MAKING ENGLISH A "HABIT": INCREASING CONFIDENCE, MOTIVATION, AND ABILITY OF EFL STUDENTS THROUGH CROSS-CULTURAL, COMPUTER-ASSISTED INTERACTION

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ABSTRACT
This study examines the relationships among the three essential language-related components -- motivation, confidence, and ability -- following a series of live videoconference interactions between Taiwanese EFL students and a native speaker. 227 students enrolled in the five advanced conversation classes at a private technical university in central Taiwan participated in this study. Based on quantitative evaluation of student perceptions, the major findings were (1) motivation, confidence, and ability correlated directly, but motivation of the students increased the most as a result of strong videoconference instructional design; and (2) confidence in interacting with native speakers was the best predictor of students' perceived ability. All data supported the benefits of EFL classroom teachers providing their students authentic experiences interacting with native speakers, and the value of Internet videoconferencing for this interaction. These findings provide a valuable framework for instructors in any foreign language to build a global, cross-cultural classroom.
Keywords: videoconferencing; E-learning; integrative motivation; instrumental motivation; scaffolding; authentic learning environment; perceived ability; self-perceptions

INTRODUCTION

In the 21st Century, English has become the common international language, the language most frequently used to communicate when two people are not native speakers of the same language. As a result, instruction of English as a Foreign Language (EFL) is a priority around the globe. But instructional methodologies have not always kept pace with these changing realities. In countries where there is not a surrounding population of active English speakers, the language is still often taught as a traditional classroom subject, similar to math or geography. Technology, however, now offers opportunities for authentic interaction with people from other cultures that can be incorporated into the classroom (Chang & Lehman, 2002).

This paper reports on the use of technology to allow pedagogically sound interaction between students in an EFL class in Taiwan and a native English speaker in the United States via an instructional design that could be used in any foreign language classroom in any country. The first author is a Taiwanese female faculty member teaching at the subject university in Taiwan. She holds master and doctoral degrees from American universities, where she was a doctoral classmate with the second researcher, a native-born American, who is now a faculty member at a liberal arts college in the upper Midwest of the United States. Both the Taiwanese and American faculty members employ learner centered instruction and active learning, deemphasizing traditional lecture, memorization, drill, and passive learning, which are still employed frequently by many EFL instructors in Taiwan. The authors collaborated on a project in which the American researcher spoke repeatedly via Internet videoconference to English conversation classes taught by the Taiwanese researcher.

LITERATURE REVIEW

The availability or lack of a surrounding community of English speakers outside the classroom affects learning and teaching of English as a foreign language. When there are no English speakers easily available outside the classroom, it makes EFL learning and quality teaching more challenging (Parker, Heitzman, Fjerstad, Babbs, & Cohen, 1995). Because of this, the most successful EFL pedagogies attempt to replicate the target language's environment, usually through technology-assisted teaching, bilingual curricula, and immersion programs (Lapkin, Swain, & Shapson, 1990).

Videoconferencing for language instruction

Many researchers have studied use of technology to improve EFL learning (Chung, 1991; Guthrie & Richardson, 1995; Liou, 1997; Scardamalia & Bereiter, 1991; Van Aacken, 1999). Studies have generated a wealth of data supporting the use of videoconferencing for distance language education (Wang, 2004) concluding that the present generation of Internet based desktop videoconferencing tools can be a cost-effective solution to the problem of lack of oral visual interaction in distance language learning, and that videoconferencing was

extremely well received by the distance participants. As a result, many scholars see emerging Internet technologies as having potential in the classroom (Bottino, 2004; Howard-Kennedy, 2004). Over a decade ago, Fox (1998) foresaw that the Internet had the potential to offer EFL students what is missing from their environment: "practical real life language experience, providing students with functional communicative experiences that serve the learners' needs as well as motivate them to use English in their daily lives" (p. 1). Videoconferencing, once requiring dedicated circuits with high price tags, is now within the range of home consumers, using such free or low cost technologies as Skype or Netmeeting, and E-learning is considered to be particularly well-suited to move learners from passivity into active, highly motivated learning (Dantas & Kemm, 2008).

But in spite of this potential, developing these E-learning opportunities for EFL poses an important and difficult challenge (Wu & Bright, 2006). In American education, videoconferencing technology has been available since 1975, and online collaborative learning has become increasingly common and valuable (Juell, Brekke, & Vetteri, 1996; Tiene & Ingram, 2001; Wheeler, Valacich, Alavi, & Vogel, 1999). Educators acknowledge, however, that the learning outcomes that result from online synchronous learning, such as Internet videoconferencing, are the direct product of the quality of the instructional design (Hastie, Chen, & Kuo, 2007). Without careful consideration of the instructional design, videoconference instruction tends to default to long-distance lecture with little interaction. As a result, students tend to be passive, as if they were watching television (Gillies, 2008).

Past efforts to use videoconferencing as part of foreign-language instruction have received criticism because they often have not been integrated into a comprehensive pedagogic structure (O'Dowd, 2005). In addition, trepidation on the part of the instructors has been one of the biggest problems associated with attempts to use videoconferencing for language instruction, due to low comfort levels using the technology (Ramirez, 1998). Technical problems, such as unexpected failures of sound or video, can undermine the learning value of a videoconference (Gillies, 2008). Therefore, instructors must "normalize" their use of the technology so that it is routine.

Motivating EFL students with Internet technology

E-learning has been found to be particularly well-suited to move learners out of passive learning modes into highly motivated, engaged learning (Dantas & Kemm, 2008). Motivation improves or declines as the consequence of positive or negative learning experiences that motivate or demotivate the students (Sakai & Kikuchi, 2009). For EFL students, this means that their experiences using English, both in and out of the classroom, drive their levels of motivation.

The work of Zoltan Dörnyei helps shed light on how E-Learning and Internet videoconferencing can impact student motivation. Dörnyei's process model of motivation (Dörnyei, 2000, 2001) and his theory of the motivational self-system (Dörnyei, 2005) provides a framework that stresses the importance of the self-concept of the language learner and suggests that motivation stems from the desire to lessen the dichotomy between one's actual self, and the self one wishes to become. In addition, Dörnyei (2005) presented a complex vision of motivation in which the idealized English-speaking self is partially based on real-life encounters (or lack thereof) with speakers of the target language and partly on the way the students imagine themselves functioning in a cosmopolitan international society, not necessarily interacting only with representatives of native English speaking cultures. One role of EFL instruction, therefore, is to help shape the student's idea of what the self ought to be. Furthermore, it would appear that successful Internet videoconferencing between EFL students and a native speaker could also serve this mission of helping students imagine themselves interacting successfully with people of different cultural backgrounds in this international society.

Motivation, confidence, and ability as learning dimensions

Motivation, confidence, and ability are often treated as distinct but related learning dimensions (Butler & Lumpe, 2008; Clèment & Kruidenier, 1985; Hirschfeld, Lawson, & Mossholder, 2004; Phillips & Lindsay, 2006; Tavani & Losh, 2003). The literature widely holds that motivation, confidence, and ability are directly related and impact each other and that if one of the factors increases or decreases, the other two will follow in a direct relationship. All three learning dimensions are the result of the cumulative experiences of the student, both in and out of the classroom. All three dimensions improve or decline as the consequence of positive or negative experiences.

Scaffolding to promote active learning

In designing a curriculum incorporating authentic online interaction, the use of scaffolding can make the difference between a successful experience that improves motivation and an unsuccessful interaction that depresses motivation. Scaffolding is a teaching and learning model for classroom interaction in which the

teacher initially gives a high level of support to the student, such as availability to translate during interaction in the foreign language, with support slowly withdrawn to help the student become more independent (Beed, Hawkins, & Roller, 1991). Scaffolding, therefore, uses a social constructivist philosophy in which student collaboration and student/teacher interaction leads learners to evolve their own knowledge foundations. The social interaction is the central concept behind scaffolding. It depends on the building of positive relationships among students and between students and instructors. Scaffolding fosters collaboration, respect for one's own and others' ideas, and a growing ability to construct meaning from previous experience (Lee, 2003). In the context of videoconferences between EFL learners and native speakers, this means teachers need to initially provide high levels of support, including assistance with vocabulary, pronunciation, and listening comprehension, slowly withdrawing that support over time to encourage the students to achieve higher levels of proficiency.

Importance of student perceptions

In order to analyze the effectiveness of videoconferencing for EFL instruction, researchers need to either use the self-perceptions of study participants, or external measurements. Some academic literature has criticized self-report methodology, but many scholars contend that students above high school levels have both the cognitive and meta-cognitive capacity to comprehend and report their own characteristics, such as motivation (Gottfried, 1985; Linnenbrink & Pintrich, 2002). There is abundant research showing that student perceptions of their own motivation, confidence, and ability accurately predict a variety of learning factors, including goal orientation, self-efficacy and actual outcomes (Bandura, 1989; Hardré & Sullivan, 2008; Kaplan & Midgley, 1997; Leach, Queirolo, DeVoe & Chemers, 2003; Noels, Pelltier, Clément & Vallerand, 2003; Ryan and Deci, 2000; Wolters & Pintrich, 1996). In this framework of performance versus learning orientations, positive self-perception, and self-efficacy correlates with adaptive, beneficial goals for learning, leading to productive outcomes. In particular, a "learning orientation", in which individuals are concerned about developing their ability and their focus is on gaining understanding, insight, and skill, is linked to integrative motivation and thus positive outcomes (Brunin, Schraw, & Ronning, 1999). This social-psychological understanding of the student, encompassing self-efficacy versus anxiety and based on experiences in and outside the classroom, has been found to be particularly valuable in describing the EFL classroom dynamic (Clément, Dörnyei, & Noels, 1994). Thus while the student perception of ability, motivation, or confidence may not tally with an external evaluation of the same factors, it is the student's perception that largely predicts the level of effort the student will invest in studying, which can be argued to translate into the actual ability outcome.

Purpose of the study

This review of the literature suggested that further empirical research was needed into how videoconferencing can be employed in the EFL classroom and into the resulting reactions of students, in order to provide more information and guidance to educators who wish to use student centered methodology to improve learning. The main goals of this empirical study were to determine (1) which learning dimensions (motivation, confidence, and ability) changed the most in student perceptions due to the videoconferencing; (2) the relationships among the three learning dimensions; and (3) which dimension best predicted English ability as perceived by students. This final goal is particularly important, from the practical perspective of educators. Students who best improve their ability during a semester or during their entire university careers are often defined as the most successful. This status, validated through threshold GEPT (General English Proficiency Test) scores required for graduation in all majors throughout the universities in Taiwan, is the practical objective of EFL programs. Therefore, it is the focus of EFL programs and instructors to help the students build their ability.

Instructional Design

This study employed a series of planned videoconferencing sessions between non-English majors at one technology university in Taiwan and an American liberal arts college faculty member. The Taiwanese colleague was seen by students as knowledgeable and enthusiastic about America. The American colleague teaches in a college Mass Communication program and is experienced at being "on camera" in broadcasting settings.

Six videoconference sessions were held during the fall and the spring semesters in five English conversation classes taught by the Taiwanese researcher. The same students were in the class in both semesters. During each videoconference, the American researcher presented a topic drawn from American culture and American customs, followed by a period of student interaction with the American. The researchers then collected both quantitative and qualitative data from the 227 participating students.

Videoconference methods

The development of the presentations involved two major steps. Table 1 contains a detailed sequence of the steps required for each lesson, including preparation, conduct of the videoconferences, and follow-up.

The first major step was an assessment of the technical environment. For the presentations in this study, the collaborating teachers selected the consumer system SKYPE (skype.com). Due to time zone differences, the American and the Taiwanese classes would be 13 to 14 hours apart in their local times, so the American made provisions to connect to the videoconferences from home, because the classes fell in mid-evening, in the middle of the night, or in the early morning hours United States time. The Taiwanese classes met in an on-campus computer lab. The teacher's computer in the lab made the connection to the American and the screen of the teacher's computer was reproduced on a large projected display, as well as on the individual student computers in the lab. Wall-mounted speakers and a common microphone allowed for all students to hear the American and for the Taiwanese teacher to control the flow of the conversation and assure equal opportunity for students to participate.

During the second step of development, the two faculty members collaborated to plan the overall strategy of the videoconferences and the individual lessons carefully. The American developed a presentation of 20-30 minutes for each round of teleconferences, with feedback from the Taiwanese teacher. The subject of each presentation was specifically tailored to interest young adults and highlighted American culture, traditions, and vocabulary. Specific issues and topics covered in the curriculum included major American holidays, American National Parks and travel preferences, Western food and table manners, and American dress and decorum.

During the actual implementation of the instructional design, the Taiwanese teacher pre-taught the material to facilitate the lesson and ease the students' conversational anxiety. The students were provided a written copy of the presentation in advance, along with an MP3 audio recording of the text, made by the American. In the recording, the words were pronounced slowly. The Taiwanese teacher reviewed the advance text with students, emphasizing the new vocabulary and meaning of phrases. In the live teleconferences, the American teacher delivered expanded versions of the presentations, adding multimedia material to enrich the text, while the Taiwanese teacher provided scaffolding to the students, such as translating, wording, or clarifying meaning, as needed to lower the anxiety of the students and to enhance their learning.

During each videoconference, the American presented for the planned 20-30 minutes. Following each presentation, Taiwanese students, either as individuals or in small groups based on their comfort levels, asked the American questions or replied with comments regarding the presentation. In later rounds of videoconferencing, the students actually prepared in groups to present back to the American on a Taiwanese aspect of the topic, followed by discussion with the American. In each case, the American's vocabulary was kept close to the range of the students, but they were also challenged by adding new vocabulary specific to the cultural elements being discussed. The Taiwanese faculty researcher used scaffolding techniques, initially remaining close to the student speaking to the American to provide help with listening comprehension, vocabulary, and grammar, but as the rounds of videoconferencing passed, she provided less and less support to encourage the student to become more and more independent.

After each round of videoconferencing, the Taiwanese teacher provided her students with feedback and comments based on the students' performance, as well as both individual and group grades. Therefore, students were well informed of their learning outcomes and were able to self evaluate their own learning progress and performance. The Taiwanese and American teachers also reviewed each session and made adjustments for subsequent rounds. For example, after-the-fact reviews resulted in the decision to add the component of students presenting back to the American, in order to further engage their learning and interaction for learning English.

Table 1- *Sequence of each lesson (Later rounds when students also presented back to the American)*

	Teachers	Students
1. Choose a topic	•	•
2. Write texts & type them	•	
3. Upload advance text & audio recording	•	
4. Listen to the audio recordings prior to each videoconferencing section		•
5. Go through texts if necessary	•	•
6. As a group, decide on topics for each student presentation		•
7. Conduct on-line research for individual part of their presentation		•
8. Make PowerPoint's presentations or pictures		•
9. In-class live group presentation-interaction with the two investigators-Scaffolding Strategy	•	•
10. Review the process and procedure	•	
11. Provide comments and feedback to each individual student and each group for improvement and progress	•	•

EVALUATION METHODS

The researchers a quantitative methodology to explore the perception of students about changes in their motivation, confidence, and ability as the result of a class in which they repeatedly interacted via Internet videoconferencing with a native English speaker.

Delimitations

This study measured the students' perceptions of their own learning dimensions, based on grades and feedback they had received from the Taiwanese instructor for each videoconferencing session because the researchers concluded that self-reporting served as the most authentic method of assessment to meet the goals of this project. Research has shown that older adolescents, such as those who participated in this study, are able to know and to report accurately their present achievement and to accurately predict future learning outcomes (Berk, 2003; Linnenbrink & Pintrich, 2002). As a result, the authors concluded that self-reporting was a valid methodology because the students participating in this project received classroom grades and personalized teacher feedback after each round of videoconferencing. Motivation and confidence are internal aspects that are hard to measure externally. In addition, students' perceived ability was deemed to be worthy of consideration for reasons discussed at length in the literature review. Furthermore, a control group was not considered to be feasible in this study because removal of the videoconferences would have resulted in such a significant restructuring of the control group class that there would be too many confounding variables to isolate the differences resulting only from the videoconferences from other classroom-to-classroom differences.

Quantitative methodology:

The quantitative survey for this study was based on the Attitude/Motivation Test Battery of Gardner (1985), Zeng's (2001) survey of students' English learning achievement, and the 1997 survey conducted by the California Foreign Language Project (Silva, 1997). The decision to divide the instrument with three different sections, including motivation, confidence, and ability, and analyze them separately, was based on the findings of the literature review that the three learning dimensions are appropriately treated as separate and distinct, but related, learning dimensions.

The first survey section of 13 items asked about the degree of change in student interest in studying both the English language and the culture of the target language as well as changes in motivation to study the language. The second section with 11 items dealt with the change the students perceived in their English-proficiency levels. The change in student confidence in using the language was assessed in the third section, consisting of 11 questions. The final section was the students' demographic information about gender, age, program type, years of English study, type of high school attended (technology- or academically-oriented), and experience with online learning and using technology. A five-point scale assessed student perceptions regarding changes in motivation, ability, and confidence as a result of the videoconferencing. The low end of the scale was labeled "significantly reduced" (= 1.00) and the high end of the scale was labeled "significantly increased" (= 5.00). The midpoint of the scale (=3.00) was labeled "no change."

The Taiwanese researcher administered the survey instrument, written in Chinese, to the 227 students at the end of each of the five English conversation classes while the researcher was present. Data were collected at the end of the fall 2006 as well as the conclusion of the spring 2007 semester. The survey, consisting of four major sections, was developed by the two researchers based on the review of the related literature, including items taken from Gardner and Lambert's questionnaire (1972). The survey was piloted to 50 students, who were excluded from the 227 participants in this study. The overall internal reliability for this instrument is .92, with each section also scoring above .85, which is considered to have high reliability compared with the minimum Cronbach α of .75, which is considered reliable.

The researchers chose factor analysis and multiple regression as the primary methodologies (in addition to descriptive statistics) in order to gain a more complete understanding of the students' perceptions of their own motivation, confidence, and ability. Without the opportunity presented by factor analysis to subdivide the three main learning dimensions, the results would have been too general and not as valuable to practitioners wishing to make use of the findings. The researchers further chose to perform separate factor analyses on the three dimensions, based on precedents for this methodology (Deci & Ryan, 1985). In this way, the study could best serve its overarching purpose of providing information of practical use to educators by separately determining factors influencing motivation, confidence, and ability.

For the analysis of the quantitative data, SPSS version 15 was used, especially frequencies, means, reliability, factor analysis, Pearson product-moment correlation, and stepwise multiple regressions.

FINDINGS

Changes in the three variables due to the frequency of videoconferencing

To determine the influence of the videoconferencing sessions on the students' perception of their own motivation, ability and confidence, mean scores for each factor were computed at the end of each semester. Comparing preliminary student responses from the end of the first semester (after four videoconferencing sessions) with the same students at the end of the second semester (a total of six videoconferences over the two semesters), the analysis revealed that the participants showed a moderate increase in their perceived motivation only, with a mean score increasing from 3.80 to 4.09 although the mean scores for the other two factors all increased in the second semester compared to the first semester. Data analysis also showed that more videoconferencing sessions would impact perceived motivation at a significant level, because 4.09 is more than two standard deviations above 3.00. More videoconferencing sessions, however, would not influence their perceived ability or confidence significantly, although the means scores for confidence (M = 3.41) and ability (M = 3.50) were also considered high.

Relationships among the motivation, ability, and confidence

To examine the relationships among the three dimensions, the Person-correlation coefficient was calculated. All three learning aspects positively correlated with each other at the .01 level (see Table 2) while confidence had the strongest relationship with ability, with a coefficient of .679, indicating that confidence was a more reliable predictor of ability than motivation.

Table 2. Summary of intercorrelations among the three learning variables

	Motivation	Ability	Confidence
Motivation	1.000	--	--
Ability	.396**	1.000	--
Confidence	.457**	.679**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Critical elements of perceived confidence and motivation predicting perceived English ability

Exploratory factor analysis

In order to decrease the number of the components (factors) in each of three dimensions-- motivation, ability, and confidence, a factor analysis was performed, using a principal-axes method with varimax rotation. The analysis revealed an underlying pattern of relationships in each dimension so that the items could be reduced, thus forming several factors. A Kaiser-Meyer-Oklin (KMO) measure of the sample adequacy was to determine the fitness of the data prior to further analysis. The decision to perform a factor analysis was based on a factor loading of 0.4 or higher and an eigenvalue greater than 1.

Factor analysis of motivation

The varimax rotation solution for Motivation revealed that 61.669% of the variance was explained by the four factors, with component 1, *use of media and technology*, contributing 20.610%; component 2, *the social interaction*, contributing 15.638%; component 3, *cultural understanding*, contributing 12.734%; and component 4, *the intrinsic drive*, contributing 12.680. Analysis of internal consistency reliability of these four components yielded a Cronbach α of 0.85, and the KMO of this analysis was 0.877, presented in Table 3.

Table 3 Factor Analysis of Perceived Motivation

Factor	Rotated Factor Loading	% of Variance	Question Items
Factor 1	.742	20.610	13. Your desire to try to learn English through different channels
	.659		9. Your desire to understand the news from native English-speakers' perspective?
	.614		11. Your motivation to watch or listen to TV or radio programs in English?
	.554		12. Your desire to study abroad?
	.423		8. Your motivation to converse with foreigners by using visual and audio Internet tool
Factor 2	.784	15.638	7. Your interest in making foreign friends?
	.745		6. Your interest in traveling to countries where

			English is the primary language?
	.523		10. Your desire to be included in relationships with others who use English?
Factor 3	.827	12.734	5. Your understanding of Western culture?
	.577		4. Your motivation to encounter Western culture?
Factor4	.858	12.687	3. To speak English more often
	.582		1. Your interest in your EFL class?
	.553		2. Your motivation to study English?
Total		61.669	
Cronbach's Alpha Value		.85	

Factor analysis of perceived ability

The subsequent four-component solution for Ability explained 70.186% of the variance, with component 1, *listening skills*, contributing 22.684%; component 2, *speaking skills*, contributing 19.802%; component 3, *reading and writing skills*, contributing 15.103%; and component 4, *skills in relating to other culture*, contributing 12.597%. Analysis of internal consistency reliability of these four components yielded a Cronbach α of 0.88 and the KMO of this analysis was 0. 900.

Table 4 Factor Analysis of Perceived Ability

Factor	Rotated Factor Loading	% of Variance	Question Items
Factor 1	.812	22.684	3. Understand English in conversations with Native speakers?
	.774		2. Understand English in conversations with Taiwanese speakers?
	.720		4. Understand English you hear in the media?
Factor 2	.809	19.802	9. Speak English with your English instructors?
	.736		8. Pronounce English words more accurately?
	.509		10. Communicate with English speaking foreigners?
	.414		6. Speak English with your peers?
Factor 3	.801	15.103	1. Comprehend written English?
	.730		7. Use English grammar?
Factor 4	.710	12.597	5. Understand Western culture and customs
	.511		11. Understand Western people
Total		70.186	
Cronbach's Alpha Value		.88	

Factor analysis of perceived confidence

The subsequent three-components solution for Confidence explained 61.598% of the variance, with component 1, *interaction skill*, contributing 25.338%; component 2, *using technology*, contributing 18.333%; and component 3, *travel*, contributing 17.927 %. Analysis of internal consistency reliability of these three components yielded a Cronbach α of 0.89, and the KMO of this data analysis was 0.807.

Table 5 Factor Analysis of Perceived Confidence

Factor	Rotated Factor Loading	% of Variance	Question Items
Factor 1	.773	25.338	5. Speak English with your English instructors?
	.711		4. Speak English with other students?
	.685		1. Use English generally?
	.651		6. Speak English with English-speaking foreigners?
	.608		3. Hear English spoke by native speakers?
	.514		2. Hear English spoken by Taiwanese?
	.426		11. Read or write English
Factor 2	.811	18.333	7. Use multimedia facilities or the Internet
	.673		8. Learn English through distance learning
Factor 3	.879	17.927	10. Think about traveling
	.834		9. Think about study abroad
Total		61.598	
Cronbach's Alpha Value		.89	

Stepwise multiple regression

To predict students' perceived ability based on their perceived motivation and confidence, a stepwise multiple regression technique was used. Ability was defined as the criterion variable, and motivation and confidence were entered hierarchically as predictor variables in the regression equation. Two regression models were presented in Table 6, the first one containing only confidence as a predictor variable. As shown, perceived confidence alone accounted for 46.1 % of the variance in perceived ability. The second set (Model 2) of analyses was to ascertain the unique contributions of each predictor variable in predicting the criterion variable. Adding perceived motivation as a predictor in the regression model led to a relatively very small increase in explained variance, to a total of 47.0%. Examination of the individual terms showed that perceived confidence had the strongest association linked to perceived ability. Overall, these analyses showed that effect for confidence was more strongly related to ability than motivation. The regression equation is as following:

Ability = .630×confidence + .108×motivation

Table 6. Effect of factors in perceived motivation and confidence on perceived ability

Predictor Variables	Criterion Variable: Ability	
	Model 1	Model 2
Confidence	.679***	.630***
Motivation		.108*
R^2	.461	.470
Adjusted R^2	.459	.466
F	192.642***	99.512***

N=227. Standardized coefficients are shown. *p≦0.05; **p□0.01; ***p□0.001 (two-tailed tests)

To predict students' overall perceived ability based on four motivation factors and four confidence factors, a stepwise multiple regression technique was used. Perceived ability was defined as the criterion variable, and perceived motivation and confidence factors were entered hierarchically as predictor variables in the regression equation. The result presented that Confidence factor 1, *interaction skill,* accounted for 40.7 % of the variance in Perceived Ability (Model 1). Adding the Confidence factor 3, *using technology*, Model 2, accounted for 45.5 % of the variance. Model 3 accounted for 47.5% of the variance, adding Motivation factor 3, *cultural understanding,* to ascertain the unique contributions of each predictor. Overall, these analyses showed that effect for *interaction skill* in Confidence was more strongly related to Perceived Ability than other predictors. The regression equation is as following:

Ability = .444×confidence_1 + .267×confidence_3 + .151×motivation_3

The same technique was used to predict the Ability factor 1, *listening skills*. The individual terms showed that Confidence factor 1, *interaction skill*, had the strongest association linked to *listening skills* in Perceived Ability. All the simultaneous regressions had statistically significance, and variance explained of these models was 27.2 %, 30.8% and 34.7%, respectively for models 1, 2 and 3. The regression equation is as following:

Ability 1 = .342×confidence_1 + .227×confidence_3 + .208×motivation_3

The same technique was used to predict the Ability factor 2, *speaking skills*. The individual terms showed that Confidence 1, *interaction skills*, had the strongest association linked to *speaking skills* in Perceived Ability. All the simultaneous regressions had statistically significance, and variance explained of these models was 39.7 % and 42.0%, respectively for models 1 and 2. The regression equation is as following:

Ability 2 = .508×confidence_1 + .202×confidence_3

Multiple regression analyses were conducted to predict the Ability factor 3, *reading and writing skills*. The individual terms showed that the Confidence factor 1, *interaction skills*, had the strongest association linked to Perceived Ability 3. All the simultaneous regressions had statistically significance, and variance explained by these models was 21.7 % and 24.1%, respectively for models 1 and 2. The regression equation is as following:

Ability 3 = .340×confidence_1 + .211×confidence_3

Multiple regression analyses were conducted predicting the Ability factor 4, *skills in relating to other culture*, a criterion variable. The individual terms showed that the Motivation 3, *cultural understanding*, had the strongest association linked to Perceived Ability 4. All the simultaneous regressions had statistically significance, and variance explained by these models was 20.8 % and 28.2%, respectively for models 1 and 2. The regression equation is as following:

Ability 4 = .403×motivation_3 + .283×confidence_3

DISCUSSION

The overarching intent of this study was to gather information that could be of practical use to educators wishing to move beyond traditional instructor-centered lecture-memorization instructional designs. Although the findings validate the general concept of student-centered instruction, the true value of the study is the emphasis the findings place on interaction as a tool for language learning.

The findings make it immediately evident that the Confidence factor *interaction skills* played a prominent role in the students' perceptions of their own ability. The students' confidence in their interaction skills linked more closely than any other factors to their perceptions of speaking ability, listening ability, and the ability to read and write. Similarly, in the qualitative interviews, students often addressed their beneficial interactions with the teachers and each other.

In particular, the students felt that they benefitted from the opportunity to talk with the native speaker. They were well aware that the teachers of their various English classes throughout their education spoke English with an accent. Thus the students did not always place full confidence in the pronunciations and even the interpretations of Western culture offered by their teachers (Wu & Marek, 2007). The students highly valued the opportunity to hear expert pronunciations and cultural interpretations, and to test their own speaking and listening ability against the native speaker. Even modest success in understanding the American, and in making themselves understood by the American, bolstered their self-confidence.

One student commented on this dynamic during the class, saying that the American's "…reaction to your response showed directly on his face when he understood you or had a difficulty understanding you; therefore, I had a better idea about the accuracy of our pronunciation or the usage of the language. And now, I am less afraid of native speakers."

The videoconferences that were the specific subject of the study, therefore, were actually a tool to increase the students' confidence in their interaction skills. The authors believe that although the technology used for the videoconferences was familiar and interesting to the students, the same benefits would have resulted from regular "live" visits of a native speaker to the classroom. Native English speakers willing to fulfill this role are rare in Taiwan and therefore Internet videoconferences simply remove distance and travel barriers and provide the local Taiwanese teacher more opportunities to find native English speaking partners.

Therefore, this study has shown that Internet videoconferencing is an interaction channel that can effectively substitute for a "live" native speaker, when used in a well-planned and theory-based instructional design and environment. When students succeed in such interactions, it is only to be expected that at the same time their actual ability improves, their confidence will also grow. In short, the more students interact, the more confident they are, and the more willing they are to work to improve.

The importance of motivation

Even though confidence proved to be the best predictor of the student's perception of increased English ability, motivation nevertheless played a crucial role. Over the course of the academic year, the students' mean score in their understanding of their own Motivation increased the most of the three dimensions. While students did feel more comfortable interacting in English and felt they were better at it after six videoconference sessions, the most striking fact is that they had become significantly more interested in *learning* and *using* English in international or inter-cultural settings. As Dörnyei's theory predicted, the more the learners in this study felt connected by language to people from other countries and cultures, the more likely they were to feel high motivation, thus increasing their evaluation of their own confidence and their ability. That Motivation increased in the long term more than either Confidence or Ability may be due to the relative ease with which motivation can change, compared to the longer timeframe required for ability to improve. The study demonstrated that interactive learning in an EFL environment shows great promise for piquing students' interest in other cultures and about their own abilities, leading to beneficial improvements in Motivation, Confidence, and Ability.

Interaction and self image in motivation

The findings of this study highlight the need for multiple perspectives on the value of access to native speakers to EFL learners. Dörnyei (2005) suggested that in the 21st Century, interaction with *native speakers* of English is a less important motivating factor for students than the ability to interact with people from many countries for whom English may be a first or second language. Yet, students in this study were clear that interaction with the native speaker increased their confidence in their pronunciation, listening ability, and in their overall English skills. Therefore, while access to native speakers may be less important today than it once was in the direct motivation of students, it can still play an important role in the way teachers structure a student-centered, active

learning experience. Interaction with anyone from another country who speaks English can help shape a student's vision of functioning in cosmopolitan international society, as can positive classroom experiences, because most students have had few opportunities to interact with any foreigner (Lamb, 2004). Similarly, the growing understanding that other cultures have other ways of doing things, and other ways of thinking, adds to the desire to be able to function on the international stage, stimulating motivation.

CONCLUSION

Although teacher-centered instruction, typically utilizing little interaction in English, is the most common in Taiwanese EFL classrooms, this study shows that an instructional methodology stressing interaction as a tool for building confidence is likely to produce increases in the ultimate ability of the students. In particular, positive interaction with native speakers builds student confidence, leading to the end result of improved ability.

A casual comment by a student participating in this study suggested a metaphor by which the interaction dynamic can be understood — regular interaction in English results in development of a "habit" of using English, and therefore studying to improve. The findings of this study suggest that language instructors should seek ways to include interaction in the subject language as part of their curriculum design, using both formal and informal settings, including interaction at a distance via computer technology. Doing so introduces learners to the language as a usable, familiar medium for real communication. Scaffolding should be an integral part of this, in order to encourage the students to become more and more independent and thus more confident in their interactions. Furthermore, instructors should understand that motivations to study foreign languages may be different for men and women may be different and therefore different approaches may be required to foster desirable motivations.

This study suggests that foreign language instructors should strive to give their students experience in interactions with native speakers, discussing topics of particular interest to the students. In order to accomplish this, the local teachers need to network and socialize with native speakers wherever they meet them, including fellow students of local colleagues who studied abroad and colleagues met at international conferences. Finally, generating any type of communicative practice in the target language or with the target culture will ultimately boost the confidence of students and enhance their motivation.

The ultimate goal of any academic program is to provide a foundation from which students can develop the ability to adapt and continue learning on their own. This study provides evidence that in foreign language instructional realms, it is possible to use technology to provide pedagogically-sound interaction opportunities more commonly found when there is a surrounding population of native speakers. This allows students to become more engaged in using their new language. As shown by the data, even a relatively small amount of authentic interaction in the target language made students more comfortable with information they had already learned, changed their perception of how well they were able to apply their skills, and inspired them to make global, cross-cultural connections. Therefore, this study provides a classroom methodology that can positively influence what Dörnyei called the "self one wishes to become." Although this study was performed using Taiwanese college students studying English, the findings can be applied in any foreign language classroom where the instructor is not a native speaker.

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REFERENCES

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development. Vol. Six theories of child development* (pp. 1-60). Greenwich, CT: JAI Press.

Beed, P. L., Hawkins, E. M., & Roller, C. M. (1991). Moving learners toward independence: The power of scaffolded instruction. *Reading Teacher, 44*(9), 648-655.

Berk, L. E. (2003). *Development through the lifespan*. New York: Pearson.

Berelson, B. (1952). *Content analysis in communication research*. Glenco, Il: The Free Press.

Bottino, R. M. (2004). The evolution of ICT-based learning environments: Which perspectives for the school of the future? *British Journal of Educational Technology, 35*(5), 553-567.

Brunin, R. H., Schraw, G. J., & Ronning, R. R. (1999). *Cognitive psychology and instruction* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall.

Butler, K., & Lumpe, A. (2008). Student Use of Scaffolding Software: Relationships with Motivation and Conceptual Understanding. *Journal of Science Education & Technology*, *17*(5), 427-436. doi:10.1007/s10956-008-9111-9.

Chang, M. M., & Lehman, J.D. (2002). Learning foreign language through an interactive multimedia program: An experimental study on the effects of the relevance component of the ARCS model. *The CALICO Journal, 20*(1), 81-98.
Chung, J. (1991). Collaborative learning strategies: The design of instructional environments for the emerging new school. *Educational Technology, 31*(12), 15 – 22.
Clèment, R. & Kruidenier, B. G. (1985). Aptitude, attitude and motivation in second language proficiency: A test of Clèment's model. *Journal of Language and Social Psychology, 4*, 273-291.
Clément, R., Dörnyei, Z., & Noels, K. A. (1994). Motivation, self-confidence, and group cohesion in the foreign language classroom. *Language Learning, 44*(3), 417-448.
Dantas, A., & Kemm, R. (2008). A blended approach to active learning in a physiology laboratory-based subject facilitated by an e-learning component. *Advances in Physiology Education*, *32,* 65-75.
Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* York: Plenum.
Dörnyei, Z. (2000). Motivation in action: Toward a process-oriented conceptualization of student motivation. *British Journal of Educational Psychology, 70*, 519–538.
Dörnyei, Z. (2001). *Teaching and researching motivation*. London: Longman.
Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.
Fox, G. (1998). The Internet: Making it work in the ESL classroom. *The Internet TESL Journal, 4*(9). Retrieved November 14, 2009, from http://iteslj.org/Articles/Fox-Internet.html
Gardner, R. C. (1985). *The attitude/motivation test battery: Technical report*. London, Ontario, Canada: Department of Psychology, University of Western Ontario.
Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second language learning.* Rowley, MA: Newbury House.
Gillies, D. (2008). Student perspectives on videoconferencing in teacher education at a distance. *Distance Education, 29*(1), 107-118.
Gottfried, A. E. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of Educational Psychology, 77*, 631−645.
Guthrie L. F., & Richardson, S. (1995). Turned on to language arts: Computer literacy in primary grades. *Educational Leadership, 53*(2), 14 – 17.
Hardré, P. L. & Sullivan, D. (2008). Student differences and environment perceptions: How they contribute to student motivation in rural high schools. *Learning and Individual Differences, 18*, 471-485.
Hastie, M., Nian-Shing, C., & Yen-Hung, K. (2007). Instructional Design for Best Practice in the Synchronous Cyber Classroom. *Journal of Educational Technology & Society*, *10*(4), 281-294.
Hirschfeld, R., Lawson, L., & Mossholder, K. (2004). Moderators of the Relationship Between Cognitive Ability and Performance: General Versus Context-Specific Achievement Motivation. *Journal of Applied Social Psychology*, *34*(11), 2389-2409.
Howard-Kennedy, J. (2004). Benefits of Videoconferencing in Education. *Media & Methods*, *41*(1), 17.
Juell, P., Brekke , D., Vetter, R.J., & Wasson, J. (1996). Evaluation of computer conferencing tools for conducting collaborative seminars on the Internet. *International Journal of Educational Telecommunications*, *2*(4), 233-248.
Kaplan, A., & Midgley, C. (1997). The effect of achievement goals: Does level of perceived academic competence make a difference? *Contemporary Educational Psychology, 22*, 415-435.
Linnenbrink, E. A., & Pintrich, P. R. (2002). Achievement goal theory and affect: an asymmetrical bidirectional model. *Educational Psychologist, 37*(2), 69-78.
Lamb, M. (2004). Integrative motivation in a globalizing world. *System, 32*, 3-19.
Lapkin, S., Swain, M., Shapson, S. (1990). French immersion research agenda for the 90s. *Canadian Modern Language Review*, *46*(4), 639-673.
Leach, C. W., Queirolo, S. S., DeVoe, S. & Chemers, M. (2003). Choosing letter grade evaluations: The interaction of students' achievement goals and self-efficacy. *Contemporary Educational Psychology, 28*, 495-509.
Lee, E. (2003). Learning through scaffolded assistance during interaction in the EFL classroom: The teacher's role to make an effective learning environment. *Journal of Pan-Pacific Association of Applied Linguistics, 7*(2), 189-213.
Linnenbrink, E. A., & Pintrich, P. R. (2002). Achievement goal theory and affect: an asymmetrical bidirectional model. *Educational Psychologist, 37*(2), 69-78.
Liou, H. C. (1997). The impact of WWW texts on EFL learning. *Computer Assisted Language Learning, 10*(5), 455-478.
Merriam, S. B. (2002). Qualitative research in practice: Examples for discussion and analysis. San Francisco: Jossey-Bass.

Noels, K. A., Pelltier, L. G., Clément, R. & Vallerand, R. J. (2003). Why Are You Learning a Second Language? Motivational Orientations and Self-Determination Theory. *Language Learn, 53*(supp 1), 33-63.

O'Dowd, R. (2005). The use of videoconferencing and e-mail as mediators of intercultural student ethnography. In J. A. Belz & S. L. Thorne (Eds.), Internet-mediated Intercultural Foreign Language Education. Heinle: Boston.

Parker, J. E., Heitzman, S. M., Fjerstad, A. M., Babbs, L. M., & Cohen, A. D. (1995). Exploring the role of foreign language in immersion education. Highland, D., Lee, P. W., Milcham, J., Weber, R. R. (Eds.). *Second language acquisition theory and pedagogy.* (235-253). Mahwah, NJ: Lawrence Erlbaum Associates.

Phillips, N., & Lindsay, G. (2006). Motivation in gifted students. *High Ability Studies*, *17*(1), 57-73. doi:10.1080/13598130600947119.

Ramirez, M. (1998). Conversations from afar: Improving conversation skills and cultural understanding through videoconferencing. Paper presented at the annual meeting of the Sunshine State teachers of English to speakers of other languages. (ERIC Document Reproduction Service No. ED424770)

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78.

Sakai, H. & Kikuchi, K. (2009). An analysis of demotivators in the EFL classroom. *System, 37*, 57-69.

Scardamalia, M., & Bereiter, C. (1991). Higher levels of agency for children in knowledge-building: A challenge for the design of new knowledge media. *The Journal of Learning Science, 1*(1), 37-68.

Silva, D. (1997). *The California Foreign Language Project.* Retrieved December 12, 2009, from http://www.stanford.edu/group/CFLP/

Tavani, C., & Losh, S. (2003). Motivation, self-confidence, and expectations as predictors of the academic performances among our high school students. *Child Study Journal*, *33*(3), 141-151.

Tesch, R. (1990*). Qualitative research: Analysis types and software tools.* New York, Philadelphia; London: The Falmer Press.

Tiene, D. & Ingram. A. (2001). Exploring current issues in educational technology. New York: McGraw-Hill.

Van Aacken, S. (1999). What motivates L2 learners in acquisition of Kanji using CALL: A case study. *Computer Assisted Language Learning, 12*(2), 113 – 136.

Wang, Y. (2004). Supporting synchronous distance language learning with desktop videoconferencing. *Language Learning & Technology, 8*(3), 90-121.

Wheeler, B.C., Valacich, J.S., Alavi, M., & Vogel, D. (1999). A framework for technology-mediated inter-institutional telelearning relationships. *Journal of Computer-Mediated Communication*, *4*(2), [http://www.ascusc.org/jcmc/vol1/issue1/wheeler/essay.html].

Wolters, C. A., Yu, S. L., and Pintrich, P. R. (1996). The relation between goal orientation and students' motivational beliefs and self-regulated learning. *Learning and Individual Differences, 9*(2), 211-238.

Zeng, K. R., Liao, C. W., Xu, Y. Z., & Wu, S. R. (2001). A study of vocational high school students on how to raise their English ability. Paper presented at *The Sixteenth Proceedings of National Technological and Vocational Education*, 207-218, Hualien, Taiwan.

Wu, W. V. & Bright, L. K. (2006). "Integrative motivation development: Key to increasing ESL online learning effectiveness," *The E-Learn 2006 Conference: The International Forum for Researchers, Developers, and Practitioners to Learn about the Best Practices/Technology in Education, Government, Healthcare, and Business*, Full Paper OCT., 13-17, Honolulu, Hawaii, USA.

Wu, W. V. & Marek, M. W. (2007). Taiwanese student reaction to English language Internet teleconferencing for enriching EFL classroom instruction. *Journal for Language Teaching 41*(2), 124-137.