

A Fresh Look at Testing Vocabulary in EFL Context: Predictive Power of Multiple Intelligences

Sayyed Mohammad Karimi Behbahani¹⁺, Natasha Pourdana¹ and Roya Sayyedi

¹Department of English Translation, Islamic Azad University, Karaj Branch, Iran

Abstract. A classical model of human intelligence, Multiple Intelligences (MI) theory suitably provides EFL teachers with a conceptual framework for predicting the learners' performance on language tests. As an ex post facto research, this study incorporated both quantitative and qualitative data obtained from 130 Iranian EFL undergraduates into predicting their performance on an English standard test of vocabulary. The participants' scores on Multiple Intelligences Developmental Assessment Scales (MIDAS) questionnaire showed a matrix of correlation measures with three cloze, multiple choice and synonym items in Michigan English Language Assessment Battery (MELAB). The statistically significant correlation measures for linguistic intelligence and three sections in MELAB were incorporated into a standard multiple regression test, wherein an accountable degree of variance in vocabulary test scores could be predicted with participants' linguistic intelligence scores.

Keywords: Multiple Intelligences, Predictive Power, EFL, Vocabulary, Testing, MIDAS, MELAB

1. Introduction

In his Multiple Intelligences (MI) Theory, Howard Gardner [1-3] has tried to broaden the scope of human potential beyond the confines of IQ scores. He seriously questions the validity of determining an individual's intelligence through the practice of taking a person out of his natural learning environment and asking him to do isolated tasks he would never done before and probably would never choose to do again. In a sharp contrast with the current theories of intelligence, Gardner suggests that intelligence has more to do with the capacity for solving problems and fashioning products in a context-rich and naturalist setting. Once Gardner's broader and more pragmatic perspective is taken, the concept of intelligence begins to lose its mystique and becomes a functional concept that could be seen working in people's lives in a variety of ways. Gardner has provided a means of mapping the broad range of abilities that humans possess by grouping their capabilities into eight comprehensive categories or intelligences (Table 1).

The theory validates educators' everyday experience that the learners think and learn in many different ways. It also provides them with a conceptual framework for organizing and reflecting on curriculum assessment and pedagogical practices. In turn, this reflection has led many educators to develop new approaches that might better meet the needs of the range of learners in the classroom [4]. MI theory has also met strong positive responses from many EFL teachers. It has been embraced by a range of educational theorists and significantly applied by teachers and policy makers to the problems of schooling. Recently, a large number of schools in North America have looked to structure their curricula based on valued learners' intelligence performances and to design classrooms and even the whole schools to reflect the understanding that MI theory has developed. In addition, MI theory has been introduced to pre-schools, higher vocational and adult education initiatives [5]. Similarly, Armstrong [6] points out that one of the most remarkable features of MI theory is "how to provide eight different potential pathways to learning" (p. 23). He further mentions that MI theory facilitates effective language learning if a teacher has difficulty with teaching a learner in the more traditional linguistic or logical way of instruction.

⁺ Dr. Sayyed Mohammad Karimi Behbahani , Tel: +989195273184
E-mail address: m.behbahani@kiaiu.ac.ir

Table 1. Multiple Intelligences Operational Definitions

Intelligence type	Description	Typical roles	Related tasks/tests
1 Linguistic	Good at: Words and language, written and spoken; Retention, Interpretation and explanation of ideas and information via language; Understanding the relationship between communication and meaning;	As: Writers, Lawyers, Journalists, Speakers, Trainers, Copy-writers, English teachers, Poets, Editors, Linguists,	Ask them to: Write a set of instructions; Speak on a subject; Edit a written piece or work; Write a speech; Commentate on an event; Apply positive or negative 'spin' to a story;
2 Logical-Mathematical	Good at: Logical thinking; Detecting patterns; Scientific reasoning and deduction; Analyzing problems; Performing mathematical calculations; Understanding the relationship between cause and effect towards a tangible outcome or result;	As: Scientists, Engineers, Computer Experts, Accountants, Statisticians, Researchers, Analysts, Traders,	Ask them to: Perform a mental arithmetic calculation; Create a process to measure something difficult; Analyze how a machine works; Create a process; Devise a strategy to achieve an aim;
3 Musical	Good at: Musical ability, awareness; Appreciation and use of sound; Recognition of tonal and rhythmic patterns; Understanding the relationship between sounds and feelings	As: Musicians, Singers, Composers, DJ's, Music producers, Piano tuners, Acoustic engineers, Entertainers, Party-planners, Environment and noise advisors,	Ask them to: Perform a musical piece; Sing a song; Review a musical work; Coach someone to play a musical instrument; Specify mood music for telephone systems and receptions;
4 Bodily-Kinesthetic	Good at: Body movement control; Manual dexterity; Physical agility and balance; Eye and body coordination;	As: Dancers, Demonstrators, Actors, Athletes, divers, Sports-people, Soldiers, Fire-fighters, Performance artistes, Ergonomists, Osteopaths,	As them to: Juggle; Demonstrate a sports technique; Flip a beer-mat; Create a mime to explain something; Toss a pancake;
5 Spatial-Visual	Good at: Visual and spatial perception; Interpretation and creation of visual images; Pictorial imagination and expression; Understanding relationship between images and meanings;	As: Artists, Designers, Cartoonists, Story-boarders, Architects, Photographers, Sculptors, Town-planners, Visionaries,	Ask them to: Design a costume; Interpret a painting; create a room layout; Create a corporate logo; Design a building;
6 Interpersonal	Good at: Perception of other people's feelings; Ability to relate to others; Interpretation of behavior and communications; Understanding the relationships between people and their situations;	As: Therapists, Mediators, Leaders, Counselors, Politicians, Educators, Sales-people, Clergy, Psychologists, Teachers, Doctors, Healers,	Ask them to: Interpret moods from facial expressions; Demonstrate feelings through body language; Affect the feelings of others in a planned way; Coach another person;
7 Intrapersonal	Good at: Self-awareness; Personal cognizance; Personal objectivity; Understanding oneself, Understanding one's relationship to others and the world, and one's own need for; Reaction to change;	As: Anyone who is self-aware and involved in the process of changing personal thoughts, beliefs and behavior in relation to their situation, other people, their purpose and aims; Maslow's Self-Actualization level;	Ask them to: Consider and decide one's own aims and personal changes required to achieve them; Consider one's own 'Johari Window', and decide options for development;
8 Naturalist	Good at: Classification; Nurturing; Recognition of animal species; Understanding the relationship between humans and other species;	As: Biologists, Botanist, Zoologist, Science student, Science teacher,	Ask them to: Work in nature; Find new species of plants and animals; Make a tour into nature;

As Lazear [7] suggests, MI theory can properly provide an assessment framework within which learners can have their rich and complex lives acknowledged, celebrated, and nurtured. In fact, MI assessment and MI instructions represent flip sides of the same coin; MI approaches to assessment are not likely to take more

time and resources to implement, as long as they are seen as an integral part of the instructional process [2].

Building on the view of assessment derived from MI theory, researchers are exploring assessment techniques that are built around authentic performances. In music, for example, a teacher evaluates a learner's facility with a given piece by asking the learner to perform that piece - the performance itself is the test. The assessment is authentic because performance on the test draws directly on the skills that the learner is trying to master, as the learner practices the performance piece repeatedly, she is taking the test until she achieves mastery [6].

As far as proficiency tests are concerned, there has been a shift towards the view that since it is language skills that are usually of interests, they should be tested directly, not the abilities that seem to underlie them. It is argued, therefore, that there is more to any skill than the sum of its parts; one can not accurately predict mastery of the skill by measuring control of what we believe to be the abilities that underlie it. But control of lexical items has been seen as the very core of language ability and it would have been unthinkable not to test it. Most proficiency tests, therefore, still retain a vocabulary section. One reason for this must be the ease with which large numbers of items can be administered and scored within a short period of time. All we would be looking for is some general prediction of the adequacy of the EFL students' vocabulary [8].

2. Method

This study was an ex post facto research where 130 Iranian EFL undergraduates' performance on a the Michigan English Language Assessment Battery (MELAB), as a standard text of English vocabulary, and the Multiple Intelligences Developmental Assessment Scales (MIDAS) questionnaire were collected and analyzed. The participants in this study were all undergraduate students of English Translation at Islamic Azad University, Karaj Branch who voluntarily took part in data collection in 2010.

The results of MIDAS were intended to provide a reliable estimate of every participant's intellectual disposition in the eight intelligence domains. The 119 items in the MIDAS inquired about everyday abilities wherein the examinees demonstrated their cognitive involvements and intellectual judgments. Individual item used a five-point Likert scale that permitted a range of responses (65-80= very high, 50-65= high, 30-45= moderate, 15-30= low, and 15-0= very low). Response anchors were individually tailored to match the specific content in individual questions; respondents were not forced to provide generalized responses or answers beyond their level of actual knowledge, as a zero category was induced for every item when the respondents chose "Don't know" or "Doesn't apply" option.

3. Results and Discussion

Initially, in order to determine the normality of both tests results, Cronbach's Alpha test was conducted for the total number of test items. The obtained Cronbach α =.726, significant at p-value<0.01, demonstrated the relative consistency of the participants' performance on total tests items. The obtained data were later tabulated for their descriptive statistics on both tests (Table 2).

Table 2: Descriptive Statistics for MELAB and MIDAS

Tests	Max	Min	Mean	SD	N
Musical Intelligence	94.20	24.20	55.27	15.86	128
Kinesthetic Intelligence	88.30	15.00	56.51	15.36	130
Mathematical Intelligence	91.70	29.40	58.04	12.65	129
Spatial Intelligence	91.20	26.20	57.51	16.93	130
Linguistic Intelligence	99.00	24.00	60.70	15.34	127
Interpersonal Intelligence	90.00	28.20	67.82	13.37	130
Intrapersonal Intelligence	100.00	24.00	65.83	15.60	124
Naturalistic Intelligence	93.00	15.30	51.47	17.17	130
Cloze Items	100.00	16.00	53.40	18.30	130
Multiple Choice Items	86.60	23.30	54.03	15.30	130
Synonymy Items	100.00	40.00	71.63	13.84	128

As presented in Table 2, the mean scores for multiple intelligences are ranged from 51.47 for Naturalist Intelligence to 67.82 for Interpersonal Intelligence. Among three sections in MELAB, items of synonymy had the highest mean score of 71.63, compared to both cloze and multiple choice items. Next, to determine the predictive power of the participants' multiple intelligences profile, measures of Pearson product-moment

correlation were initially obtained between eight types of intelligence in MIDAS and three sections in MELAB (Table 3).

Table 3: Correlation Matrix among Section of MELAB and MIDAS

Intelligence Types	Cloze Items	Multiple Choice Items	Synonymy Items
Musical Intelligence	0.295	0.320	0.562
Kinesthetic Intelligence	0.337	0.390	0.440
Mathematical Intelligence	0.450	0.023	0.480
Spatial Intelligence	0.393	0.410	0.344
Linguistic Intelligence	*0.640	*0.680	*0.638
Interpersonal Intelligence	0.322	0.409	0.460
Intrapersonal Intelligence	0.391	0.328	0.332
Naturalistic Intelligence	0.313	0.233	0.296

* Correlation is significant at p-value<0.05

As demonstrated in Table 3, eight types of intelligence in MIDAS questionnaire showed a rather low to medium measures of correlation with three types of items in MELAB, ranging from Naturalistic Intelligence as the lowest, to Linguistic Intelligence, as the highest. Measures of correlation between Linguistic Intelligence and cloze ($r=0.640$), multiple choice ($r=0.680$) and synonymy ($r=0.638$) items, were the only statistically significant Pearson r 's at p-value<0.05. Therefore, the test of multiple regressions could be conducted with only scores on Linguistic Intelligence and three sections of MELAB test of vocabulary (Table 4).

Table 4: Regression Output: Model Summary (Standard Regression)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
1	0.277	0.077	0.067	11.14	*.003
2	0.280	0.079	0.069	10.36	*.005
3	0.212	0.450	0.035	12.93	*.006

* Correlation is significant at p-value<0.05

As Table 4 demonstrates, all measures of R^2 were statistically significant at p-value<0.05 which means an accountable degree of variance in participants' performance on three types of items in MELAB might be explained or predicted by their linguistic intelligence profile.

4. Conclusion

Statistics in this study might support the relationship between EFL learners' multiple intelligences profiles and their performance on language tests, in general. The absence of negative correlation measures suggests a happy marriage of multiple intelligences and EFL learners' language component assessment. MI theory might demonstrate its greatest contribution into suggesting multiple ways to evaluate EFL learners. It supports the belief that language learners should be able to show their competence in a specific skill, subject, content area, or domain in a variety of ways. Moreover, just as MI theory suggests that any instructional objective can be taught in at least eight different ways, so does it imply that any language component can be assessed in at least eight different ways.

Accordingly, in a learner-centered EFL context, for example, (a) learners can be exposed to all eight performance tasks in an attempt to discover the area(s) they are most successful in; (b) learners might be assigned a performance task based on the teacher's understanding of their most developed intelligence; and (c) learners themselves can choose the manner in which they would like to be assessed.

5. References

- [1] H. Gardner. *Frames of mind: The theory of multiple intelligences*. New York: Basic Books. 1983
- [2] H. Gardner. *Reflections on multiple intelligences: Myths and messages*. Phi Delta Kappan Educational Foundation. 1995
- [3] H. Gardner. *Intelligence reframed: Multiple intelligences for the 21st century*. New York: Basic Books. 1999a
- [4] M. L. Kornhaber. *Howard Gardner*. In J. A. Palmer (Ed.), *Fifty modern thinkers on education: From Piaget to the present*. London: Rutledge. 2001
- [5] R. Ellis. *Non-reciprocal tasks, comprehension and second language acquisition*. London: Longman. 2001

- [6] T. Armstrong. Multiple intelligences in the classroom. 23 July, 2005 <http://www.thomasarmstrong.com/multiple-intelligences.htm>
- [7] D. Lazear. *Teaching for multiple intelligences*. Phi Delta Kappan Educational Foundation. 1992
- [8] A. Hughes. *Testing for language teachers*. (2nd Ed.) Cambridge: Cambridge University Press. 2003