A Correlation Analysis of Tech-based English Activities and Japanese Elementary Student Affective Variables

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Abstract
This paper reports the results of a group of Japanese elementary school students involved in a confirmatory study regarding technology-based foreign language activities and affective variables. The students were all native Japanese in the same school in Nagano prefecture, Japan \((N = 27)\). The purpose of the study was to confirm previous results reported by Tagami (2011b), whose students participated in the preparation of a video ‘letter’ to send to student in Australia. His students also viewed a video ‘letter’ sent by the students in Australia. His results showed strong correlations between tech-based foreign language activities, international posture, and motivation, their self-perceived communicative competence (aka self-confidence in using English in oral communication), and EFL willingness to communicate, and desire to visit foreign countries. Both studies used an identical self-report measure after the viewing of the other school’s video ‘letter’. The results herein show strong correlations between foreign language activities, motivation, and willingness to communicate; motivation and international posture; and willingness to communicate and international posture. Also, the students reported that their interest in English improved when they realized English was a necessary means to communicate. Second, their willingness to communicate in English was supported through the activity. The results are discussed as they relate to teacher EFL classroom practice.

Keywords: EFL, digital video, motivation, international posture, confidence, affective variables, young learners

Introduction
This paper examines the correlations between affective variables of Japanese English as foreign language (JEFL) elementary school students \((N = 27)\). The students engaged in several in-class technology-based foreign language activities (FLAs) designed to increase affective variables such FL willingness to communicate (WTC; McCroskey & Baer, 1985; Richards, 2012) and develop a sense of communicative competence (self-confidence) toward using English, and promote an international posture (IP; Yashima, 2002) in the students. In class, the students
prepared a video ‘letter’ which was a recording of the students doing an individual self-introduction and class activity including the singing of a song. Their video ‘letter’ was then exchanged with a group of students at a school in the USA. It is believed that the participation in the preparation of the video ‘letter’ – which includes being video recorded – and the subsequent viewing of the other school students via their video ‘letter’ influenced students’ affect by exposing them to native speakers of English (NSEs). Furthermore, this method authentically involves the students themselves in the learning process, increasing autonomy and intrinsic motivation (Reeve & Halusic, 2009). As a result of the high inter-affect correlations found in this study and previous studies, it may be speculated that technology-based FL exchanges may create a valid replication of a real-world, face-to-face language exchange, resulting in a heightened L2 self-image (Dörnyei, 2009) leading to increased motivation and FL WTC.

English was introduced as a subject of study in elementary schools in Japan in April 2002. One goal of The Ministry of Education, Culture, Sports, Science and Technology (MEXT) is “to develop students’ basic communication abilities such as listening, speaking, reading and writing, deepening their understanding of language and culture and fostering a positive attitude toward communication through foreign languages” (2003, p. 1). It is hoped that the research results presented here may help educators better understand students’ affect and attitudes toward English language learning, and the positive impact using technology in the classroom can have when a clear goal is achievable. This paper begins with a review of the shift in EFL education research from an integrative motivational orientation for English learning to an international posture (IP; Yashima, 2002) regarding English as a part of learners’ global outlook. This is followed by a review of EFL learners’ WTC; self-perceived communicative competence / self-confidence; and activities involving technology. Next, the results of the research are explained, particularly regarding the correlations between the five affective variables and the FLAs. The paper concludes by appealing to curriculum designers and teachers to consider that these results may support the use of technology to help them develop a feeling of global citizenship (Lamb, 2004; Ushioda, 2006; Ushioda & Dörnyei, 2012; Yashima, 2002) and, therefore, more engaged language learners. The results are exploratory in nature. However, the research project was set up to replicate a previous unpublished study by Tagami (2011a) in order to confirm his results with a second group of Japanese EFL (JEFL) elementary school students. This study adds to the JEFL literature by reporting the results of the use of a video recording international
exchange, which allowed elementary school students in Japan to introduce themselves to native speaking English students of the same age in another country.

**Toward an International Posture in EFL**

As defined by Gardner and Lambert (1972), the integrative orientation reflects “a sincere and personal interest in the people and culture represented by the other group” (p. 132). They have explained that the integrative concept derives from a parallel they drew with processes of social identification underpinning first language acquisition (in Dörnyei & Ushioda, 2009). Recently, the debate surrounding the integrative concept has grown. As a result, the concept has been rethought, mainly prompted by the growing discussions of its applicability in applied linguistics due to the spread of English as a global language. Especially given the recent curricular inclusion of English as a basic skill to be taught from the primary school level in Japan (MEXT, 2003), can the concept of integrative orientation be applied in situations where there is no specific target reference group of speakers? Does the idea of an integrative orientation for learning English have real meaning anymore?

As a result, the integrative motive has been rethought from the perspective of a cultural setting where interaction with the target community of speakers of English remains rare, if at all. For example, as Ushioda (2006) has noted, since English is spoken by members of a global community, the question arises whether it is appropriate to conceptualize its members as an external reference group, or as part of one's internal representation of oneself as a *de facto* member of that global community. It is this theoretical shift of focus to the “internal domain of self and identity that marks the most radical rethinking of the integrative concept” (Ushioda, 2006, p. 150). Lamb (2004) used closed and open questionnaire items, classroom observations, and student interviews to gather data for research conducted in Indonesia on 11-12 year old JHS students IP. He speculates that it may be a dual-faceted identity as a global or world citizen in addition to a national identity as an Indonesian which drives them to learn English (Lamb, 2004). These young learners of English may thus aspire to “a vision of an English-speaking globally-involved but nationally responsible future self” (Lamb, 2004, p. 16).

For many learners, English symbolizes something that connects them to foreign countries and foreigners with whom they can communicate by using English (Gudykunst & Kim, 1984). In the
JEFL context, in which daily contact with native speakers of English remains infrequent if at all, learners are not likely to have a clear affective reaction to the specific L2 language group (Ushioda, 2006). However, student attitudes toward American and other English-speaking cultures are surely created through education and exposure to foreign culture via various media. For example, Yashima (2000) found that English seems to represent something broader than people from the US or Britain in the minds of young Japanese learners. Therefore, Yashima (2002) has expanded upon the definition of integrativeness to refer to a generalized international outlook or international posture (IP). She has defined IP as an “interest in foreign or international affairs, willingness to go overseas to stay or work, readiness to interact with intercultural partners, and ... openness or a non-ethnocentric attitude toward different cultures” (p. 57).

This identity with foreignness includes an international outlook, a positive attitude toward different cultures, and people from different countries (Yashima, Zenuk-Nishide, & Shimizu, 2004). They have “attempted to operationally define international posture based on preliminary studies and examined, in the JEFL context, relations among international posture, L2 learning motivation, L2 proficiency, and L2 communication variables including confidence in L2 communication and WTC” (p. 125). In another JEFL study, Adachi (2009) defines cross-cultural intention as the concept of the community in countries that use English and sympathy and understanding toward the culture of English speakers. In her research, she found a relationship between motivation and the cross-cultural intention of students.

**Student Affective Variables in EFL**

**Self-perceived Communicative Competence**

MacIntyre and his associates (Donovan & MacIntyre, 2005; MacIntyre, 1994; MacIntyre & MacDonald, 1998; MacIntyre & Charos, 1996; MacIntyre, Clément, Dörnyei, & Noels, 1998) have identified a concept, which they have labeled ‘perceived communicative competence’. Other researchers emphasize that it is the learner's perception of their own communicative competence that influences their WTC (Clément, Baker, & MacIntyre, 2003; McCroskey & McCroskey, 1988; Rosenfeld, Grant & McCroskey, 1995). As a result, several researchers refer to the same construct by different names. In other words, a learner’s self-confidence to speak in English may also be considered their self-perceived communicative competence (Gaudino & Hodges, 1992).
McCroskey and his associates (Chesebro et al., 1992; McCroskey & McCroskey, 1988; Rosenfeld, Grant & McCroskey, 1995) emphasize that it is the learner's perception of their own communicative competence that influences their WTC - not the teacher or an 'other' who perceives the learner to be objectively able to communicate competently. Language researchers have long known the role of communication competence and the resultant apprehension if self-perceived competence, or self-confidence in the L2 is lacking (i.e. a non-willingness to communicate) in language learning (see Chesebro et al., 1992).

According to Clément, Dörnyei, and Noels, “self-confidence in using the L2 (is) operationally defined in terms of low anxious affect and high self-perceptions of L2 competence” (1994, p. 422). Based on previous ESL research, Yashima’s 2002 study found a positive, causal relationship between motivation and communication confidence (comprised of communication anxiety, or nervousness, and perceived communication competence) in the L2, which led to WTC in the Japanese EFL situation. In addition, Yashima et al. (2004) found that “self-confidence in communication in an L2 is crucial for a person to be willing to communicate in that L2” (p. 141). The role of confidence as a predictor variable for FL WTC has also been found by Hashimoto (2002). She has also stated that “perceived competence or self-confidence” (p. 57) in an L2 are positive indicators of motivation, and can in fact be considered the same construct.

**Willingness to Communicate**

McCroskey and his associates have researched and reported extensively on a construct that they have identified and named 'willingness to communicate' (WTC, McCroskey & Baer, 1985). WTC captures the major implications that affective variables such as anomie, communication apprehension, introversion, reticence, self-esteem and shyness have in regards to their influence on communicative behavior (McCroskey & Richmond, 1991). In his research, MacIntyre (1994) speculated that L2 WTC is based on a combination of perceived communicative competence and a low level of communication anxiety. Other studies have shown that WTC was a predictor of frequency of communication in the L2, while motivation was a predictor of WTC and/or frequency of communication (MacIntyre & Charos, 1996; MacIntyre & Clément, 1996).
Yashima and her associates have conducted research on affect in the JEFL context in relation to several affective variables. For example, they have reported on language learning orientations and motivations of Japanese college students (Yashima, 2000); student WTC (Yashima, 2002); the influence of attitudes and affect on WTC and L2 communication (Yashima et al., 2004); and the interplay of classroom anxiety, intrinsic motivation, and gender (Yashima et al., 2009). Yashima et al. (2004) have called for “Studies...to be carried out with programs that offer students increased opportunities in L2 communication” (p. 126). The research results presented in this paper are of just such an intervention-based program, albeit from an early, exploratory stage.

**Technology-based EFL Activities**

There has been little reported in the literature on affect and students who engage in real-time synchronous communication with members of the target language community outside of Japan. Takiguchi (2002) conducted a research project, which tested for changes in affective variables of Japanese junior high school students. The results have shown that real-time, in-class communication with junior high students in the USA using VoIP software (Skype) improved student interest, concern, and desire. Especially, the students responded favorably to several items. The items were rated on a scale of 1 to 5, with 5 being the highest. The items, followed by the mean score, are:  

Because it can be useful to do something in the future  
「将来の何かに役に立たせるため(3.53)」, Because in future employment or work, it will be useful  
「将来の就職、仕事に役に立つから(3.33)」, Because being able to speak in English is fun  
「英語で話せると楽しそうだから(3.53)」, Because I want to get good grades in school  
「学校の成績を良くしたいから(3.44)」, and Because I want to become friends with foreigners  
「外国人と友達になりたいから (2.92)」. In addition, Ockert and Tagami (2014) have also shown that VoIP tech-based FLAs using Skype can have a positive impact on student affect.

More recently, Tagami (2011b) utilized video-letter exchanges, which involve the students making recordings of themselves speaking in their respective FL and sending them to their respective ‘sister school’ as email attachments. His research results led him to believe that the exchanges between his students in Japan and the Australian students helped his students realize that English is a necessary means to communicate with members of a different culture (Tagami, 2011b). The activities were designed to allow the students a structured, yet
autonomous, experience (Jang, Reeve, & Deci, 2010), which helped improve their WTC and motivation (Tagami, 2011a, 2011b).

Furthermore, Ockert’s research on tech-based FLA interventions has confirmed the positive relationship between motives to learn English, confidence, and WTC (Ockert, 2013, 2014a, 2014b, 2014c). This paper adds to the English language literature by building on the previously reported studies in the Japanese language literature regarding EFL and activities utilizing technology.

The Study
This research attempted to confirm the correlations between six affective variables as previously found and reported on by Tagami (2011b). These are communicative confidence, desire to travel abroad, FLAs, motivation (defined and operationalized by ‘desire to study more’, Gardner, 1985), WTC, and IP. Example FLAs for this study included exchanging video ‘letters’ and activities in class to video record student self-introductions and a whole class introduction. A correlation analysis will show the strength of the relationships between the six variables.

Based upon the reviewed previous research results, the author proposes the following research questions: Will these students show a strong desire to learn English and be confident in using English? Are they interested in FLAs which use English? Will the students perceive themselves as global citizens? Will there be a strong correlation between the tech-based FLAs and the other affective variables?

Hypotheses
1. The students will show a desire to learn English and positive affect toward FLAs in English.
2. There will be strong correlations between WTC, IP, FLAs, and motivation.

Methods
Participants
Twenty-seven 5th grade elementary school students (N = 27) participated in the study, who were 10 or 11 years old and in the same fourth grade class. They were all Japanese in the same school in Nagano prefecture, Japan. Permission was obtained from the school authorities after
consultation with the students’ parents regarding the nature of the research and the required participation of the students.

**Materials**
The research project used a self-report measure administered in Japanese using a six-point Likert-type scale from 1 (*Completely Disagree*) to 6 (*Completely Agree*). Researchers in Japan used the questionnaire in the past with elementary students (see Ockert & Tagami, 2014; Tagami, 2011a, 2011b). There are six questions - one each on foreign language activities; foreign countries / different cultures; desire to communicate in English; confidence to communicate in English; desire to communicate with foreigners in English; and, traveling abroad (see Appendix). The Cronbach’s *alpha* reliability estimate of .88 is acceptable for a six-item instrument.

**Procedures**
The survey was administered in class to the students. The survey was in paper form and in Japanese. The data was kept anonymous. The survey was administered in class to the students in December 2010 after they had viewed the video ‘letter’ from the other school. During the months leading up to the sending and receiving of the video ‘letters’, the students participated in several technology-based FLAs in preparation of the video. This included recording each student’s self-introduction and a whole class greeting. Naturally, introductions and the whole class greeting were viewed, re-recorded if desired, and edited before sending. The students also used Google maps to find the other schools location. The data was put to a correlation analysis using statistical software SPSS 18. The significance level was set to .05 for all of the questions.

**Results and Discussion**
The descriptive statics and the correlation analysis results are presented in Table 1. As can be seen, there are a number of rather high correlations between several of the item responses. In addition, all of the correlations are statistically significant at the *p* < .01 level. This indicates that it may be possible to influence the affective variables via FLAs, which will be tested in later stages of the research project.
Table 1. *Pearson correlations coefficients of the survey results*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Confidence to Communicate</th>
<th>Desire to Travel Overseas</th>
<th>FLAs</th>
<th>Motivation</th>
<th>WTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence to Communicate</td>
<td>2.62</td>
<td>1.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Desire to Travel Overseas</td>
<td>2.85</td>
<td>1.27</td>
<td>.603*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLAs</td>
<td>3.81</td>
<td>1.46</td>
<td>.491*</td>
<td>.534*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>3.10</td>
<td>1.28</td>
<td>.653*</td>
<td>.572*</td>
<td>.701*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTC</td>
<td>2.99</td>
<td>1.22</td>
<td>.633*</td>
<td>.526*</td>
<td>.704*</td>
<td>.813*</td>
<td></td>
</tr>
<tr>
<td>International Posture</td>
<td>2.87</td>
<td>1.33</td>
<td>.504*</td>
<td>.510*</td>
<td>.610*</td>
<td>.752*</td>
<td>.721*</td>
</tr>
</tbody>
</table>

Note. *p < 0.01 level (2-tailed)

There are several correlations of .50 or greater: between motivation and WTC the correlation is .81; between motivation and IP, it is .75; between motivation and FLAs we find a correlation of .70; between WTC and FLAs it is .70; between WTC and IP we have .72; between FLAs and communicative competence, the correlation is .49; and finally, between motivation and desire to travel overseas, it is .57. There is only one correlation less than .50, but that is .49 between FLAs and communicative competence.
The results in Figure 1 are similar to those reported by Tagami (2011b). This indicates that elementary school age students in Japan share similar affect toward EFL learning. The strongest correlation, between motivation and WTC, is also the same as that found by previous research involving older students (Yashima et al., 2004). The strong correlations between FLAs and both motivation and WTC indicates that the use of technology in the preparation for and exchange of video ‘letters’ in the classroom may stimulate these two affective variables.

Conclusions

This paper set out to report the results of research that attempted to answer two hypotheses. The first, *The students will show a desire to learn English and positive affect toward FLAs in English*, can be answered by examining the mean scores of the items asking about desire to study more (item four) and FLAs (item three). On a positive note, the students ranked a desire to learn English by studying more highly ($M = 3.10$), and they ranked FLAs the highest of all ($M = 3.81$).
The second hypothesis stated: *There will be strong correlations between WTC, IP, FLAs, and motivation.* The correlations presented above in Table 1 support this hypothesis. A main point of interest to elementary school teachers is that the FLAs between the students in Japan and the students in a foreign country had several positive characteristics. First, student interest in English improved when they realized English is a necessary means to communicate. Second, their WTC was supported through the activity. Third, their participation in this activity provided a chance to look back on their own culture from the perspective and understanding of a different culture.

There are several limitations to the present study that the author hopes to address in future research. For example, having both an experimental and control group(s) would allow for comparisons of the correlations between the six variables both before and after FLA interventions. Furthermore, the use of open-ended questions in either a qualitative or mixed-methods study would certainly be welcome.

There are several reasons why learners may lose interest in learning another language: time pressure; the fact that their friends do not use the language; boredom; they see no future use for it; and other interests, to name a few. However, the uses of recent technological advances such as the Internet provide an interesting alternative to traditional educational approaches. The use of technology-based FLAs would help maintain student interest and educators are encouraged to include them in their curricula. Teachers can take advantage of the use of video-letters to provide their students an opportunity to communicate with NSs of English living in another country. The use of classroom time to prepare students as individuals for their ‘on-camera’ self-introductions in English is certainly worthwhile. It can be argued that the students are motivated knowing that their English introduction will be viewed by the other students living abroad. In addition, the inclusion of technology in the classroom to video record students can help boost confidence to use English and improve student WTC in English. The author believes that future, longitudinal studies which using a mixed-methods approach to help triangulate quantitative results with a qualitative explanation would greatly benefit the global community of researchers and educators.
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Biodata

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References


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Appendix. *An English translation of the student survey*

1. I have confidence to communicate using simple English.
2. I want to go overseas at some time.
3. I like foreign language (English) activities.
4. To communicate in English, I want to study more.
5. For myself, I want to communicate with foreigners in English.
6. I want to know more about foreign countries (different cultures).