

Exploratory Factor Analysis: Blended Motivation of Malay Students Learning Mandarin as a Foreign Language

Tan, T. G.^{1*}, Hairul Nizam Ismail² and Ooi, A. E.¹

¹*Academy of Language Studies, Universiti Teknologi MARA Cawangan Kedah, 08400 Kedah, Malaysia*

²*School of Educational Studies, Universiti Sains Malaysia, 11800, Pulau Pinang, Malaysia*

ABSTRACT

It is believed that motivation to learn a language is strongly influenced by the target language, location and the learners. Nevertheless, the questionnaires administered in the Eastern countries are usually developed in a Western context to a culturally specific context; this means the original questionnaires are adopted or adapted to suit local conditions. This study aims to identify key motivational factors for learners and affirm the suitability of a set of adapted questionnaire namely Language Learning Motivation for Mandarin (LLMM), for a survey on foreign language learning. A total of 148 Malay students at a public university in Malaysia voluntarily participated in answering the LLMM questionnaire. The completed questionnaires were used in an exploratory factor analysis procedure to identify what motivates learners of foreign language. A principal component analysis with varimax rotation obtained five-factor solution; these motivational factors are: *Requirement Motivation, Interaction and Better Understanding, Interest and Pleasure, Leisure and Entertainment, and Future Career*. The study concludes that blended motivation with Requirement Motivation as the most influential factor. The study also suggests that LLMM questionnaire be replicated to other Asian learners who are learning Mandarin as a foreign language. This is to ascertain its validity and applicability to the learners of Mandarin as a foreign language in the Asian context.

Keywords: Language learning motivation, Exploratory Factor Analysis, foreign language, Mandarin

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E-mail addresses:

ttghee454@uitm.edu.my (Tan, T. G.),

hairul@usm.my (Hairul Nizam Ismail),

akooi745@kedah.uitm.edu.my (Ooi, A. E.)

* Corresponding author

INTRODUCTION

Motivation is believed to be one of the main determining factors in the success of second/ foreign language learning. Gardner and Lambert (1959, 1972), in their classic, seminal studies of socio-educational model,

introduced the constructs of integrative and instrumental motivation in the learning of non-native language. Integrative motivation is characterised as a learner's desire to learn a language in order to interact and integrate into the target-language community. Instrumental motivation on the other hand reflects a desire to gain some social or economic rewards through learning the language (Gardner & Lambert, 1959).

Gardner (1985) expanded the socio-educational model to include socio-psychological elements which emphasise strongly on "integrativeness". Integrativeness is the strong willingness of the learner to associate and assimilate into the target-language community.

However, the validity of integrative and instrumental classification and the concept of integrativeness were challenged by many scholars. Many past studies (see for example Ely, 1986; Takayuki, 2002) indicate a desire to learn a second/foreign language is not related to either integrative or instrumental motivation. Some researchers also found that integrativeness is not the principal goal of learning the target language (e.g. Benson, 1991, 2002; Warden & Lin, 2000). The continuous criticisms led to the identification of new types of motivation such as Requirement motivation, Self-efficacy and Linguistic self-confidence among others. Efforts were also taken by scholars to find alternative theoretical framework by incorporating motivational concepts from other fields. Deci and Ryan's (1985) self-determination theory, which was not initially considered to gain insight

into language learning motivation, has been adapted and used extensively in this field.

The self-determination theory distinguishes between intrinsic and extrinsic motivations, and contrasts intrinsic-extrinsic motivation with amotivation (Deci & Ryan, 1985). Intrinsic motivation refers to the behaviour of an individual performing an activity simply for the pleasure and satisfaction that accompany the action without expecting a reward. As for extrinsic motivation, it is referred to as a behaviour where the activity is performed to receive positive and avoid negative incentives, such as earning a reward or avoiding punishment. Amotivation which is always "side-lined" by scholars, is described as a non-motivational behaviour.

Although the close proximity of intrinsic-extrinsic motivation and integrative-instrumental motivation has been noted (e.g. Dickinson, 1995; Noels, Clement & Pelletier, 2003), theorists have emphasised the distinctiveness of these two models (see Schmidt et al., 1996; Brown, 2007). According to Schmidt Boraire and Kassabgy (1996), and Brown (2007), situations which include both intrinsic-extrinsic motivation and integrative-instrumental motivation may coexist. In view of the coexistence of intrinsic-extrinsic motivation and integrative-instrumental motivation, many researchers especially in the Asian regions accommodate both dichotomies together with other motivational models in their research framework (e.g. Gonzales, 2010; Chin & Chan, 2011). Findings show what motivates learners to learn an

Asian foreign language is a mixture of instrumental, integrative, intrinsic and extrinsic motivations.

However, a move towards accommodating the Self Concept from mainstream psychology has been noted while maintaining the roots of previous integrative-instrumental and intrinsic-extrinsic dichotomies. Dörnyei (2009) is the premier and leading scholar who started this movement by introducing a L2 Motivational Self System model consisting of three dimensions, namely the Ideal L2 Self; the Ought to L2 Self and L2 Learning Experience. The Ideal L2 Self is defined as a “desire to reduce the discrepancy between our actual and ideal selves” (p. 29), while, the Ought to L2 Self concerns “the attributes that one believes one ought to possess to meet expectations and to avoid possible negative outcomes” (p. 29). L2 Learning Experience focuses on “situated executive motives related to the immediate learning environment and experience” (p. 29).

Researchers who study motivation for second or foreign language learning in the East, usually adopt or accommodate some elements from Western language learning motivational inventories; this is to enable them to identify motivational factors. The empirical evidence obtained might not be accurate due to the fact that the East and West are culturally different. Dörnyei (1994) has stated that motivation is strongly influenced by the target language, location and the learners. In addition, cultural backgrounds have an impact on the learners’ motivational patterns (Yu & Watkins, 2008).

This study accepts the challenge in filling the research gap by studying key motivational factors for target language learners and their location through a set of questionnaires known as Language Learning Motivation for Mandarin (LLMM). The study thus aims to identify the motivational factors as well as to affirm the suitability of LLMM for Mandarin as a method for foreign language learner survey. With the development of this inventory, it is hoped that the results of this survey can identify the factors that motivate learners of Mandarin as a foreign language in Asia. Identification of key motivational factors based on types of students, will enable instructors to implement suitable teaching strategies to enhance and sustain student interest in learning.

METHODOLOGY

Participants

A total of 148 Malay students from a population of 360 students who were learning Mandarin as a foreign or third language in one of the universities in the northern region of Malaysia, voluntarily participated in the study. All the participants are Malay students who were born in Malaysia. Most of them are from the rural areas. They have completed their education in the national primary and secondary schools before pursuing their studies in the university. They have been learning English as a second language since six years of age. At the university, they are required to take up a foreign or third language from a choice of Arabic, Germany,

Japanese, Korean or Mandarin. All the languages used a standardised syllabus and assessment. Although the third language is a compulsory elective course, there is no final examination. The assessment is based on tests and group assignments. The participants in this study learned Mandarin at level one (introductory), two and three. The syllabus emphasises on communicative skills but very limited amount of Chinese characters are introduced. The participants' age ranges from 21-24 years and 38 (25.7%) of them are male while the rest (74.3%) females. As for level of study, 22 (14.9%) of them study Level One Mandarin, 105 (71%) of them study Level Two while the rest (14.1%) study Level Three.

The sample size for the study (factor analysis procedure) is based on Hair, Anderson, Tatham, and Black's (2009) suggestion, that is, to have at least five times as many observations as there are variables to be analysed. As there are 22 items in the questionnaire, the sample (1 item : 6 observations) is deemed adequate based on the general rule as suggested.

Instrument

The items used in the instrument of this study were adapted from many previous works. This questionnaire Learning Motivation for Mandarin (LLMM) consists of two parts. Part A consists of items regarding the participant's demographic description such as age, sex and Mandarin level. Part B consists of 22 items on learning motivation for Mandarin.

The LLMM was administered to the participants during their Mandarin classes in the first week of the semester. Students completed the questionnaire anonymously within 10-15 minutes. All the 22 items are prefaced by the statement: "I learn Mandarin because..... ." Participants were expected to respond to the 5-point Likert scale ranging from 1 (never or almost never true of me) to 5 (always or almost always true of me). All questionnaires were administered and collected by the instructors teaching in the respective classes.

The 22 items of LLMM is the final version after content-related validation. It had been subjected to content-related validation to establish its psychometric value of learning motivation for Mandarin. The LLMM is written in Malay and it has undergone back translation. The initial version had 29 items. It was reviewed by 13 Mandarin practitioners and three experts in cognitive psychology. The practitioners and experts noted some problematic and vague items. In response to their comments and suggestions, all the items were critically examined for readability and clarity. Seven items were discarded and vague items were reworded. Thirty Mandarin students were also invited to take part in the content validation process. The researchers discussed the items with the students to find out if there are any ambiguous terms, unsuitable items, problems or ambiguity they might encounter with the items in the questionnaire.

Procedure

Data collection took place in the first week of the semester. The participants were Mandarin class students who agreed to take part in the survey voluntarily. Verbal instructions and explanation were given to the participants before they responded to the LLMM questionnaire. The participants took 10-15 minutes to complete the questionnaire.

Data collected was analysed using SPSS Version 20. Participant particulars were obtained through descriptive statistics by means of frequency counts and percentages. This was followed by exploratory factor analysis procedure on the data collected from LLMM using principal axis factoring and varimax rotation to extract the underlying motivational factors. Finally, the Cronbach's alpha coefficient was computed on each factor to determine internal consistency and reliability of the scale.

Exploratory Factor Analysis

Exploratory factor analysis method was performed on the items in order to extract the underlying factors characterising motivation. Factor analysis is a statistical procedure which is able to bring together a cluster of items bound together by one common underlying factor (Macaro, 2003). Factor analysis in this study involves four major steps suggested by George and Mallyert (2001).

- i. Computation of the correlation matrix,
- ii. Factor extraction – to determine the number of factors necessary to represent the data,

- iii. Factor rotation through the Varimax rotation method with Kaiser normalisation to make the factor structure more interpretable,
- iv. Determining how many factors to interpret and then assigning a label to these factors.

Principal Component Analysis (PCA) was used for analysis whereby varimax rotation was conducted to determine the construct validity of the data collected. Prior to assessing assumptions, a visual inspection was carried out by examining the correlation matrix. The inspection indicated that a considerable number of correlations exceeded 0.3 in the output. The inspection of the anti-image correlation matrix revealed that most of the measures of sampling adequacy were well above the acceptable level of 0.5. This shows that the items were deemed suitable for factoring as the correlation matrix and anti-image correlation fulfil the general rule (Coakes & Steeds, 2003).

Next, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett Test of Sphericity were conducted to assess assumptions for the correlated variables in the initial solution.

Table 1
KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		.867
Bartlett's Test of Sphericity	approx. Chi-Square	2371.808
	df	231
	sig.	.000

As shown in Table 1, the KMO of Sampling Adequacy is .867 which is far greater than .5, a necessary value for factoring (Spincer, 2005). As it is a meritorious value according to Hair, et al., (2009), it shows that there is good correlation among the items. The Bartlett’s Test of Sphericity is also significant and this indicates that the set of items is sufficient to support PCA.

The above results provide evidence that the items are acceptable for factor analysis. Subsequently, factors were extracted based on the following criteria:

- 1.) Eigenvalue >1 (Spincer, 2005)
- 2.) The loading score for each item >0.50. (Hair et al., 2009)
- 3.) At least three items integrating under a factor (Shur, 2009).

RESULTS

The PCA with varimax rotation retained only factors with eigenvalues greater than 1, thus producing an initial 5-factor solution for 22 items. As shown in Table 2, the 5-factor solution for 22 items obtained from the PCA with varimax rotation accounted for 66.65% of the total variance.

Table 2
Total Variance Explained

	Eigenvalue	% of Variance	Cumulative %
1	7.94	36.12	36.12
2	2.74	12.46	48.58
3	1.66	7.55	56.13
4	1.26	5.72	61.85
5	1.06	4.80	66.65

Two items were subsequently discarded from the list as they received a loading lower than .50. These items are item 11, “I want to be a Mandarin speaker”(loading: 0.301); item 12, “It is good for my personal development” (loading: 0.389). The loadings, their constituent items, and the Cronbach’s alpha for each factor are displayed in Table 3.

The Cronbach’s alpha (α) values of all the factors are between 0.79 to 0.99, and the total Cronbach’s alpha for all the 20 items is 0.89 which indicates that the internal consistency reliability of each identified factor met the established reliability criterion at a satisfactory value (Sekaran, 2003).

There are three items (item 1, 2, 22) loaded under factor 1. These three items receive very high loadings which are .97; .97 and 92 respectively. Factor 1 reveals the reason to learn Mandarin is to fulfill the course/university academic requirement and pass it for graduation. The alpha value of this factor is .99 which indicates singularity among the items. There is no doubt this factor should be labelled as *Requirement Motivation*.

Six items (item 3, 4, 5, 6, 7, 8.) which receive loadings ranging from .42 to .73 are loaded under factor 2. All these six items demonstrate the learners’ hope to interact and to be closer with the target language community as well as to understand better the target language community culture. As such, this factor is labelled as *Interaction and Better Understanding*. Similar motivational factors concerning interaction have been identified in previous studies (Ely, 1986;

Dörnyei, 1990; Guo, 2004; Chang & Huang, 2006; Chan & Chin, 2011).

Factor 3 consists of three items (items 17, 18, 19). The items generally receive moderate loadings which range from .55 to .72. These three items illustrate the features of interest and pleasure such as joy, like and proud. Thus, this factor is labelled as *Interest and Pleasure*.

Five items (items 13, 14, 15, 20, 21) whose loadings range from .46 to .78 are grouped under factor 4. The items concern leisure and entertainment purpose such as sing/listen to songs, watching movies and TV programmes, and learning as a hobby. Therefore, this factor is labelled as *Leisure and Entertainment*.

Table 3
Factor Loading of the Motivational Items

Factor	α	Loadings
Factor 1 = Requirement Motivation	.99	
1. My university requires me to learn a foreign language.		.97
2. I need to learn a third language as my elective course.		.97
22. I must pass a third language for graduation.		.92
Factor 2 = Interaction and Knowledge	.81	
4. It will strengthen my relationship with my Chinese friends.		.73
3. It will allow me to be more at ease with my Chinese friends.		.66
7. It will allow me to meet more people from different backgrounds.		.57
8. It will enable me to understand better and appreciate Chinese art and literature.		.50
6. It will enable me to know Chinese culture better.		.42
5. I want to be actively involved in Chinese community activities.		.42
Factor 3 = Interest and Pleasure	.85	
17. Learning Mandarin is a joyful experience.		.72
18. I really like learning Mandarin.		.61
19. I feel proud when I can say something in Mandarin.		.55
Factor 4 = Leisure and Entertainment	.79	
14. I want to sing/listen to Mandarin songs.		.78
20. Learning Mandarin has become my hobby.		.66
13. I like to watch Mandarin movies/drama in TV.		.56
21. I feel happy when I can accomplish difficult Mandarin exercises.		.50
15. I want to understand the Mandarin programmes and movies on TV.		.46
Factor 5 = Future Career	.83	
16. I believe it will help my career in the future.		.83
9. I may need it for my future career.		.71
10. I think it may help me to get a good job.		.61
ALL ITEMS	.89	

Finally, factor 5 consists of three items (items 9, 10, 16). These three items receive loadings of .61; .71; and .83. They clearly show that Mandarin is perceived as valuable for one's future occupation. Therefore, this factor is labelled as *Future Career*.

DISCUSSION

The major factor, *Requirement Motivation*, explains 36.2% of the total variance indicating that it provides the motivational push for majority of the students to learn Mandarin. It can be concluded that the motivation of Malay students learning Mandarin as a foreign language is inclined strongly towards fulfilling the academic requirement of the university. The findings of this study are consistent with most previous studies in which students requiring to learn a foreign language show a strong inclination to Requirement Motivation (Ely, 1986; Peng, 2002; Kan, 2003).

Although students are required to learn a foreign language as an elective course, they are given a choice to select the language they like. Thus, the existence of other motivational factors such as the desire to interact with the target language community, self interest and other motives is not surprising. The learners' motivational types are also closely related to their social context. Malaysia is a multi-racial country and the Chinese make up the second largest ethnic group. Participants can easily meet Chinese people and watch Chinese movies in the cinema, or watch Chinese dramas at home. Most of them also have Chinese neighbours and friends.

Interaction and identification with the target language community are two components in Integrativeness. However, the second factor in this study, *Interaction and Better Understanding*, shows that only one component, interaction, exists among students. This suggests that the learners only hope to foster closer friendship, to gain more knowledge about the Chinese community and their culture, but do not hold any interest in identifying themselves with the target language community. This could be directly related to government policy to promote national unity by urging the people to interact and to understand each other's culture. The government is always proud of its people showing unity in diversity.

The same findings showing the existence of Integrative-ness without identification component were found in most of the studies on Asian motivational studies (see for example, Yashima, 2000; Irie, 2003). The findings of past studies show participants demonstrate positive disposition towards native speakers and the cultures of the target language community, but little or no motivation to truly integrate in the original sense. The Asians, generally, learn a foreign language for instrumental purposes and intrinsic needs.

The third and fourth factors, *Interest and Pleasure*; and *Leisure and Entertainment* also explain the total of variance (7.55 % and 5.72% respectively). These two factors suggest that learners are motivated to learn Mandarin because they like the language looking at it as a joyful experience as well as for better understanding of Chinese

entertainment. The students were given a choice to choose a foreign language they like. Most of them usually choose a language which they think might give them enjoyment and satisfaction via the learning process. Furthermore, as mentioned above, Chinese TV drama from Hong Kong, Taiwan and China are easily available in Malaysia. It would certainly help them to appreciate Chinese movie entertainment if they know the language. Enjoyment and satisfaction are two main characteristics of intrinsic motivation. The findings are congruent with past studies which show intrinsic motivation as the reason for learning the target language (Chan & Chin, 2011).

The findings also indicate that students learn Mandarin for their future career. Career-related orientation is important in instrumental motivation; the extraction of future career factor in this study clearly replicates the results of most of the past studies (see for example Gonzales, 2010; Chan & Chin, 2011). Most of the local factories and companies are owned by Malaysian Chinese. Some of them require competency in Mandarin when they advertise for job vacancies. Thus, for many learners, their chances of getting a job or promotion are better if they know Mandarin.

In short, the findings reveal that besides learning the language to fulfill their university academic requirement, students learn it because of their own interest and as a source of pleasure. It is also to develop new friendships through better communication and understanding, and which also be of use in their future career. The findings bear

implications for the design and methodology of the present Introductory Mandarin course and future Mandarin courses in the university under study. As Requirement Motivation appears as the major factor, it is important to focus on it. This is because amotivation is likely to set in among learners who learn the language for purposes of fulfilling a requirement rather than as a choice. The instructors are encouraged to conduct their teaching in an attractive manner, employing more active learning strategies as a way to align their teaching to suit other motivational factors in order to boost motivation.

The absence of identification with the target language community suggests that the learners desired to learn Mandarin for social contact but not to identify themselves with the Chinese community. The findings suggest that the curriculum and syllabus of the language in this university under study should continue to use communicative approach to conduct the course. The communicative approach which emphasises on social contact and language use for survival is suitable for learners who learn a foreign language for instrumental purposes. Topics on culture should be taught to the learners for additional information and to better understand the target language community.

Instructors are recommended to exploit students' intrinsic values to sustain and strengthen the learners' motivation. Besides textbooks and workbooks, Mandarin songs, movies, TV dramas, and TV advertisements can also be used as media-

based supplemental teaching aids in the course. It is not only analogous to student need, but also exposes students indirectly to Chinese society and culture

In order to satisfy students' future occupational needs, the university as suggested to introduce Mandarin courses for specific purposes such as Mandarin for Business Purposes, Mandarin for Medical Study, Mandarin for Judiciary, Mandarin for Banking, etc. to help students develop their proficiency in handling communicative task in career-related situations.

The findings of this study are consistent with most research findings on this topic which argued that integrative-instrumental and intrinsic-extrinsic motivations emerged concurrently among the language learners. (Chalak & Kassaian, 2010; Masoud & Ali, 2010; Chan & Chin, 2011; Lee, 2012). It also reaffirms findings of earlier studies on Asian language learning motivation that they (Asian learners) are strongly inclined towards requirement motivation (if they are required to learn the language), intrinsic motivation, and instrumental motivation.

On the other hand, since Dörnyei's L2 Motivational Self System has gained empirical support from various national contexts (Hsu, 2013), the findings of this study were also compared with Dörnyei's L2 Motivational Self System. This study partially supports Dörnyei's L2 Motivational Self System. L2 Ideal Self definitely exists where the learners hope to utilise the language in their future career. However, L2 Ought-to Self and L2 Learning Experiences were not found among the

participants. Learning a compulsory elective language with no final examination as part of requirement cannot be viewed as 'one believe one ought to possess to meet expectations and to avoid possible negative outcomes' (Dörnyei, 2009). Furthermore, it is at the introductory level where the syllabus is easy for students to get good grades or hardly fail the course to get negative consequences. The results of this study are congruent with Beatrix's (2009), and Csizér and Kormos' (2009) findings which are also partially support Dörnyei's L2 Motivational Self System.

As a few sub-components of integrative-instrument motivation, intrinsic-extrinsic motivation and requirement motivation are found in this study. Thus, we can postulate that the motivational factors of foreign language are better viewed as blending of a few motivational models or theories rather than one model or theory. It is contended that a blended type of motivational framework may be more applicable and appropriate for language learning motivation among Asian learners.

CONCLUSION

The present study has verified that the LLMM is a reliable and valid instrument to identify motivational factors among learners who learn Mandarin as a foreign language. However, the sample for this study is limited to Malay learners. The outcome may be different if it is applied to learners from other races. It is recommended that this instrument be adopted by other non-Chinese Asians to investigate their foreign language

learning motivation, especially motivation for learning Mandarin as a foreign language.

The study has identified the blended motivational factors of Malay students learning Mandarin at the university level in Malaysia. Using the exploratory factor analysis procedure, five factors were extracted from the data provided by the students. The factors were labelled as *Requirement Motivation, Interaction and Better Understanding, Interest and Pleasure, Leisure and Entertainment, and Future Career*. As this is a pioneer study on Malay students' motivational factors for learning Mandarin as a foreign/third language and it only involves 148 students, future study should be conducted with larger sample to reaffirm the findings. As this is a quantitative study, a qualitative study is encouraged to consolidate the findings of the present study. As the language learning motivation of the students is contended to blended type, it is important that language educators look at motivation as a multifaceted and hybrid phenomenon where learners can be motivated in multiple ways, besides understanding the how's and why's of learner motivation.

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