, in the case of implementing mobile learning in the classroom, congruency with school policy, intellectual property, and copyright must be considered.

Mobile Application Development

Elaish et al. [6] identify that the lack of framework in producing media has been a problem for a long time. Therefore, the researcher has studied process that could be a guideline in developing applications, i.e., a concept proposed by Stanford d.School [19] as illustrated in figure 1.
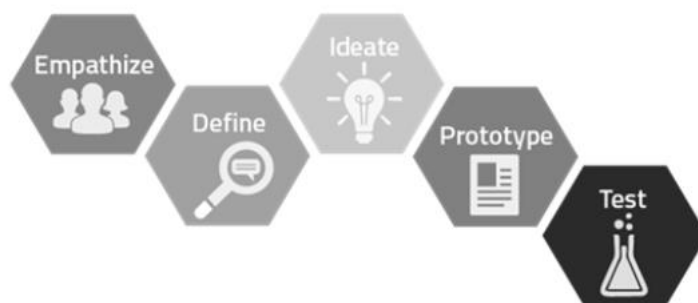

Figure 1 Stanford d.School's Process of Design Thinking.

According to figure 1, the concept presents a five- step methodology of design thinking, i.e., empathize, define, ideate, prototype, and test. First, empathizing focuses on situational context. In this case, the situational context is French and German language learning via mobile applications. This leads to the second step in the process, "define". To define, problems and solutions in the situational context are identified. From the researcher's observation, current mobile language learning applications that use English as medium of instruction appear to provide generic visualization which does not attract learners' attentions. In addition, some applications do not offer clear instructions for learners. In this study, the problem could be that there is no suitable mobile learning application for Thai beginners of French and German. Therefore, one possible solution could be to offer a more customized and attractive mobile language learning application. In order to make it possible, there is a need to explore characteristics of mobile language learning applications' features. The third step is "ideate". "Ideate" refers to brainstorm ideas and form a solution as well as consider the feasibility of the proposed solution. In this study, characteristics of the selected mobile language learning applications' features, where English is a medium of instruction, were thoroughly investigated. The fourth step is "prototype". At the prototype stage, several model applications are produced and scrutinized. Advantages and disadvantages of each model are identified. The last step is "test". The models describe in the preceding step are tested to find the best model.

Rice [20] separates designers who have three responsibilities, i. e., planning, implementing, and evaluation, into two types, an expert and a novice. An expert is a designer who investigates problems and users' demands while a novice is a designer who only solves problems. Therefore, in this study, instructors are expert designers who might have insufficient technical skills to develop an application. To create an application, the instructors may need to work with professional technicians. Rapanta and Cantoni [21] suggest that designer should consider user experience, anticipation, and skill-training exercises. There are

five major pillars to consider, which are 1) novel idea, 2) reflexive practice, 3) problem solving, 4) sound reasoning and 5) value creation. Reinders and Benson [9] imply four things to go through before planning, which are 1) Location – inside or outside the classroom, 2) formality – formal or informal, 3) pedagogy: non-instructed or instructed, and 4) locus of control: self-directed or other-directed. Elaish et al. [6] urge that, to design teaching media, one should understand the three categories of learning behavior, i.e., cognitive (thinking), affective (feeling), and psychomotor (doing) proposed by Benjamin Bloom in 1950. The researcher suggests the development of the application as a teaching media be divided into three steps, i.e., situation analysis, design for use, and evaluation. The result from this study will help the researcher to propose a guideline in developing a French and German language teaching application for Thai beginners.

Situation Analysis

Novak et al. [22] identify three analysis focusing on learners. That is, learning needs analysis, learners analysis, and learning contents analysis. However, the researcher argues that opinions from instructors should be analyzed as well. Their opinions and their teaching experiences could differentiate the way application attributions are designed when compared to those developed by technicians. The first thing to identify is target users so that both social and educational context can be analyzed [23]. For instance, 1) similarity and dissimilarity of native language and foreign language the learners have chosen, 2) learning culture the learners are familiar with, 3) learning/teaching community, and 4) the level of language proficiency of the learners.

As for learning needs analysis, media developers may need to study the necessity and demand for skill-training exercises and possible study length. Moreover, developers and instructors should consider whether devices the learners have in hand have sufficient functions. Several kinds of skill-training exercises must be available. Study length should not be too long as the learners could lose focus along the way, especially when the learning takes place outside the classroom. The learners could be easily distracted. It is, therefore, necessary to divide contents into small chapters rather than a long one. Next, learners analysis is an analysis that looks into multi-facets of the learners. For instance, characteristics, interests, learning styles, and motivation factors [23] such as the features of an application, platform, and system design. Several kinds of teaching techniques must be applied depending on context and the learners' characteristics. It is, therefore, crucial to find a balance between necessity and learners' needs, and a balance between feasibility and strategies that would lead the learners to achieve the desired objectives.

Learning content analysis is a study that aims at identifying mandatory lessons and lessons learners are interested in. Wiggins and McTighe [24] categorize learning content into three groups, starting from the largest scope to the smallest scope, which is 1) things that should be familiar, 2) things that should know, and 3) things that should understand well and able to apply. Apart from this, giving feedback right after completing an exercise and appropriate assessment are also important things [8, 23]. These could be diagnostic, formative, or summative.

Design for Use

Gao et al. [8] divided design into two parts, design and implementation. In the first part, the following four elements should be aware of, 1) strategy, scenario, interaction, and evaluation design. However, in this study, a key term "assessment" is adopted to match with the objective, i.e., to gauge the level of knowledge and proficiency, not to evaluate either pass or fail [25]. In a design process, Isal et al. [2] express the knowledge transfer process according to a concept from Gagné. The researcher has grouped and arranged strategies into five steps, that is 1) persuade learners' interest, 2) notify necessary information to learners, 3) practice, 4) give feedback and assess learning outcome, and 5) memorize learned lessons, improve skills, and apply in real situations. The scenario used for presenting lessons on the application could be more informal, and less theoretical topics. Interaction could be in three forms, which are activity-centered design, user-centered design, and goal-directed design. Various assessments should be adopted for proper evaluation.

As for implementation, it is composed of creating situations, guidance, and organization Wiggins and McTighe [24]. Slavuj and Kovačić [26] suggest coherence, the effectiveness of teaching methods, activities, and contents be thoroughly considered. Apart from this, the organization of the contents could affect the cognitive competence of the learners. Instructors who understand the educational context well would be able to realize difficulty level, organize teaching contents, and give appropriate guidance. To create a flow experience, Qian [27] suggests three characteristics be included in an application, i.e., clear learning objectives, responsive feedback, and challenging exercises. According to Qian [27], desired features for learners should include abilities to concentrate, continuously learn and practice, be positive and be in control of their learning environment.

Evaluation

According to a process proposed by Shahrasbi and Zheng [19], after the situation has been realized, analyzed, an application is designed based on the objectives. A large number of prototypes are produced. The best solution will be then selected and tested before implementation. To evaluate the effectiveness of the application, Sharp et al. [28] propose four metrics, that is 1) benefits to the users, 2) user-friendliness, 3) effectiveness and efficiency of usability, 4) user satisfaction. The researcher contemplates learners would need to focus and have discipline when studying outside the classroom to be autonomous learners. For this reason, features that could draw interest and build motivation are vital and indispensable elements [3].

Objectives

This current research aims to explore features of mobile applications and basic grammar content for French and German language learning. The findings will support the researcher to propose a guideline for developing French and German learning applications which are suitable for Thai learners at the beginning level in terms of contents and visual and auditory features that could persuade the learners' interest.

The above objective induces two hypotheses. First, French and German teaching applications dedicatedly developed for Thai learners are scarce or none. In contrast, there are language teaching video available to Thai learners. Second, it is suspected that many applications offer vocabulary lessons but offer insufficient basic grammar lessons. Nevertheless, the applications may contain some elements that help learners enjoy their learning.

Methods

This research aims at investigating mobile language teaching applications for French and German learning. This research aims to explore features of mobile applications and basic grammar content for French and German learning.

These are considered as the two popular western languages in which Thai learners at the institution the researcher belongs to choose as their majors. The researcher realizes that the development of language skills relies on the understanding of the language system, the deliberate practice, and the cultural understanding to be able to effectively apply the learned competences in contexts. Even so, the practice should have a great variety to avoid boredom. The gap in the language system among French, German and Thai languages is wide. Therefore, teaching the two languages to Thai learners are complexed and requires good strategies. Most importantly, when teaching via application, presentations must be interesting, and explanations must be clear so that learners can understand and practice on their own. After deliberately exploring the applications developing process in the literature review, the researcher conducted the first step by studying current situation using both qualitative and quantitative approaches. During mid-2021, the researcher selected and investigated four mobile language learning applications for French and German learning whose creator and launching year are different : Babbel (Babbel GmbH, Germany: 2008), Busuu (Busuu Limited, UK: 2012 , Rosetta Stone (Rosetta Stone Ltd: USA) and Duolingo (Duolingo, Inc: 2012).

Research Instrument and Data Collection

Complying with the objectives, the researcher has chosen four applications which are Babble, Busuu, Duolingo, and Rosetta Stone. Every application is available on platform authorized store, both App Store and Play Store, and is accessible from a mobile phone. The criteria includes 1) being a language learning application, and 2) teaching the basic grammar of both the French language and the German language. Babbel and Busuu are paid applications while Rosetta Stone and Duolingo are free ones. As price might be a factor that influences the forms of the applications. It is noticeable that there are no applications dedicatedly developed for Thai learners at the beginning level excepting "Learn German: Thailand" which proposes German language lessons. All four applications chosen for this study use English as a medium in teaching French and German language. In some activities, such as translation, the learners may face language barrier problem as English is also a foreign language to the Thai learners. The results will be presented in three aspects: visual and auditory forms, activities, and content.

Results

After the investigation was completed, more similarities than differences were found. The structure and the characteristics of activities in the applications that teach French, and German are dissimilar only on some points. The result of the study will be presented in three aspects, 1) visual and auditory forms, 2) activities, and 3) content.

Visual and Auditory Forms

The study shows that language and expense are not factors that influence the structure of the applications as no major difference was found. Both applications have some similarities and differences. They both have answers to exercises but there is no pause function. The learners must go back to the beginning of the lesson if they leave in the middle of the session. The in below chart, characteristics of the applications are classified using the cost as the main pivot.

Table 1 Characteristics of Applications.

	Charge-based applications (Babble and Busuu)	Free-of-charge applications (Duolingo and Rosetta Stone)
Content classification	By language proficiency	By theme
Pictures	Actual real images	- Duolingo : cartoon image (decoration purpose) - Rosetta Stone : old but real images
Translation in the exercises	- Babbel : English translation display option is avialable - Busuu : English translation is only available in answer session but not in the exercises	None
Notification for class reminder	Available	- Duolingo : Available - Rosetta Stone : None
Advertisement during lessons	None	- Duolingo : Available - Rosetta Stone : None
Competitions with other learners	None	- Duolingo : Available - Rosetta Stone : None

Activities

The study points to the same direction that expense is not a factor that significantly influences divergence in skill-training activities. All four applications present word choice, spelling, pairing, listening, and word order activities. In word choice activities, what all applications have in common is a direction that

asks learners to choose and fill the right word in a sentence to make it complete. Rosetta Stone and Busuu put focus on grammar analytics, such as gender and singular/plural while Babbel and Duolingo let the learners choose words-sentences and fill in to fit with communication context. In addition, Busuu also trains the learners to scrutinize both vocabulary and grammar aspects when deciding what is right or wrong. Rosetta Stone lets the learners draw connections between image and meaning at both vocabulary level and sentence level. Next, the text is investigated. Rosetta Stone is the only application that does not use any text. A whole class is conducted using pictures only. Learners must choose words that are correct in terms of meaning and grammar. The other three applications could be classified into four types. First, fill in words where learners must apply the understanding of grammar to choose the correct type of words. For instance, determiner and pronouns (Babbel). Second, reformulate words to fit the grammatical context (Babbel - Duolingo - Busuu). Third, translate English sentences into French and German sentences (Babbel - Duolingo). Last, fill in sentences to fit with the communication situation (Babbel).

Excluding Rosetta Stone, the other three applications have word-pairing exercises. A point they all have in common is meaning pairing. It is noted that pairing activities are accompanied by reading and grammar practice. In particular, understand a sentence to match it with another sentence, and pair sentences to illustrate conjugation. Activities that promote listening skills are often accompanied by other skills training, namely enunciation, writing, and various levels of reading comprehension (word, sentence, situation). All four applications have a repeat-after-what-you-hear activity. In addition, Babble and Busuu also have a write-what-you-hear activity. The objectives of listening activities are three-fold. First, to test pronunciation comprehension. That is, to test whether the learners could identify words (Duolingo - Busuu) or sentences (Busuu) they have heard. Second, to understand and apply in presenting situations. In other words, the learner has to arrange words they have heard to complete a sentence. Third, to verify the learners' understanding of meanings, i.e., the learners have to choose the correct sentence that matches with the presenting situation (Busuu).

Word-order activities are divided into two levels. First, to arrange alphabets into words after looking at pictures or after studying a context in French, German, or English (Babbel - Busuu). Second, to arrange words into a sentence based on a presenting context (Babbel – Rosetta Stone - Busuu).

Content

The presentation of French grammar and German grammar is slightly different. This could be justified by the complexity of beginners' learning process. An analysis is divided into seven topics, i.e., determiner, noun, adjective, pronoun, verb, adverb, and preposition. The study found that three out of eight types of determiners in French were not mentioned on the applications. "Article numeral" is not included in Babbel, no "adjectif indefini" in Busuu, and no "adjectif interrogative" in Babbel and Busuu. On the other hand, in German teaching, lessons about all five kinds of determiners were found on each application. Declension preceding noun, including nominative case, accusative case, dative case, but not the genitive case, is presented.

Regarding noun and adjective lessons, all applications mainly present vocabulary that is commonly used in daily life as well as use the same teaching strategies for both French and German. That is, to let

the learner focus on memorizing vocabulary and analyzing vocabulary along with grammar, such as gender and singular/plural. However, there are slight differences among the applications. Duolingo is the only application that presents both aspects while Babbel only presents lessons that put emphasis on observation and analysis of grammatical characteristics. In contrast, Rosetta Stone and Busuu online present lessons that put emphasis on the meaning of vocabulary.

All nine types of pronouns in the French language were found on all applications. However, Busuu only puts focus on the subject pronoun. Other types of pronouns appear only to complete sentences, but the lessons do not teach pronoun usage. Likewise, in German lessons, Busuu presents the least number of pronouns, i.e., four out of nine types.

Verb teaching lessons are divided into two parts. One is to teach meaning and conjugation in tenses. All applications, excluding Babbel, do not introduce the learners to a variety of verbs but emphasize the variety of tenses. On the other hand, Busuu keeps the same concept. That is, to not put focus on grammar. Thus, lessons that teach conjugation in tenses are very limited when compared to other applications. Apart from this, it is noticed that all applications have lessons that teach conjugation in the present tense, which is a basic knowledge learner should know, but conjugation in some other tenses is missing. In French, this includes "Passé récent, Plus-que-fait, Futur Antérieur, Conditionnel passé". In German, this includes "Das Perfekt, Das Präteritum. Lusquamperfekt, Futur I (future), Futur II, (past future) and Konjuktiv I" are not mentioned. The reason could be the complexity of these topics for beginner learners.

As for adverbs, teaching and learning French language and German language are different due to their language system. In other words, there is an explanation about how to transform adjectives into adverbs (Babbel and Duolingo) but an explanation is not needed for German teaching because adjectives and adverbs in German have the exact same spelling. Apart from this, it is noticed that Busuu does not teach adverbs in both languages. One thing the other three applications share is to teach how to use an adverb in negative sentences. Duolingo and Rosetta Stone explain how to use adverbs to illustrate frequency and places. Finally, all application teaches how to use a preposition to demonstrate places and time.

Conclusions and Discussion

The findings show that the mobile language learning applications for French and German learning share visual and auditory forms. The shared visual and auditory forms could reflect a fixed template laid out by the applications creators. Pictures, audio, skill training exercises appear to be similar in all applications. The result suggests a more customized mobile language learning application which should be beneficial for the Thai learners at the beginning level.

To customize all applications, we could add a great deal of variety of grammar content. Apart from this, a wide range of activities could be available to the learners. These activities may include pairing, word-filling, listening, writing, and true or false. Furthermore, the applications should provide English

translation of sentences used in such activities. This would help the learners better comprehend the foreign languages they are learning.

One important thing that must be considered when developing an application is the use of the language learners are familiar with so that the learners can fully understand the lessons. In term of feature, there should be a function that enables learners to save the learning progress. As practicing language skills requires repetition in order to become proficient, there is a large number of exercises that students have to complete but may not be able to finish at once. Starting from the beginning every time can be discouraging. In addition, as studying content is divided into many subtopics, it could result in a large number of lessons. The learners may not be able to recognize their learning progress and searching for the progress could be time-consuming. A notification feature to nudge the learners to revisit the application when they have not logged in for long could encourage the learners to keep using the application. Lastly, a technical issue in detecting the voice in some listing and repeating activities should be improved.

Content grouping should be structured by learners' proficiency levels rather than the content theme so that learners can focus on the grammar topic by topic. To help the learners process and organize the learning content, the content description should be included in the lesson rather than be separated into another part. This could the learning be continuous and smooth. As for pictures, cartoon images should be diverse to be interesting and real pictures should be up-to-dated. Elements in those pictures, such as the dress code should be contemporary so that the learners feel like they were in the real situation. Skill training exercises should not be arranged in a repetitive series to avoid boredom and, more importantly, to avoid automatic system that could be established while repeating the same activity. This could jeopardize the development of cognitive competences. In summary, in presenting any exercises, the developer should consider the learning content, enable the learners to see their learning progress, no set up a series of repetitive activities to enhance language skills, provide a wide variety of sample sentences and sentences used in skill exercises. An example could include changing from word-filling to linking sentences or translating sentences into English. The learners may focus on forms of sentences they saw and complete activities using recognition rather than comprehension. Apart from this, sample sentences and sentences in exercises, both in French and German languages, should be available in various forms, including auditory form and English-translation text form. Listening and displaying options should be available to the learners to make the learning be more challenging and to enhance the learners' understanding. Most importantly, feedback system must be available. To draw attention from the learners, the researcher suggests game features be included along the lessons. As a consequence, the learners feel relaxed and experience learning in an informal context. To illustrate, there could be a competition function where learners can complete with their peer to get a reward or compliment, and a forum where learners can express and exchange their opinions.

The researcher believes that self-learning via applications, particularly application available on mobile devices is an effective and suitable option that fits with the current situation. At present, all learners have mobile phones. Thus, learning can happen anywhere at any time regardless of limited time the learners may have. Furthermore, they can freely choose the learning subject or revising only the subject

they want. This is different from online learning where an instructor is the leader and learners are followers even if the class is asynchronous. Lastly, and most importantly, by learning via applications, learners are walking toward a path to become autonomous learners. It is a foundation of one of the most important skills in the 21st century, that is, lifelong learning.

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