The Enhancement of Students' Interests and Efficiency in Elementary Japanese Learning as a Second Language through Online Games with Special Reference to Their Learning Styles

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Abstract. The introduction of online games in the implementation of Japanese language education at the elementary level is both desirable and challenging. It meets various demands from the population amongst many learners of Japanese language as a second language who are motivated mainly through playing online games but without any knowledge of Japanese language and also underlines some practical issues which involve the actual operations in Japanese classrooms, with respect to the possible outcomes realized through second language acquisition. In this paper, authors attempt to relate Fleming's model of VARK with its applications in different learning styles in elementary Japanese learning. They are illustrated with two different kinds of online games in each of the VARK strategies, namely visual, aural, read/write and kinesthetic. Above all, this article can as well be a reference for those Japanese teachers who are struggling in conducting elementary Japanese lessons in a more pleasant way as perceived by the learners.

1   Introduction

In traditional Chinese social philosophy, playing has always been perceived as an anti-thesis of studying. Hong Kong parents' minds have for a long time been instilled with a concept that pupils who enjoy playing are not able to perform well in their studies. Undoubtedly, they have been brought up with this kind of belief, which is seen as having been proved to be out-fashioned in recent years. The last few decades have seen a new generation who hardly survive without modern technologies such as mobile phones, computers and online games. They are in most cases presented as entertainments in front of the youngsters nowadays whereas they also have potentials to be developed as an effective but challenging medium for learning.

Some researches (see below) have so far been conducted to supplement English learning as a second language in classroom settings with the use of online games. It is a question of whether the same can also be applicable to Japanese learning as a second language, which has been motivated to a great extent through online games designed by Japanese toy makers. The successful use of online games in accelerating the pace of their learning Japanese as a second language can thus be highly expected and is also welcoming.

2   Types of Learning Styles

Learning style has long been renowned as an important determinant for effective learning. As Kolb (1984) defines, "learning is the process whereby knowledge is created through the transformation experience" (p.38). Educators have often ignored the fact that students should have their own favorable learning style but not many of them are aware of their own learning preferences. Instead they tend to standardize their teaching approach for all their students, without paying attention to their heterogeneity. For example, Hawk and Shah (2007) comment that many of the higher education teaching staff are either unfamiliar with learning style models or uncomfortable to utilizing different learning styles other than their own inclinations since they are reluctant to leave their own comfort zone. Still, Felder and Silverman (1988) point out that the mismatch between traditional teaching styles and students' learning styles often results in students becoming bored and inattentive in their study; they will then perform poorly on examinations, being discouraged from the courses, or even drop out of colleges. For pedagogical reasons, it is thus obvious that educators need to gain knowledge of their student's favorable learning styles (Breckler, Joun and Ngo, 2009).

Nowadays, educators have been advised to shift their paradigm from the traditional teaching roles assigned to them. Educators are no longer the teaching authority in their classrooms, but they have to position themselves as a facilitator of learning, or the advanced learner of the knowledge which they are supposed to deliver (Tsang, Kwan and Tse 2008). For instance, Fleming and Baume (2006) suggest that educators and learners need a starting place for thinking, understanding as well as the ways of learning.   In other words, a learning style is a description of preferences or of a process which encourage learners to understand the most effective step in the way in which they learn towards understanding and hence improve their depth of learning.

Nevertheless, Murphy et al. (2004) postulate that every student has his/her own learning style. They further their conclusion that if educators can adapt their teaching approaches to accommodate students' own learning style, improved learning outcome can be anticipated in addition to their own learning style. Tsang, Kwan and Tse (2007) also comment that the majority of students have more than one learning style; the natural learning style of the students is closely related to the students' community of learning. Thus, Hawk and Shah (2006) advocate that higher education teaching staff should vary their teaching approaches to match various learning styles of students so as to enhance their learning capability and performance.

As Hawk and Shah (2007) propose that there are six well-known and widely available learning style instruments in education sector, they are:

- Fleming VARK Model (Fleming, 2001)
- The Revised Approaches to Studying Inventory or RASI (Entwistle & Tait, 1995)
- Dunn and Dunn Learning Style Model (Dunn & Dunn, 1989)
- Felder-Silverman Learning/Teaching Style Model (Felder & Silverman, 1988)
- Kolb Experiential Learning Theory (Kolb, 1984)
- Gregorc Learning / Teaching Style Model (Gregorc, 1979)

In the last few years, lots of researches have tested the impact of all these six learning styles on students' learning improvement, and proved that each model has their own

advantages and limitations. Since there is no one particular learning style which is better than others, the discussion will be based on Fleming's VARK model as the learning style to develop related learning apps in order to help students to acquire elementary Japanese language.

3   Review of VARK

As mentioned before, there are various learning styles introduced in the academic sector. Dobson (2009) comments that sensory modality is one of the most preferable approaches used in learning. Sensory modality consists of four different learning modes through which students can comprehend information which are "Visual", "Aural", "Read / Write" and "Kinesthetic". On this basis, New Zealand educator Neil Fleming has explored the concept by developing the VARK survey in 1998 so as to assess people's learning style preferences (Murphy et al., 2004; Dobson 2009). As Hawk and Shah (2007) quoted, Fleming's defines VARK learning as "an individual's characteristics and preferred ways of gathering, organizing, and thinking about information. VARK is in the category of instructional preference because it deals with perceptual models. It is focused on the different ways that we take in and give out information" (p.6).

VARK is an acronym for "Visual", "Aural", "Read / Write" and "Kinesthetic" (Fleming, 2001). A learner can take a free self-assessment with the completion of 16 questionnaires online or on paper by visiting VARK's official website: "http://www.vark-learn.com/english/index.asp". As Fleming (2006) comments, "VARK is a catalyst for metacognition, not a diagnostic or a measure" (p.2). The questionnaire is deliberately designed to be short in length for students' sake. They are encouraged to complete the questionnaires from their own experience rather than from any hypothetical situations. Educators and learners can self-assess, self-score, and self-interpret the VARK test and results on their own (Hawk and Shah, 2007).

Student's VARK learning style(s) can be classified by "unimodal" and "multimodal". In "Unimodal" learning style, the learner has a single or strong learning preference mode; whereas in "multimodal" learning style, the learner has multiple learning preference mode (i.e. more than one preference mode) (Breckler, Joun and Ngo, 2009). As Fleming (2001) suggests, relevant teaching approach for matching with correspondent learning styles as stated in Table 1:

Table 1. VARK Learning Styles versus Teaching Activities

VARK Learning Styles versus Teaching Activities			
Visual	**Aural**	**Read/Write**	**Kinesthetic**
Charts	Audio Tapes	Bibilographies	Constructing
Corls	Convesations	Books and Texts	Demonstrations
Designs	Debates & Arguments	Essay	Field Trips
Diagrams	Discussions	Handouts	Guest Lecturers
Different Fonts	Drama	Multiple Choic	Physical Activities
Graphs	Music	Note Taking	Real-life Examples
Spatial Arrangement	Seminars	Readings	Role Play
Wirtten Texts	Video & Audio	Written Feedback	Working Models

Source: Fleming (2001).

However, VARK model is hard to be validated statistically. There is scarcity of researches supporting its validity and reliability. Besides, several researchers also criticize that knowing one's learning style does not necessarily guarantee the improvement of their learning (Fleming, 2006). In despite of the above limitations and critics, Fleming (2006) argues that knowing students' learning style can still be beneficial if students can take their next steps, and then they can determine how and when they learn, as part of a reflective and meta-cognitive process, with appropriate learning actions followed. At the end, learners will have the possibilities and opportunities to make a distinction as well as an improvement in their learning process.

4   Enhancing Learning Efficiency through Online Games in Post-secondary Colleges

Generation Y, or the millennium, or "N" Generation (Network Generation), are usually defined as those who were born in the 1980s and early 1990s. This group of people is mainly those students who are studying at their colleges and universities at present and live in the computer and internet age. Also their major consumption focuses mainly on consuming cell phones, computers, online movies, online music, online games and online apps. They are reported to spend nearly 20 hours a week in average in playing online games (Blackwell, Miniard and Engel, 2006; Mesiter, 2008; Schrader and McCreery, 2008). It is thus commonly agreed that online games are pervasive in this generation.

Tsang, Kwan and Tse (2008) comment that the general public is relying more and more on internet due to the fact that internet has been integrated as a part of our everyday life. As Schrader and McCreery (2008) state, in the last two decades a dramatic change in learning environments on internet has been realized. Therefore, educators nowadays also need to consider utilizing internet and multimedia channel in their teaching. Hussain and Griffiths (2009) state that students will feel pleasant and satisfied at the time when they are playing online games. The online game is one of the multimedia channels which can be considered as an effective teaching platform to this group of students. Even though online gaming teaching mode is still at a relatively new area of activity in the education field, and using online games for training and education purposes are still limited in the current stage, some educational institutions and training organizations have already begun to use online game as a potential context in learning and education in the last decades. (Freitas and Griffiths, 2007; Schrader and McCreery, 2008). This corresponds to the instrumental motivation as coined by Robert Gardner and Wallace Lambert (1972). It refers to the language learning aiming at realizing some immediate or practical goals.

As Oliver and Carr (2009) reveal, online games have been recently considered in the mainstream education policy and it is needed to integrate appropriate games into related educational contexts. Yip and Kwan (2006) have also conducted a research on using online games for teaching and learning English vocabulary, and they have found that online game is an effective tool for vocabulary learning. They have concluded that students prefer more online games as a learning tool to a traditional

face-to-face learning lesson. They have also discovered that in order to maintain the interests of students, online games can make students gain satisfaction and achievement (p.247). Henceforth, the following parts will be devoted to the study of how to match the online games and learning apps with the VARK learning styles in learning elementary Japanese language.

5   Enthusiasm of Using Mobile Technologies in the Youth

Language learning may be hard and frustrating for many students. However, some of them find playing games interesting and entertaining, which in turn can be an effective motivation for their learning. Nowadays, teenagers are more immersed in mobile technologies, including gaming of various types. According to Nielsen's recent report (Kellogg,D, 2011) on mobile youth globally, there are high percentages of young people owning smartphones. In Hong Kong, there are 47 percent of young mobile subscribers (age 15-24) owning a smartphone. In this way, apps take a critical role in the popularity of mobile technologies such as smartphone. They have undoubtedly an extensive reach to a huge population.

   According to the TNS Global Telecoms Insights survey 2010 (TNS, 2010), Facebook is used extensively by Hong Kong consumers amounting to 17 percent, followed by Yahoo (14 percent) and Google (14 percent). Numerous apps are too available on it nowadays. Therefore, it might be a fantastic tool for learning as well and it is important to select appropriate apps which can be adapted to the learning styles of the game players. They will enable learners to take control of their learning modes. They can then choose the types of apps that match their interests, practice at times that fit their schedules, as well as adjust the levels that match their learning progress.

6   Types of Apps and Online Games

Generally speaking, there are as many as twenty categories of apps, ranging from games to social networking. Taking MOBILETUT.com (www.mobiletut.com) as an example, apps can be consolidated to four major categories, namely serious tools, fun tools, fun games and serious entertainment. Among them, fun games are believed to have high potential in facilitating an elementary stage of language learning.

   The main reasons for deploying apps are their mobility and simplicity, but compatibility and portability are also key considerations. From the view of portability, use of apps is definitely an advantage. However, in terms of compatibility, there are still many concerns worth noting. Major operating systems like Symbian, Blackberry, Windows Mobile, iPhone and Android are deployed by smartphone makers. They are not compatible either from the users' end or the developers' end.

   Systems like Symbian and Windows Mobile have existed for a couple of years. There have already been many custom applications built into their devices whereas Android is comparatively new. However, it is backed by one of the biggest Web players, Google, since it has been acquired by Google in 2007. There is strong

momentum in picking up the market rapidly. Statistics of Worldwide Smartphone Sales to End Users by Operating System in 2010 (Gartners, 2011) shows that Symbian devices comprised a 37.6% share of smart mobile devices sold, with Android having 22.7%, RIM/Blackberry having 16%, and Apple iOS having 15.7%.

7   Matching of Learning Apps to Learning Styles

To facilitate learning of elementary Japanese, here comes with some recommendations on different types of apps. From the perspectives of learners, we have identified some types of games that match the learning styles of individual learners. Based on the VARK model, there are four categories of learning styles, namely Visual, Aural/Auditory, Read/Write and Kinesthetic. Eight types of apps, two sub-types for each style, are recommended here for each of the four learning styles.

For the Visual style, it is good for learners who prefer reading pictures or graphs. Therefore, "Puzzle" and "Real-time Strategy" apps are suggested. For the Aural/Auditory style, learners are stronger in listening to illustration, conversation, stories or music. Apps of "Music/Rhythm" and "Speech Recognition" are suggested. For the Read/Write style, learners prefer interacting with outside through reading and writing. Apps like "Act to Response" and "Handwriting Practice" are suggested. Lastly for the kinesthetic style, learners prefer more hands-on activities in their learning. Therefore "Role-playing" and "Shooting" games are suggested. Four types of apps suggested and their corresponding examples of game apps are summarized in Table 2.

Table 2. Examples of game apps for players of different learning styles

VISUAL Puzzle Real-time Strategy	**AUDITORY** Music/Rhythm Speech Recognition
READ/WRITE Act to Response Handwriting Practice	**KINESTHETIC** Role-playing Shooting

For the Visual style, puzzle games require players to re-arrange a scrabbled 5-by-10 matrix of 45 Japanese letters into right order. Real-time strategy apps require players to identify the right vocabulary from a cluster of words once a picture is prompted on screen. According to Lyster (2004)'s hypothesis, prompts 'can enhance control over already-internalized forms' (p.406) and in the words of Lightbown and

Spada (2006), they 'can push learners to retrieve a target form that they have some knowledge of but do not use reliably and to compare it to their interlanguage form.' (p.173). For the Aural/Auditory style, music/rhythm apps will play a Japanese song and the players should click on a particular phrase once it is played. Speech recognition apps require players to speak out a Japanese word or phrase once it is prompted on screen. For the Read/Write style, Act to Response apps require players to read an instruction prompted and take the corresponding action by moving the objects to the target location. Handwriting practice checks if the player can write Japanese characters that corresponds to the picture prompted on screen. Lastly, for the Kinesthetic style, role-playing apps allow players to select a predefined scenario, and then the player is requested to select the right responses to a series of prescribed situations. Shooting games will play a conversation or a phrase and then the players need to compose the phrase by hitting the corresponding characters to complete the conversation. Detailed elaboration of the suggested apps will be given in the following sections.

By recommending relevant apps to the learners, students may learn the target language through those learning apps that match their learning styles. Although there are still critiques on the effectiveness of various models on learning styles, this project is not aiming at proving the effectiveness of a particular model. Instead, we attempt to relate the concept of understanding an individual's learning styles with a more preferable language learning tool for the learners.

Though compatibility problems among different operating systems are still ahead, cross-compatibility mobile development tools are on the way. Notwithstanding the longer historic operating system Symbian or the rapidly growing operating system Android, it is generally believed that the development of apps that fits novice language learners provide alternative ways of language learning, especially at the elementary stage, with ease and fun.

8   Review the Difficulties Encountered in Learning Elementary Japanese for the Youth

Over the past few decades, there has been a growth in the Japanese language learning programmes in Hong Kong in terms of the education organizations which offer them and the levels at which learners study them. In this paper, focus will be on the elementary learners of Japanese language who attempt to attain the level of N5/N4 (equivalent to the Level 4 before 2010) at the Japanese Language Proficiency Test as organized by the Japan Foundation. The past experiences of the author on teaching elementary Japanese for more than a decade has revealed some kinds of difficulties encountered by them in various aspects.

Firstly, some elementary learners of Japanese language are lack of solid foundation on the Japanese letters table (Gojuonzu五十音圖). This entails an important issue that they have found it hard to write down the correct letters once they have listened to the words spoken. Moreover, without sufficient knowledge of Japanese letters table they

will be puzzled in the process of verb conjugations (Doshi no katsuyo 動詞の活用) in written form.

Secondly, second language learners are weak at the lexical understanding of a word in the aural form. Most of them tend to acquire the meaning of a word in visual form. It is rather unnatural for them to relate a sound with a visual object or any concept in their minds without time lag. The second language acquisition should be enforced more in this aspect.

Thirdly, situational learning is also insufficient when one discusses the second language acquisition. Having no obvious motivation to learn a language such as Japanese do not bring them to a situation of how Japanese language can be used effectively and efficiently. The introduction of specific scenarios will assist learners in the exploration of the ways in which they become more interested in using Japanese more appropriately.

9   Review Types of Online Learning of Japanese Language

1 Visual

a. Puzzle

A scrabbled 5-by-10 matrix of 50 Japanese letters (actually 45 letters) is presented to the game-takers who are asked to put them into right order according to the requirements named at both the vertical and horizontal axis. An example (Table 3) is provided below:

Table 3. Scrabbled version

	あ段	い段	う段	え段	お段
あ行	こ	え	つ	く	お
か行	て	ち	す	と	も
さ行	せ	や	れ	そ	け
た行	た	あ	い	の	よ
な行	は	う	な	ゆ	か
は行	さ	ひ	ふ	ろ	ほ
ま行	に	し	る	へ	わ
や行	を	X	ら	X	り
ら行	み	む	ね	め	ま
わ行	ぬ	X	X	X	き

Game-takers are supposed to change the example above into the following one (Table 4) as soon as possible. It is advised to add a time machine on the screen so as to enhance the degree of excitement on the part of the game takers.

Table 4. Correct version

	あ段	い段	う段	え段	お段
あ行	あ	い	う	え	お
か行	か	き	く	け	こ
さ行	さ	し	す	せ	そ
た行	た	ち	つ	て	と
な行	な	に	ぬ	ね	の
は行	は	ひ	ふ	へ	ほ
ま行	ま	み	む	め	も
や行	や	X	ゆ	X	よ
ら行	ら	り	る	れ	ろ
わ行	わ	X	X	X	を

Notes: Game takers are not required to put any letters into cells with 'X'.

b. Real-time strategy

Game takers are presented pictures which show some objects of everyday life. They are asked to choose one word from a list of alternative choices (usually 4) similar to each other in terms of their pronunciation which should correspond with the picture presented. Only one picture will be prompted at one time. Ten items will be tested for one game taker and the score is to be shown to the game taker once all the items are answered. The instruction is supposed to be given in Japanese read by a native speaker with female voice. An example is given below:

右の写真を見てください。　　　　(Please take a look at the picture at the right)
それはなんですか。　　　　　　　(What is that?)
左の選択肢から選んでください。(Please choose the right answer from the choices)

1. くるま
2. くまる
3. まるく
4. るくま
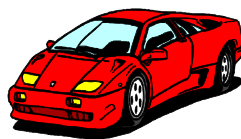
2　Aural/Auditory

a. Music

The game taker listens to a famous Japanese song and s/he is asked to click on a particular phrase once it is heard. An example is given below:

- たどりついたら　みさきのはずれ
- あかいひがつく　ぽつりとひとつ

- いまでもあなたを　まってると
- いとしい おまえの よぶこえが
- おれのせなかで　かぜになる
- よるのくしろは　あめになるだろう
- ふるいさかばで　うわさをきいた
- まどのむこうは　こがらしまじり
- はんとしまえまで　いたという
- なきぐせ　さけぐせ　なみだぐせ
- どこへ　いったか　ほそいかげ
- よるのはこだて　きりがつらすぎる
- そらでちぎれる　あのきてきさえ
- ないてわかれる　さいはてみなと
- いちどはこのてに　だきしめて
- なかせて やりたい　おもいきり
- きえぬおもかげ　たずねびと
- よるのおたるは　ゆきがかたにまう

b. *Speech Recognition*

A game taker is presented with a word containing up to five letters. Then s/he is asked to listen to 4 speakers pronouncing 4 different sounds respectively and choose the right one which corresponds with the one presented visually. An example is offered below. The instruction is given in Japanese read by a native speaker.

この単語を見てください。   (Please look at the following word)

ちかてつ   (meaning: underground rail)

この単語の発音は以下のどれですか。   (Which of the followings is its pronunciation?)

１番：フェリー   (meaning: ferry)
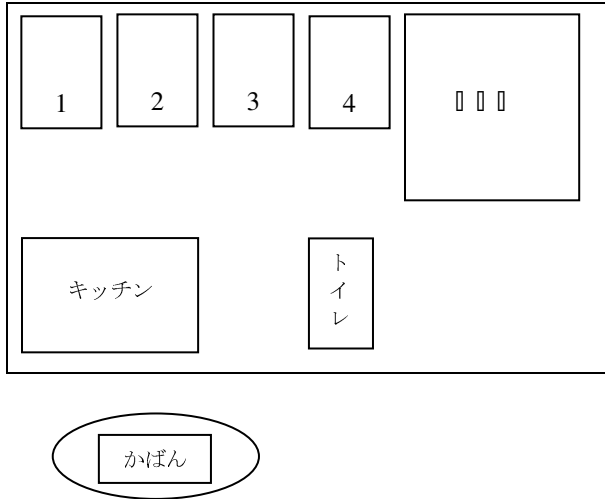
２番：バス   (meaning: bus)

３番：ひこうき   (meaning: plane)

４番：ちかてつ   (meaning: underground rail)

3 Reading/Writing

a. *Act to response*

The game taker is asked to read an instruction (in Japanese) prompted and required to take the corresponding action by moving some objects to the right places. An example is given below:

うえの　えを　みて　ください。　　(Please look at the picture above)
かばんを　へやいちに　おいてください。 (Please move the bag to Room No. 1)

b. *Handwriting*

A picture is prompted on the screen and the game taker is asked to write a word with its meaning corresponding to the picture. In order to limit the number of model answers, it is advisable to specific the number of letters to be used. For example, when the follow picture is presented, there may be more than one answer. Then, when the answer is limited to two letters, it is easier to identify the right one:

Model answer:
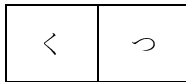
2 Kinesthetic

a. *Role-playing*

At the start screen, game taker selects a pre-defined scenario such as shopping, restaurants or tourist information counter. Then, a role will be allocated to the game taker, be a shop keeper, waiter or tourist information officer. The game taker is then presented with a question asked by a customer in the chosen situation. S/he is required to choose the most appropriate response to be expected there. An example is given below:

場面：　レストラン　　　　　　　(Situation: Restaurant)
役割：　ウェイター　　　　　　　(Your role: Waiter)

お客様の質問：　　いくら？　　　(Question from the customer: How much?)

あなたのお答えは：　　　　　　　(Your answer should be:)

  1. ありがとうございます　　　(Thank you.)
  2. どういたしまして　　　　　(You are welcome.)
  3. ごじゅうドルとなります　　(It is 50 dollars.)
  4. さようなら　　　　　　　　(Goodbye.)

b. Shooting

The game taker listens to a word spoken by a native speaker. Then, s/he should follow it by shooting an object represented by the word. An example is given below.

りんごを　撃ってください　　　　　　(Please shoot the apple)
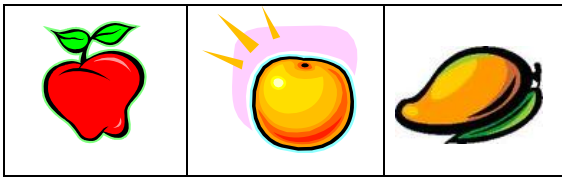
10   Relating Proposed Different Learning Outcomes in Each Type of the Game to Various Types of Learning Style

For learners with visual preference, the puzzle game aims at building up a more solid foundation for learners to use Japanese characters more effectively and efficiently. On the other hand, the real time strategy game attempts to explore game taker's segmental differentiation at the phonetic science.

For learners with aural/auditory preference, the song text at the music/rhythm game will be presented without the use of Kanji (Chinese character) in order to lessen the effect of Contrastive Analysis Hypothesis as advocated by some second language linguistics while the speech recognition aims at training the game taker's reading and aural proficiency at the lexical aspect.

For learners with reading and writing preference, the learners can comprehend some instructions in the way in which they are asked to do something. Through the game, it is easier for learners to enhance their confidence in reading Japanese paragraphs. In addition, through handwriting game, learners can improve their writing habits of Japanese language.

For learners with kinesthetic preference, they can know the reasons for which they are learning Japanese language. Furthermore, the shooting game can train their simultaneous response to an instruction spoken by a Japanese interlocutor.

11   Conclusion

In short, effective learning has sprung from effective teaching and learners' learning preference alike. The preference has normally been expressed in terms of their learning styles which vary from person to person. It is teachers who act as facilitators in adapting their teaching modes to the exploration of different learning preference such as visual, aural, read/write and kinesthetic, through which, learners are comparatively confident enough to collect, synthesis as well as process the information delivered to them.

Since most of Hong Kong learners are inclined to acquire Japanese language as a second language so as to prepare playing online games, the introduction of Japanese language via various kinds of these online games can provide an impetus to effective learning. Distinct from the last generation of Japanese learners who focused more on using Japanese in business transactions, the N Generation cling themselves upon learning it in the way that proved to be pleasant and satisfied.

12   Limitations of the Study and Further Research

As aforesaid, no one proven learning style works perfectly in enhancing all students' learning process. One of the limitations for this paper is that authors have so far not applied all the six learning styles to develop correspondent learning apps so as to help students in learning elementary Japanese language. Besides, they are still preparing to conduct a physical survey to testify if the said learning style can match the proposed learning apps. In this way, further research is recommended in the elaboration of the above learning apps to match other learning style models. In addition, a physical survey is desirable to validate the extent to which learners can improve their efficiency and effectiveness in elementary Japanese language learning as a second language through the suggested learning apps with their preference learning styles. Lastly, it should be supplemented by a research on the comparison of elementary Japanese learning between classroom setting and online game setting with respect to its efficiency and effectiveness.

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