

IQ and Reading Comprehension in Translation Quality

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ABSTRACT

Having a deeper understanding of determining factors in the quality of translation is in the interest of almost all scholars of translation studies. Students' intelligence is being measured constantly in order to determine their aptitude for entering into different programs. However, in translation studies, the variable of intelligence quotient (IQ) has been curiously ignored among researchers. This study aimed to explore the strength of both IQ and reading comprehension in predicting translation quality among Iranian translation students. A sample of forty-six translation students from Alborz University of Qazvin participated in this study. Data were collected using three tests including Raven's Advanced Progressive Matrices, Colina's (2008) componential translation quality rating scheme and the reading comprehension test of IELTS. The results show IQ test scores and reading comprehension significantly predict translation quality assessment. Surprisingly, the most significant finding is that IQ score is by far a better predictor of translation quality than reading comprehension. Overall, it is concluded that translation quality assessment is more of a deeper cognitive function than solely language process, which could lead to more research on cognitive aspects of translation.

1. INTRODUCTION

Translation scholars, trainers and trainees, as well as anyone who has an interest in translation all complain about the lack of a set of agreed-upon principles and models with which translation could be more systematically evaluated. Although some attempts are made to clarify muddy waters of translation evaluation, no single model has been widely used among practitioners and researchers alike. Up until recently, however, translation studies was rather reluctant to conduct empirical research to find out what elements are probably the most important factors in reality of translation practice. Translators' intelligence has never been seriously considered in the equation of translation quality, perhaps it was deemed irrelevant. This utter avoidance has arisen our interest to explore this factor in the context of translation quality assessment. This study aims to explore the relationship of key factors in translation practice and possibly pinpoints the most central elements in determining success in translation quality. Findings of this study may lead to further studies and would probably aid all parties who have a special interest in translation.

2. REVIEW OF LITERATURE

2.1 Intelligence

Students' intelligence is being measured constantly in order to determine their aptitude for entering into different programs.

The measurements take different forms and names such as entrance exams, SAT, GRE, etc. All of these tests, however, are trying to measure intelligence quotient (IQ) in one way or another. Although any attempts for defining IQ has proved to be controversial in academia, it could be operationally defined by (Wechsler, 1939) as "a person's global capacity to act purposefully, to think in a rational manner, and to deal effectively with his or her environment." (Hunsley, 2010)

Although hotly debated, individuals are born with a fairly stable portion of IQ and are not affected significantly by external stimuli. This was reported by Binet's studying children whilst measuring their intelligence and concluded that intelligence "develops largely independently of experience" (Haslam et al. 2017)

IQ scores have repeatedly proved to be the best tool in predicting success across a wide spectrum of phenomena. Studies have shown positive correlation between IQ score and academic success (Deary et al. 2007). In a meta-analysis of the longitudinal studies, Strenze (2007) found that "intelligence is a powerful predictor of success". This study provides evidence that IQ scores could be a potent instrument in determining not only academic future of an individual but also other aspects in life. "Researchers confirmed that scores on virtually all kinds of cognitive tests correlate positively with one another within any representative sample of the population." (Kalat, 2011, 315).

2.2 IQ Tests

In the early twentieth century, some attempts in measuring intelligence were made by a group of psychologists. The term intelligence psychometrics was introduced by Charles Spearman in 1904 and “proposed that all individuals possess a general intelligence factor (called *g*) in varying amounts. According to Spearman, the *g* factor is the major determinant of performance on intelligence tests.” (Nolen-Hoeksema et al. 2009). The French psychologists Alfred Binet and Theophile Simon “developed the first successful intelligence test in 1905 in response to a French government effort to identify children in need of special educational services.” (Oltmanns and Emery, 2012).

General intelligence notion of Spearman was criticized by Howard Gardner in its limited and rigid scope. He proposed a theory of multiple intelligences that includes “seven different types of intelligence: linguistic and logical mathematical (the types measured by IQ tests), spatial, interpersonal (ability to deal with other people), intrapersonal (insight into oneself), musical, and bodily kinesthetic (athletic ability).” (Strickland, 2001). Multiple intelligences have been tested and challenged by other scholars on the ground that *g* factor of intelligence could successfully predict most of other intelligences named by Gardner. “Factor analysis revealed a large *g* factor having substantial loadings for tests assessing purely cognitive abilities—Linguistic, Logical/Mathematical, Spatial, Naturalistic, Interpersonal—but lower loadings for tests of other abilities, especially Bodily-Kinesthetic.” (Visser, Ashton, & Vernon, 2006).

Intelligence has been divided into two categories; fluid intelligence and Crystallized intelligence. “Crystallized intelligence—our accumulated knowledge as reflected in vocabulary and analogies tests—increases up to old age. Fluid intelligence—our ability to reason speedily and abstractly, as when solving novel logic problems—decreases slowly up to age 75 or so, then more rapidly, especially after age 85” (Myers, 2011).

2.3 Intelligence Quotient (IQ) Tests

In the spirit of Stanford-Binet IQ test, which was among the first tests, Wechsler devised two IQ tests called the Wechsler Adult Intelligence Scale—Fourth Edition (WAIS—IV) and the Wechsler Intelligence Scale for Children—Fourth Edition (WISC—IV).

Although the Stanford-Binet and Wechsler tests are very reliable and powerful in their prediction, they have some shortcomings “because they require use of the English language, they are unfair to immigrants, people with hearing impairments, and anyone else who does not speak English well.” (Kalat, 2011)

Another problem with other IQ tests they were found to be culturally-biased. Despite the fact that a complete unbiased test seems unrealistic, some attempts are made to devise IQ tests less culturally biased. Tests such as Raven’s Progressive Matrices has been “found to reveal a remarkably stable factor structure across cultures” (Vijver, 2004). Raven’s Progressive Matrices is a culture-reduced test de-

veloped by John C. Raven in 1936. It consists of 60 multiple test questions which as the name suggests progress from easy to difficult.

The Progressive Matrices “nonverbally assesses intelligence in children and adults through abstract reasoning tasks.” (Strickland, 2001) It requires no verbal skills and it thus offers “a fair opportunity to people from different cultures, who speak different languages. The main disadvantage is that this test provides only a single score instead of identifying someone’s strengths and weaknesses.” (Kalat, 2011) Raven’s Progressive Matrices along with other tests “all have reliabilities above.9.” (Kalat, 2011)

2.4 IQ and Reading Comprehension

The relationship between IQ and educational success has long been established and it would be fair to say that it was the primary reason behind devising IQ tests. However, diverging views have emerged about the relationship between IQ and language learning. “In the L2 learning literature, some studies report that learners with a higher intelligence quotient (IQ) are more successful language learners than those with a lower IQ, while other studies report no such correlation.” (Lightbown and Spada, 2013)

Some scholars asserted that “intelligence may have little to do with one’s success as a second language learner”. (Brown, 2007) Whereas, other studies suggested a positive relationship between IQ and language learning. (Tucker, et al. 1976, Oller, Jr. Perkins 1978, Oller, 1981, Falahati, 2003) According to Dörnyei and Ryan (2015) “research conducted by Gardner (1985) and Skehan (1986) confirmed the partial separation and partial relatedness of intelligence and language aptitude. Gardner and Lambert (1972), for example, reported a median correlation of 0.43 between IQ and aptitude measures, and Skehan (1989) quoted very similar results, a correlation of 0.44, from his earlier research.”

The relationship between IQ and other components of language learning has also been explored in some studies. The relationship between IQ and reading comprehension is still an open debate in need of more evidence to be settled. Ghabanchi and Rastegar (2014) found that “the relationship between IQ and reading comprehension is strong.” Other studies “have led many to conclude that IQ is irrelevant to reading disability.” (Vellutino and Fletcher, 2005)

2.5 Translation Quality Assessment

Translation quality has been the bone of contention since the dawn of translation studies as an independent academic field of inquiry. As there exist no universally or even partially agreed upon principles to assess the quality of translation, this issue is relentlessly ignored by leading figures in the field. Discussing the whys and wherefores underlying this avoidance is beyond the scope of this study. However, the need for a tested and tried criterion for translation assessment meant exploring the available schemes, models, and rubrics. Among manifold approaches to translation quality assessment from experienced based, reader-response approaches, to textual and pragmatic approaches, Colina’s

(2008) functionalist/componential proposal for evaluation seems to be a middle access point to the theory and practice. Her proposal tries to remedy previous models and simultaneously is based on their best ideas. Hence, her model is functionalist and textual, inclusive of testable hypotheses with stated goals and aims. Colina (2008) proposes a model that "is componential. It includes four categories for assessment (e.g. linguistic form: spelling, grammar, lexicon, etc.; functional adequacy; meaning and specialized content)." (104) Her evaluation scheme is not only down to earth and practical but also academically rigorous required for the task of translation quality assessment.

3. METHODOLOGY

A considerable amount of literature has been published on intelligence and its relation to different academic fields. These studies have largely established some relationship with IQ. The present study was conducted to contribute to the body of research in an attempt to explore the efficacy of IQ, reading-comprehension proficiency and translation competence. This research seeks to address the following three questions:

Do IQ test scores and reading comprehension significantly predict translation quality assessment? If so, what are the predicted translation quality assessment scores for each one?

Which is the best predictor of translation quality: reading comprehension proficiency or IQ scores?

The researchers tested the following null hypothesis: H01: IQ test scores do not predict participants' translation quality assessment. H02: Reading comprehension scores do not predict participants' translation quality assessment.

3.1 Participants

The study used a convenience sample of 46 (30 female and 16 male) senior English translation students from Alborz University. All of the participants were aged between 21 and 26 and criteria for selecting the subjects were twofold: 1. They must have completed basic and advanced courses in reading comprehension proficiency. 2. They must have done preliminary, developing and advanced courses in translation English to Persian.

3.2 Instrument

The instruments that were used in this study were: 1. Raven's Advanced Progressive Matrices for measuring subjects' IQs. 2. Reading paper of Cambridge IELTS 11 (test 3) for measuring subjects' reading comprehension proficiency. 3. Colina's (2008) translation evaluation tool. 4. IBM SPSS Statistics 24 for statistical analysis.

3.3 Data collection

Data were collected using three different tests: the IELTS reading comprehension test was administered in one session. It was followed by the Raven's Matrices IQ test, which, in turn, was followed by translation test. IELTS reading comprehension test was allotted one hour as stipulated in its

standard format. As prescribed in the manual of the IQ test, it was run in 30 minutes. For translation test, a 400-word passage was selected from a standard test according to the Canadian Government Translation Bureau's Quality Measurement System, titled Sical (Williams, 2009, pp. 3 - 23). Since students were doing a course on translation with one of the researchers, they were given credits for taking part in the study. Data management and analysis were performed using IBM SPSS Statistics 24 (2010).

3.4 Data Analysis

Data about the intelligence quotient were collected using Raven's Matrices IQ test and participants were scored according to the guidelines provided by Raven, and Court (1998). For measuring reading comprehension, the reading section of Cambridge IELTS 11 (test 3) was used and the raw scores were obtained. Then, raw scores were converted to IELTS band scores using scoring guide provided by IELTS assessment. After administering the translation test, participants' translations were scored by three raters who were university instructors. For translation evaluation Colina's (2008) componential approach was used. This tool measures four components of translation consisting target language, functional and textual adequacy, non-specialized context (meaning), specialized context and terminology. The tool is rated on an 85-point scale. Inter-rater reliability of the tool has been calculated by Colina (2008) as to be very high at around 0.9. Despite this, the researchers measured inter-rater reliability and the finding revealed to be not only consistent with Colina's (2008) report, but also higher at 0.95. In order to find predictability of independent variables, Standard Multiple Regression was measured using IBM SPSS Statistics version 24.

4. RESULTS AND DISCUSSION

In order to answer research questions a multiple linear regression was calculated to predict translation quality based on IQ and reading comprehension scores. Table 1. clearly shows that a significant regression equation was found ($F(2, 43) = 12.044, p < .000$), with an R^2 of .359. Participants' predicted translation quality was equal to $-39.620 + .722$ (IQ score) + 1.652 (Reading score), where [IQ score] was measured as numbers 1-130, and [Reading score] was measured as band score 1-9. Participant's translation quality increased 1.652 score for each band score in reading comprehension and .722 for each score of IQ. Both IQ and reading comprehension were significant predictors of translation quality. However, considering the scales used for both predictors, IQ is by far the greater predictor of translation quality.

As the table reveals clear significances exist between pairs of reading and translation and that of IQ and translation. Furthermore, the data analysis indication of supremacy of IQ over reading comprehension in determining translation performance has implications that would go beyond discussions merely concerned with linguistic aspects. The question concerning how this result is going to be considered and weighed in decisions regarding translation training and

Table 1. Significant regression equation

Model	Coefficients a		t	Sig.	
	Unstandardized coefficients				Standardized coefficients
	B	Standard error			Beta
1					
(Constant)	-39.620	17.828		0.032	
Reading score	1.652	1.566	0.129	0.297	
IQ	0.722	0.151	0.583	0.000	

translation evaluation should be deliberated among interested scholars.

This result more than answering the research questions raises a number of questions itself. The fact that IQ is an extremely important factor in determining success has been vouched for by a plethora of research in other aspects and this is for the first time to the best of our knowledge that translation studies acknowledges it as well. What seems surprising is the potency of IQ in predicting the quality of translation compared to reading comprehension, which rejects the previously held hypothesis by the researchers in seeing the reading comprehension as strong a predictor as IQ. Now the question would be whether this outcome could be replicated or not. If the same result appears in future studies, then it would also be apt to look at its consequences and perhaps applications. In replication of this study, other tools in the measurement of intelligence could be applied such as Wechsler Adult Intelligence Scale which has linguistic aspect to it.

Another aspect of the result suggests that translation is more of a cognitive ability than a mere linguistic one. The great role of IQ in the ability of producing translation with a higher quality questions the previous widely held presumptions seeing translation a simple transfer of lingual data from one language to another. This study and its findings invite more probations into the cognitive aspect of this phenomenon than sticking to the linguistic output. As it behooves any scientific endeavors, the outcome should not be generalized hastily rather it ought to be an opportunity to further investigate the possibility of explaining these marked findings with more data.

Finally, the result should be visited from two major perspective; reading and IQ. Reading power was thought to be major player in translation. The revelation of minimal importance of reading in translation should be looked at from another vantage point. Whether the reading comprehension tests developed by language teaching authorities and organizations is an effective tool in measuring the reading power need for translators is an area in need of further exploration. IQ's weighty influence in translation outcome should also be put into the context of translation competence and its implication ought to be meticulously studied.

CONCLUSION

This study set out to explore the possible relationship among three variables of reading comprehension, IQ, and translation quality. Returning to the question posed at the beginning

of this study, it is now possible to state that reading comprehension and IQ emerged as reliable predictors of translation quality. Furthermore, multiple regression analysis revealed that the IQ is a much stronger predictor of translation quality. These findings have significant implications for the understanding of varying individuals' performances in translation. Although this study has been one of the first attempts to thoroughly examine some key players in translation, it is based on a small sample of participants and needs to be confirmed on a larger scale.

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