A STUDY OF THE VALIDITY AND RELIABILITY OF SELF-ASSESSMENT

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Abstract: This study is to investigate whether self-assessment contains construct- irrelevant variances of gender and age, and whether self-assessment correlates with test scores. The data were collected from seventy-eight newly arrived international students at the English Language Center, Michigan State University, USA. Prior to class commencement, they were asked to self-assess their listening, speaking, and interactive skill. Then, a test of listening was administered; finally, they were assigned to perform task-based conversational activities.The statistical findings imply that, firstly, gender and age do not provide construct irrelevant variances to the validity of self-assessment and, secondly, self-assessment produces reliable scores.

Key words: self-assessment, validity, reliability.

In the last two decades, the era of traditional assessment in the form of standardized testing or other multiple-choice types of tests in second/foreign language learning has shifted into the era of nontraditional assessments, then referred to as alternative assessments, when a great deal of attention has been given to research on the development and application of a number of alternative assessment tools, such as portfolio assessment, performance assessment, peer-assessment, self-assessment, and so forth (Dochy, Segers, & Sluijsmans, 1999). Two key features of the alternative assessment are that: (1) it is based on authentic tasks demonstrating learners' ability to achieve communication goals, and (2) learners are provided with opportunities to assess their own learning and their peers.

Of these forms of more learner-centered assessment, the one that many higher education institutions in the United States and Canada have used very much for placement and formative purposes is self-assessment. With regard to language learning, this type of assessment refers to an assessment that involves the learners in making judgments about their own language learning achievement or language proficiency attainment. Thus, self-assessment provides some information of how the learners see the development of their second language competence. The typical format of this assessment is that of Likert-scale type, in which the learners are provided with a number of statements containing language use situation, like "I can tell someone about directions" and a range of scores, 1-5 indicating how well the learners can perform the stated language use item.

One of the forces behind advocating the use of self-assessment is the idea of developing greater autonomy on the part of the learners, in which they are expected to be more capable of planning, implementing, monitoring, and evaluating their own learning. Holec (1981) maintains that autonomous learners are those who hold the responsibility for all decisions concerning all aspects of learning including determining the objectives, defining the contents and progressions, selecting methods and techniques to be used, monitoring the procedure of acquisition, and evaluating what has been acquired. In this regard, Oscarson (1989) points out that self-assessment promotes learning, raises learners' awareness of their own learning, improves the goal orientation of individual learners, reduces teacher's burdens of assessment, and entails a long-term effect on the learners' autonomy. Harris (1997) also asserts that self-assessment produces learners who are more active and focused. In short, the use of self-assessment will lead students to be able to learn independently of the teacher (Pierce, 2003).Moreover, an assumption that the learners are the only ones who know, intuitively, how well they are performing in a given language learning task is another reason to advocate the use of self-assessment (LeBlanc, 1985).

Despite the extensive use of self-assessment in second language classes, Cohen (1994) lists five factors that may threaten the accuracy of the information obtained from self-assessment, that, consequently, lead to difficulty in its interpretation. These factors include: a) the learners' lack of training of how to assess their own learning, b) a lack of common criteria for learners and teachers, c) differences between the culture of the learners and that on which self assessment tasks are based, d) inabilities of the learners in monitoring and reporting their learning, and e) intervening effects of subjective influences, such as a desire to please the teacher. Brown

(1998) also lists the potential problems with the use of self-assessment as the scoring is subjective, the accuracy may vary across learning tasks, and, as a result, the scores may be unreliable. Moreover, Harris (1997) mentions the potential barriers to the implementation of self-assessment such as large classes, poor resources, and native educational perceptions which are hostile to self-assessment. Therefore, the use of self-assessment should be taken with care, particularly when administrative decisions are to be made based on its results, such as class-level placement (Cohen, 1994).

Cohen's warning is not empirically unwarranted as research carried out thus far has resulted in conflicting findings. Some research findings indicate a favor of the use of self-assessment as a valid and reliable measure of second language learning performance, while some others indicate the opposite. Among research that fall in the first category is one by Bachman and Palmer (1989) who studied 116 non-native English speakers from the Salt Lake City area. The result of their study indicates that self-assessments can be valid and reliable measures of communicative language abilities when measured in terms of three traits: grammatical competence, pragmatic competence, and socio-linguistic competence. A study by Williams (1992) was also in favor of the use of self-assessment as he reported a significant correlation between self-ratings and teacher ratings. Still, a similar finding was obtained in Stefani's (1994) study dealing with English communication skills. When three measures of assessment, self-, peer, and tutor assessment, were correlated, it was found that student self-marks are closely related with tutor's marks with a correlation coefficient being 0.93 ($p<$ .000). Though with lower coefficients, Patri's (2002) findings also support the use of self-assessment tool when correlation coefficients of .50 ($p<$ .005) and .46 ($p<$. 01) between self-assessment and teacher assessment for the experimental group and control group respectively were found. Alexandria (2009), who studied 130 ESL students enrolled in high-intermediate and advanced classes at a suburban community college in New York City, came up with similar findings. In this study the students were asked to assess their own perceived ability to read, write, and listen in English. A week later a TOEFL test was administered to them to test their ability in reading, writing, and listening. The analysis of the two sets of data indicated that the three self-assessment measures correlate significantly with the total TOEFL. The findings of these studies suggest that self-assessment is extremely useful in helping the students reach their learning goals. As such, it is considered a strong formative educational tool to be used in order to bring about behavioral changes in students with regard to their own learning processes (Orshmond, Merry, & Reiling, 1997).

Yet, findings of other research seem to weaken the trustworthiness of measures collected by means of self-assessment. For example, Blue (1988), after studying the use of self-assessment among university students, came up with a warning that self-assessment has serious limitations as a technique of obtaining an accurate measure of language proficiency. In their review of studies Boud and Falchikov (1989), moreover, noted the possibility of over-assessing and under-assessing by students. In this case, good students tended to under-assess themselves, while poorer students tended to over-assess themselves. In addition, students in higher-level classes were able to assess themselves better than students in the lower-level classes. Furthermore, Matsuno's (2009) study dealing with a writing class of ninety one Japanese university students also weakens the validity of self-assessment scores. In this study the researcher found that many self-raters, particularly the high-achieving students, rated their writing performance lower than predicted. In short, some studies indicate that self-assessment may contain construct-irrelevant variances in its measurement.

Saito (2005) asserts two primary reasons for the contradictory empirical results of research on self-assessment. The first one deals with the lack of consistency in the definition of self-assessment. This inconsistency was clear in the variety of terms used to refer to such a construct, like self-evaluation, self-rating, self-marking, self-testing, and self-appraisal. The other problem deals with the variety of purposes of the use of self-assessment, such as for grouping or placing learners in instructional levels, diagnosing learning problems, providing learning feedback, assessing learner attitudes toward learning, assigning grades, and so on. As a result, findings of research dealing with different purposes of self-assessment are probably not comparable.

The fact that the technique is continuously employed for various purposes in second language learning contexts despite the controversies over its accuracy of revealing the real learners language competence warrants that more research on its validity and reliability is needed. Investigating various latent variables that may lead learners to self-assess in one way or another such as gender and age differencesin language learning is also worth doing. Then, it is for this purpose that the present study is carried out. More straightforwardly, the present research is intended to find the answers to the following research problems:

1. Does gender difference affect students' self-assessment? In other words, do females self-assess differently from males?

2. Does age difference affect students' self-assessment? In other words, do students with different age self-assess differently?
3. Do students' self-assessment scores correlate significantly with their scores in a test of English proficiency?

METHOD

Subjects of the Study

The subjects were seventy eight newly-arrived international students of English for Communication course of Spring semester 2010 at the English Language Center, Michigan State University (MSU), United States of America. They consisted of thirty one males and forty seven females and came from thirty one countries around the world as presented in Table 1. In terms of age, the youngest was 18 years old and the oldest was 57 years old.

Table 1. Subjects' Country of Origin

Country	Number from Each Country	N
South Korea and China	17	34
India	4	4
Cuba, Japan, Mexico andTaiwan	3	12
Lebanon, Somalia, Serbia, Vietnam	2	8
Bosnia Herzegovina, Canada, Cambodia, Kosovo, Turkey, Tunisia, Yemen, Sri Lanka, Venezuela, Honduras, Israel, Sudan, Hungary, Philippine, Gabon, Burma, Saudi Arabia, Bhutan, Brazil and Congo	1	20
TOTAL		78

Research Instruments

The instruments for data collection consist of: (1) a self-assessment, (2) a listening test, and (3) an oral test. In the self-assessment sheet, the students were asked to self-assess their listening, speaking, and interactive skill, each measured in 10 items. To each item, the students have to respond by circling 1, 2, 3, 4, or 5 indicating how well they are able to perform an act with 1 being 'not at all', 2 'with much difficulty', 3 'with some

difficulty', 4 'with very little difficulty', and 5 'easily'. Samples of items are as follows.

1.   I can understand an explanation given over the radio of why a road has been temporarily closed (Listening).
2.   I can tell someone about something humorous that recently happened to me (Speaking).
3.   I can telephone a restaurant to make dinner reservations for a party (Interactive Skill).

The second instrument is a 50 item listening test to measure the students' ability in understanding communicative discourses. It is like a TOEFL test prepared by MATESOL students in their 807 (Language Assessment) class.

Finally, an oral test in the form of a performance test format was also used. In this test, the students were put into groups of four according to their self-assessment scores and then they were required to perform two conversational activities based on predetermined tasks. The students' performance was scored in terms of pronunciation, fluency, grammaticality, vocabulary, and interactive skill by two independent raters. The inter-rater reliability analysis for each aspect yielded reliability estimates ranging from .61 for pronunciation to .70 for fluency, indicating that the data from the oral test were sufficiently reliable. In the subsequent analyses, scores of pronunciation, fluency, grammaticality, and vocabulary were added up to form an aggregate score of speaking.

Data Analysis

The collected data were analyzed using three statistical analyses. First, to measure the effect of gender on self-assessment scores an independent t-test was applied. In this case, the mean score of self-assessment by the male students was compared with that by the female students. Secondly, to measure the effect of age on self-assessment, an analysis of variance (ANOVA) was used. In this case, the students were grouped into three categories: group 1 for those aging 25 years or younger ($n = 16$), group 2 for those aging between 26 and 35 years ($n = 33$), and group 3 for those aging 36 years or older ($n = 29$). Finally, to measure the relationship between self-assessment scores with scores of test, the Pearson-Product Moment correlation analysis was performed.

FINDINGS AND DISCUSSION

Findings

The findings are presented in the order of the research problems addressed in this study. As mentioned earlier, three questions are dealt with in this study and the answers to each of them are described below.

Question 1. Does gender difference affect students' self-assessment?

The statistical findings of the comparison between male and female students in their self-assessment scores of the three measured skills are presented in Table 2. As the table indicates, the mean scores of listening, speaking, and interactive skill were found to be 39.2, 35.7, and 32.6 respectively for male students and 38.2, 34.6, and 29.7 respectively for female students. Analyses on the significance of the difference between the two means of the three measured skills found t-values .534 ($p<$ .595), .530 ($p<$ .598), and .622 ($p < $.214) for listening, speaking, and interactive skill respectively indicating that none was significant. It means that there is no significant difference in the self-assessment of listening, speaking, and interactive skill between male and female students. It implies that gender difference does not provide any significant effect on students' self-assessment. In other words, gender does not provide any construct-irrelevant variance to the validity of self-assessment scores.

Table 2. Descriptive Statistics and t-values of Self-Assessment by Gender

	Gender	N	Mean	Std. Deviation	t-value	Sig.
Listening	Male	31	39.18	8.50	.534	.595
	Female	47	38.18	7.18		
Speaking	Male	31	35.71	10.15	.530	.598
	Female	47	34.59	7.79		
Interactive	Male	31	32.57	10.13	.622	.214
Skill	Female	47	29.68	9.13		

Question 2. Does age difference affect students' self-assessment?

The descriptive statistics of students' scores by age group is presented in Table 3. At a glance there seems to be a pattern that the younger students tend to assess better than the older students since the first group of students score the highest in the three self-assessed skills with mean scores being 40.50, 36.75, and 32 while the third group of students score the lowest with

mean scores being 36.10, 31.44, and 28.76 for listening, speaking, and in-teractive skill respectively.

Table 3. Descriptive Statistics of Self-Assessment by Age

	Age	N	Mean	Std. Deviation
Listening	n ≤ 25	16	40.50	6.58
	26 ≤ n ≤ 35	33	38.58	7.54
	36 ≤ n	29	36.10	9.15
Speaking	n ≤ 25	16	36.75	7.71
	26 ≤ n ≤ 35	33	36.03	8.31
	36 ≤ n	29	31.44	9.85
Interactive	n ≤ 25	16	32.00	9.48
Skill	26 ≤ n ≤ 35	33	31.36	9.31
	36 ≤ n	29	28.76	9.81

Table 4. Summary of Analysis of Variance

	Sources of Variance	Sum of Squares	df	Mean Square	F	Sig.
Listening	Between Group	215.05	2	107.52	1.674	.194
	Within Group	4816.75	75	64.22		
	Total	5031.80	77			
Speaking	Between Group	428.31	2	214.15	2.761	.070
	Within Group	5817.14	75	77.56		
	Total	6245.45	77			
Interactive	Between Group	148.50	2	74.25	.817	.446
Skill	Within Group	6818.95	75	90.92		
	Total	6967.45	77			

However, analyses on the significance of the differences among the three means in the three self-assessed skills using Analysis of Variance (ANOVA) found no significant F-values as presented in Table 4. In this case, the greatest F-value was 2.761 ($p < .070$) for speaking and the lowest was .817 ($p < .446$) for interactive skill. Thus, similar with gender differ-ence, age difference does not provide any significant effect on students' self-assessment. In other words, age does not provide any construct-irrelevant variance to the validity of self-assessment scores.

Question 3. Do students' self-assessment scores correlate significantly with their scores in a test of English proficiency?

The correlation analyses on the relationship between self-assessment scores and test scores in the three measured skills of listening, speaking, and interactive skill found some findings as presented in Table 5. The table shows that the highest correlation coefficient was .660 ($p< .000$) for speaking and the lowest was .416 ($p< .000$) for listening. Moreover, the correlation coefficient for interactive skill was .535 ($p < .000$). Thus, all coefficients were significant, indicating that those who score themselves high in the self-assessment measure turn out to have good scores too in the test. On the contrary, those who score themselves low in the self-assessment measure turn out to have low scores too in the test. This indicates that the students' scores in the self-assessment reflect their real English proficiency. In other words, the students' scores in the self-assessment are reliable measures of their English proficiency.

Table 5. Correlation between Self-assessment and Test Scores

	SA of Listening	SA of Speaking	SA of Interactive Skill
Test of Listening	.416**	.468**	.457**
Test of Speaking	.613**	.660**	.658**
Test of Interactive Skill	.563**	.568**	.535**

** significant at .01 level

Discussion

The findings of the present study are two-fold. One is that neither gender nor age provides significant effect on self-assessment scores. In other words, the variances of scores in self-assessment are not affected by either gender difference or age difference, implying that the two traits dot not provide construct-irrelevant variances to the measurement of English proficiency using self-assessment technique. The other one is that the students' scores in the self-assessment correlate significantly with their scores in the test, implying that the students' self-assessment scores are reliable measures of their English proficiency. Thus, the present study contradicts the findings of Langan et al.'s (2008) study that found a strong effect of gender difference on variances of self-assessment with female students inclining to under-assess their performance.

On the contrary, the present study supports the findings of previous studies claiming that self-assessment provides valid and reliable measures of foreign/second language proficiency (Bachman &Palmer, 1989; Patri, 2002; Stefani, 1994; Williams, 1992). As such, the use of self-assessment in foreign language classes should be promoted. Todd (2002) mentions several reasons for using self-assessment in foreign language classrooms. First, self-assessment is a prerequisite for a self-directed learner. If the goal for learning is for learners to be self-sufficient and independent in language use, then the use of self-assessment should be encouraged. Second, self-assessment can raise learners' awareness of language, effective ways of learning, and their own performance and needs. Third, self-assessment in-creases motivation and goal orientation in learning. Fourth, some aspects of language learning, such as effort and learner beliefs, can only be tapped on through self-assessment.

Moreover, Butler and Lee (2010) explicate two aspects of any assess-ment technique to consider: measurement and learning. The measurement aspect of assessment concerns with how best to measure learners' degree of understanding or mastery of knowledge and skills, the results of which are usually used for summative purposes such as giving grades. On this point, the present study has proved that self-assessment scores are reliable meas-ures of the learners' mastery of listening, speaking, and interactive skills as the students' scores in self-assessment correlate significantly with their scores in a test measuring the same skills. Thus, the use of self-assessment for placement as used in many universities in the US and Canada is scien-tifically supported by the present study.

The learning aspect of assessment relates to its potential role in ad-vancing students' learning. With the growing interest in self-regulated learning leading to a shift of classroom mode from teacher-centered into learner-centered, self-assessment finds stronger position of its stand. This is so because self-assessment meets all three domains of self-regulated learn-ing: metacognitive domain, learning strategy, and affective domain (Butler &Lee, 2010). Through self-assessment, students can become better aware of goals and expectations, monitor their learning processes and progress, and evaluate their own state of achievement against the expected goals and standards defined by the curriculum. Self-assessment also helps learners understand the amount of assistance and effort needed to accomplish their goals, develop a variety of learning strategies, and employ them effectively. Moreover, through self-assessment, learners will understand their own strengths and weaknesses in learning better. Such awareness will affect their learning motivation, and in turn, they will become more proficient in

their learning. In short, self-assessment facilitates students' learning (Paris &Paris, 2001). Indeed, self-assessment help students become autonomous learners (Oscarson, 1989).

The use of self-assessment in classroom repertoires also entails a number of practical benefits. They are that: (1) involving students in the assessment of their work will increase their engagement in, interest in, and attention to learning tasks, (2) self-assessment is more cost-effective than other assessment techniques, and (3) students will learn more when they know they will share responsibility for the assessment of what they have learned (Ross, 2006).

However, if self-assessment is to be advocated for wider use in foreign language classrooms, such threats as students' lack of training and the lack of common criteria between the learners' self-assessment and the teachers' expectation (Cohen, 1994) should be taken into account. In this regards, Ross (2006) poses four dimensions to be paid attention to in designing trainings for students on how to assess their performance. First, the validity and reliability of self-assessment will improve if the rubric uses language intelligible to students, addresses competencies that are familiar to them, and include performance features they perceive to be important. Thus, engaging students in the construction of simple rubrics is essential. Second, teaching students how to apply the criteria also contributes to the credibility of the assessment and student understanding of the rubric. Thus, teacher explanation of each criterion, teacher modeling of how to apply the criteria, and student practice in applying the assessment rubric are crucial for self-assessment training. Third, giving student feedback on their self-assessment by triangulating the results of student self-assessment with teacher appraisals as well as peer-assessment will cultivate their optimism that they are capable of assessing themselves. Thus, conferencing with individuals and groups to resolve discrepancies is worth conducting. Finally, students need help in using self-assessment data to improve performance. Thus, the students should be made aware of the instructional goals from the very beginning of the instructional process, such as by involving them to set up the expected goals.

Chen's (2008) study proves the necessity of having student training in self-assessment. The study deals with two-cycle comparison between self- and teacher assessment of oral performance in English among twenty eight Chinese students of a university in southern Taiwan. The assessment components were developed by the teacher and students collaboratively in a five-level scoring standard. The results showed that self-assessment and teacher assessment differed significantly in the first cycle, but they were

closely aligned in the second cycle after training. Moreover, a majority of the students favored participation in assessment and considered self-assessment conducive to learning. Thus, this study demonstrated that through feedback and practice, the students are capable of assessing their own oral performance in English.

CONCLUSION AND SUGGESTION

In line with the research problems dealt with in the present study, three conclusions were drawn. First, there was no significant difference in the self-assessment scores between male and female students, indicating that gender does not provide any construct-irrelevant variance of self-assessment of listening, speaking, and interactive skills. Secondly, similar with the first one, there was not any significant difference in the self-assessment scores among students with different age groups. Again, it indicates that age does not provide any construct-irrelevant variance of self-assessment of listening, speaking, and interactive skills. Finally, scores in the self-assessment measure were found to correlate significantly with scores in a test, indicating that self-assessment is reliable. Thus, the present study proves that self-assessment provide valid and reliable measures of students' English proficiency.

Based on the findings of the study it issuggested that self-assessment be used as an alternative assessment technique in foreign/second language classrooms, in addition to the use of more traditional assessment in the form of tests. However, to increase the validity and reliability of the measures collected by means of self-assessment, the students should be provided with training sessions as improvement in the quality of self-assessment data goes together with the length of training. Moreover, further evidence of the validity and reliability of self-assessment measurement should still be called for. As such, research on the effect of psychological factors such as attitude, motivation, personality, confidence, and anxiety on the accuracy of self-assessment measures should be pursued. The effect of different self-assessment formats on student learning could also be investigated.

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