



Global Journal of Foreign Language Teaching



Volume 10, Issue 1, (2020) 032-048

www.gjft.eu

The role of the language aptitude and self-reported strategy use on the achievement of EFL learners

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Suggested Citation:

Celik-Yavas, G. & Yavuz, F. (2020). The role of the language aptitude and self-reported strategy use on the achievement of EFL learners. *Global Journal of Foreign Language Teaching*. 10(1), 032–048. <https://doi.org/10.18844/gjft.v10i1.4412>

Received from August 15, 2019; revised from December 1, 2019; accepted from February 2, 2020.

Selection and peer-review under responsibility of Assoc. Prof. Dr. Jesus Garcia Laborda, Alcala University, Spain.

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Abstract

Whether the success depends on language aptitude or the language aptitude tests can predict the language learning achievement is one of the contradictive issues in SLA. Scholars have questioned the effect of aptitude on success, and they developed many language aptitude tests in time; because the success in aptitude measurement and the achievement prediction would mean to gain time in language learning. In addition, with the changing understanding of aptitude in recent years, language learning aptitude began to be compared to other individual differences (ID). These studies aim to increase the success of learners by designing instructions according to their aptitude and other ID. Therefore, this study aimed to find out the relationship between language aptitude, self-reported strategy use and language achievement of the Turkish EFL learners to see the decisiveness of language aptitude on strategy use and achievement. Results showed that the language aptitude influences foreign language learning achievement.

Keywords: Language aptitude, language learning strategies, achievement, individual differences, EFL.

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1. Introduction

Language learning is a complex process affected by many different factors, such as the complexity of language itself as a linguistic form (VanPatten & Smith, 2015), individual differences (ID) of learners and type of instruction. All these variables have been discussed separately for many years, and they all have particular importance in language learning.

However, individual differences constitute the most crucial part of these factors (Ellis, 1994, p. 471). Therefore, ID has been analysed for many years by researchers despite the difficulties in defining and grouping. It is challenging to define and group ID because they all depend on the nature of the learners. Nevertheless, that does not mean that there are as many variables as learners. People's characters are not the combination of free features; they are a harmonised entity (Snow, 1992). Hence, ID can be generally listed as age, gender, aptitude (Carroll & Sapon, 1959), personality (Brown, 1973; Ehrman, 1990), attitude, motivation (Gardner & Lambert, 1972; Gardner, 1985, 1990), cognitive style (Carroll & Maxwell, 1979; Ellis, 1994; Larsen-Freeman & Long, 2014), learning strategies (Oxford, 1990; Skehan, 1991) and anxiety (Horwitz, Horwitz & Cope, 1986).

Findings of research about ID also have great importance for the other variables such as the type of classroom instruction. Finding the compatible method to the learners' differences facilitates the learning process. For instance, knowing the learners' strategies help a teacher decide the type of instruction (Oxford, 1990). Similarly, aptitude functions differently in various instructional settings (Erlam, 2005; Robinson, 2007). Hence, it is necessary to determine the level of aptitude and types of strategies that learners have besides detecting the instructional settings that correlate them. By this way, it can be possible to guide the learners to make the process less complicated for them.

In this respect, the primary focus of this study is on aptitude and strategy which are regarded as among the core components of ID of learners with their pertinence in language acquisition and learning (Skehan, 1991). There are lots of assessment tools to identify the aptitude [modern language aptitude test (MLAT), PLAB, HILAB, DLAB, and so on] and strategy (interview, questionnaires, journals, and so on) of the learners. In the light of the literature, it can be said that foreign language learning aptitude as an individual difference is a neglected subject in Turkey since a Turkish language learning aptitude test is not developed or there is no Turkish version of the existing aptitude tests until the development of the language-neutral test LLAMA in 2005.

Accordingly, this study aims to investigate the connection among language learning aptitude, language learning strategy use of Turkish EFL learners and their achievement level to identify the foreseeability of language aptitude tests (particularly LLAMA in this study) for determining the foreign language achievement of the Turkish EFL learners.

Specifically, the following issues are addressed:

1. What is the relationship between language aptitude and the achievement (placement test scores) of the learners?
2. Is there any relationship between the learners' self-reported strategies and achievement scores?
3. What strategies did the participants report based on their language aptitude and achievement levels?
4. What is the relationship between achievement, self-reported strategies based on the clusters determined by the LLAMA tests?

The present research explores, for the first time, the connection between aptitude and strategy use of the Turkish EFL learners. Understanding the link between aptitude and strategy use of the learners and also the connection of these ID with success will contribute to the language learning process both in terms of learners and teachers. Whether it will be possible to guide the learners about their achievement level in language learning with the help of the data taken from LLAMA and strategy

inventory for language learning (SILL) or not is a critical question which saves time and energy for both learners and teachers.

The reader should bear in mind that it is entirely hard to say that research can observe the real mental process of the learners with the help of a test or questionnaire even though questionnaires are the most useful way (Purpura, 1997). The focus of this study is aptitude and strategy use of learners, which are two controversial mental processes of learners in the sense of their measurability.

Another issue is that LLAMA is not a standardised test yet. However, the validity study was made by Rogers, Meara, Barnett-Legh, Curry and Davie (2017). It is a computerised aptitude test; for this reason, some students who have problems with using a computer had difficulty in responding to the test. This matter may partly affect the results of the test.

2. Literature review

2.1. Language learning aptitude

It has concurred that all components of ID have a significant effect on foreign language learning. On the other hand, aptitude- one of these components- is one of the most contradictive ones. Although it is defined as being unaffected by environmental factors (Carroll, 1981) and unconnected with other effective and cognitive aspects (Li, 2016), it is also defined as a factor determining some components such as learning strategies and styles (Skehan, 1991). Besides, it is defined as a predictor of general L2 competence (Carroll, 1990) and it determines the competency in both native (L1) and second language (L2) learning (Skehan, 1986). From the 20s (Stoddard & Vander Beke, 1925; Stoddard, 1925) to the present day, many studies have been carried out, and the idea of whether aptitude is essential in language acquisition has varied. Aptitude, which gained importance with the development of Carroll's MLAT in the 60s, encountered Krashen's criticism in the 80s and lost its importance (Krashen, 1981).

Krashen (1982) evaluated the term 'aptitude' only by grammatical sensitivity and claimed that it was valid only in instructional environments for conscious learning and had no effect on natural communicative settings. However, the studies carried out in the 90s brought up back the thesis that aptitude was important in terms of language learning, but this time, the researches were continued considering other variables. Snow (1991) uniquely defined the aptitude within Aptitude-Treatment Interaction approach as not independent from affective and cognitive factors. This conceptualisation is very different from Carroll's (1981), and it also reflects the perspective of educational psychology.

Furthermore, Skehan (2016) considers aptitude in language learning as one of the theories of language acquisition and in the centre of the acquisition process, rather than being marginal and merely as a predictor. On the other hand, dilemmas continue about aptitude at present. VanPatten and Smith (2015) asserted that the significance of aptitude in language acquisition should be narrowed only for explicit rule learning.

This variable perspective stems from the differences in the theories accepted by the researchers (Ellis, 1994). The behaviourist and cognitivist perspectives led to the interpretation of 'aptitude' as consistent, unaffected and precisely measurable in the 60s (Robinson, 2007). Therefore, in the 70s when the communicative approach was predominant, there was a rapid decrease in aptitude research. As Affective-Humanistic Approach (Celce-Murcia, 1991) and Whole-person learning gained importance in the 90s, researchers began to evaluate 'aptitude' from a different perspective. For instance, Snow (1991) defines the persons as whole beings and correspondingly defined the aptitude not a monolithic factor, on the contrary as affected by personality, emotion, style, motivation and beliefs.

Skehan (1991) mentioned two different approaches in psychology with their pros and cons as experimental and differential. In the light of the differential one, he claimed that 'aptitude' should be reconsidered in natural and varied settings and basic principles of evaluation should be changed to make aptitude an appropriate predictor in language learning.

By taking Skehan's (1991) advice into account, research studies have begun to shape in an interventionist way. Ellis (1994) also stated that Confirmatory research—which has an interventionist character—is more appropriate than Naturalistic research for the studies of ID. After this time, many research studies were shaped in instructional settings where type of instruction (explicit or implicit process, artificial language, task design, feedback and learner attention) was questioned with ID (DeKeyser, 1997; Egi, Fujii, & Tatsumi, 2002; Ellis, 2005; Hulstijn, 1997; Robinson, 2007; Safar & Kormos, 2008). Nowadays, aptitude was conceptualised as a changing and probably trainable factor (Sternberg, 2002).

In addition, neurolinguistic studies have been performed about aptitude in the 2000s. Catani et al. (2007) found out a relationship between the structural differences in the connections of two territories of the brain (Broca's and Wernick's territories) and the cognitive function for language learning performance. Similarly, Xiang et al. (2012) investigates the relationship between the anatomical facilities of the brain and four components of aptitude by using LLAMA (Language Aptitude Test) and diffusion tensor imaging and reported significant correlations.

To sum up, aptitude is regarded as a vital component in the language learning process from different perspectives. Recently, studies on 'aptitude' have grown up around the theme of explaining the relationship of 'language aptitude' to the other 'ID and classroom instruction types, not only predictiveness of aptitude for language learners' achievement.

2.2. Language learning strategy

The success of individuals in language learning varies although sometimes they share the same instructional environment. The differences in the characteristics of students, such as aptitude and attitude, affect the rate of strategy use of learners (Bialystok, 1978). These differences have revealed the necessity of investigation the methods that are followed by successful language learners and these methods are called language learning strategies. First studies about learning strategies were shaped to determine the strategies used by the successful language learners (O'Malley et al., 1985). Rubin (1975) describes the good language learners and the strategies used by them. Oxford (1994) defines foreign or second language learning strategies as attitudes and methods employed by learners purposely to develop their improvement in performance, understanding and internalising the L2.

Whether the methods used by the successful learners can be taught to other students or not, in this way, whether the success rate of unsuccessful students can be increased constitutes the basis of learning strategy research in the later period. For this reason, strategies were grouped by researchers. The grouping made by O'Malley et al. (1985) and Oxford (1990) resembles each other. Oxford (1990) classified the learning strategies under two main titles (1) Direct Strategies and (2) Indirect Strategies. Direct Strategies were listed as memory strategies, cognitive strategies and compensation strategies. Indirect Strategies are metacognitive, affective and social strategies.

Grouping of learning strategies assist the researchers in determining the strategies used by target groups and also to form the instructional settings that will be compatible with the strategies used by learners in the target group. Felder and Henriques (1995) states that the extent to which the students are successful depends on their aptitudes, their readiness and the harmony of their strategy use with the instructional method applied in the classroom.

In order to determine the strategies used by learners, there are many ways. Chamot (2005) counted the self-reports which include think-aloud protocols, questionnaires, written diaries, journals and interviews as the unique way to determine the unobservable strategy use of learners, despite their restrictions.

Oxford (1996) and Chamot (2004) mentioned questionnaires as the most robust and inclusive methods to evaluate the learners' language learning strategies. One of the most extensively utilised questionnaires, SILL was formed by Oxford (1986) and Oxford (1996) stated that validity of the SILL

depends on the course grades and standardised test results and reliability depends on the application of it to many different cultures.

2.3. Aptitude in Turkish context

Since the development of MLAT (Carroll & Sapon, 1959), many language aptitude tests were generated by the researchers. Many of them based on the main principles of MLAT, but each researcher tried to eliminate the drawbacks according to their perspectives that stem from the perception of their language learning. For instance, the language of the test is one of these drawbacks. MLAT only has a few versions such as English and Spanish. In order to take the MLAT test, either the participant should be an English native speaker, or he/she should know advanced level English. There is no Turkish version of MLAT or any other aptitude tests. For that reason, none of them could be used by the native Turkish speakers until the development of LLAMA in 2005—a language neutral test (Rogers et al., 2017).

Research studies can only be conducted after this time with the application of LLAMA test on native Turkish speakers. Therefore, studies about Turkish native learners' language aptitude are limited. One of these studies analyses the correlation between working memory and aptitude (Yalcin, Cecen & Ercetin, 2016) and another investigates the relationship between ID—aptitude and motivation—and two grammatical structures—easy and difficult (Yalcin, 2012). There is one more research made by Yilmaz and Granena (2016) about the function of cognitive ability under explicit and implicit feedback. On the other hand, in the study of Yilmaz (2012), Turkish was the target language. Participants were English native speakers, and they were never received Turkish input before. The study searches the function of working memory and language analytic ability regarding explicit and implicit feedback. LLAMA was used in all these studies.

3. Methodology

3.1. Research design

This study set out to reveal the relationship between aptitude, achievement and self-reported strategy use of the learners. It also aimed to determine the aptitude profiles of the participants and the strategy use of these profiles. Quantitative methods were employed in the study. At the onset of the study, the oxford placement test (OPT) was administered to the participants, along with the Strategy Inventory for Language Learning (Oxford, 1990). Following this step, LLAMA aptitude tests were administered to each student individually. As it is known from the literature that aptitude has a fixed character (Carroll, 1959; Granena, 2013) and intervention will not have any effect on it over two years, it was assessed only once at the beginning of the study. A 10-week intervention program was planned and applied to find out the effect of language aptitude on achievement. At the end of the intervention program, OPT was administered again as the post-test of the study. In the data analysis process, SPSS (Version 21) software was used to analyse the data.

3.2. Participants

Participants of the study are the randomly-selected freshmen students of the Faculty of Health Science and the Faculty of Economics and Administrative Sciences at Balıkesir University. This study started with 235 participants, but due to the missing values in post-test and aptitude scores, the study was completed with 152 participants (nm = 25, nf = 127). The reason why male students are lower in quantity is that Nursing and Midwifery departments mostly consist of female students, and most missing values belong to male participants. According to the OPT pre-test scores, 94 of the students are A1, 56 of the students are A2, and 2 of the students are B1 levels.

Table 1. Information of the participants

	Gender		Achievement level		
	M	F	A1	A2	B1
Participants (n)	25	127	94	56	2

The age range of the participants is between 18 and 22 which is an acceptable age range to administer LLAMA aptitude test in order to get healthier results (Rogers et al., 2017). Participants are similar in terms of foreign language education, foreign language levels, mother tongue, past foreign language education opportunities. During their undergraduate education, they have 2 hours of English class per week. For their language aptitude levels, the distribution of the participants according to their aptitude subtest scores is demonstrated in Table 2.

Table 2. Aptitude levels of the participants

	LLAMA_B (Vocabulary Learning Task) n	LLAMA_D (Sound Recognition Task) n	LLAMA_E (Sound-Symbol Correspondence Task) n	LLAMA_F (Grammatical Inferencing Task) n
Very poor	11	13	7	9
Average	47	77	22	46
Good	82	59	58	72
Outstanding	12	0	64	21
N*	152	145	151	148

3.3. Tools

3.3.1. LLAMA aptitude test

LLAMA is a computer-based language neutral aptitude test developed by Meara (2005). Its language neutral characteristic makes it possible to apply it on students whose native language is Turkish. It assesses the four aspects of language aptitude:

- B Vocabulary Learning
- D Sound Recognition
- E Sound-symbol Correspondence
- F Grammatical Inferencing

B_Vocabulary Learning test has 20 figures on the screen. The participants are expected to memorise the names of these 20 figures in 2 minutes, and then they can match the names and the figures at their speed. It evaluates the explicit cognitive abilities or explicit language aptitude requiring analytical skills (Granena, 2013).

In D_Sound Recognition test, participants hear 10 sounds, and they have only one chance to listen. After listening, they hear approximately 30 sounds, including the 10 sounds they have heard during listening and try to remember the ten sounds they have heard before. This test assesses the working memory and short-term memory capacity of the learners. In other words, it evaluates the implicit cognitive ability or implicit language aptitude, which requires the series learning competency (Granena, 2013).

In E_Sound-symbol Correspondence Test, syllables are given as three groups. The first and second groups consist of nine syllables, and the last group consists of six syllables. The participants are given 2 minutes to study these syllables and their recitation, and they are asked to decide on the written form of the word. It assesses the explicit language aptitude (Granena, 2013).

The F_Grammatical Inferencing test asks participants to deduce the rules of an artificial language in an inductive way. There are 20 boxes on the screen of the test. Clicking each of these boxes displays a picture on the screen, and there is a sentence that identifies it next to each image. At the end of the 5-

minute study period, participants must select the correct sentence that identifies the picture they see on the screen. It evaluates the explicit inductive language learning ability or grammatical sensitivity which was called as an analytical ability by Skehan (1998) and Granena (2013).

Completing the test takes 25–30 minutes for each participant. Tests B, E, and F (2–5 minutes) allow participants to study on the artificial language, but the response time depends on the participant's speed. For that reason, the duration of application varies from student to student.

3.3.2. SILL

SILL is a questionnaire prepared by Oxford (1990). In the appendix part of the Oxford's book, it was published as two versions: for those whose native language is English and for the learners of English as a second language (ESL) and a foreign language (EFL). The questionnaire prepared for native English learners consists of 80 items and 50 items prepared for EFL-ESL learners. In this study, the EFL version was used to assess the language learning strategies of the learners.

The SILL is based on Oxford's taxonomy studies in 1986, and it is a Likert-type scale which consists of six sections. There are nine items in part A, 14 items in part B, six items in part C, nine items in part D, six items in part E and six items in part F. Each section corresponds to the learning strategy groups made by Oxford (1986). These groups are memory strategies (part A), cognitive strategies (part B) and compensation strategies (part C) as direct ones and metacognitive (part D), effective (part E) and social strategies (part F) as indirect ones.

3.3.3. OPT

OPT was prepared in 2004 by Dave Allan (2004). It consists of two parts, grammar and listening. There are 100 questions in each section. The listening test is 10 minutes. The Grammar test lasts no more than 50 minutes, but C1 and above students can complete in about half an hour. The total time required for the test is 1 hour at most.

The items that make up the listening test are formed by converting real situations into a test format from a collection of hundreds of dialogues, including native or non-native speakers. The items in the grammar part have been prepared in accordance with the CEF scale by taking into account syllabus and textbooks contents used around the world and with the help of feedback from users.

Both listening and grammar tests were examined on participants from 40 different nationalities for more than 5 years. Experiments were conducted on both multilingual and monolingual groups, and the reliability of the test was high. Besides, the in-test reliability was checked and the opt results were adapted to the CEF scale, association of language testers in Europe (ALTE), and to many basic language scores in the world based on CEF and ALTE, such as IELTS, TOEFL, TOEIC, Cambridge ESOL, BEC CELS. One pack of the test consists of a total of 80 tests, including 40 listening, 40 grammar tests, and guidance of administering and grading the tests.

3.4. Procedure

After the implementation of LLAMA, SILL and OPT, the 10-week training program was started. Because Erlam (2005) asserts that a deductive learning environment nullifies the language aptitude, the lesson plan was designed with an inductive approach to observe how students use their abilities. The activities for repeating and reminding which enable the improvement of language aptitude were added to the lesson plan by considering the assumptions about instruction types stated Robinson (2007). In this context, animations of fairy tales were used as primary course material, because a tale is a genre that is typically organised in the same way, repeating specific grammar structures and words. Students had the chance to read the subtitles in English while watching the videos. Grammar structures within the videos were discussed with the support of the teacher. In this way, the same kinds of grammar structures have been seen by the student in different sentences in a context.

It took 4 weeks to complete a fairy tale of 8–9 minutes. Every week, the fairy tale was started from the beginning, and the students were reminded again briefly. Therefore, the students had the opportunity to review the notes they kept. This process helps to develop metacognitive (paying attention, organising learning process, taking notes and identifying the purpose), cognitive (repeating, recognising and using formulas and recombining) and memory (grouping the words and reviewing) strategies as well as the use of aptitude complexes, such as noticing the gap, deep semantic processing and metalinguistic rule rehearsal. In this process, the teller of the fairy tale functions as one side of the interaction—source of the oral and written flood of input—while the teacher was responsible for the negotiation of the meaning. Students were expected to check the difference between their understanding and the notes that they had taken and the correct form presented in a few ways by the teacher. Students' speed, short-term memory and attention are effective in their success.

Since this kind of lesson is a method with which students are not familiar, it takes at least four weeks for them to get used to and get control of their learning. However, some students never get used to this system. As Robinson (2007) cited from Niwa (2000), ID are more leading to difficult structures. Therefore, this type of complex instruction enables students to demonstrate their abilities. Another significant point in the lesson plan is time. Carroll (1959) said anyone who had time and opportunity could learn a foreign language; what distinguishes learners in this process is the learning speed that is primarily based on language aptitude levels of learners. The course plan was kept short and arranged as 10 weeks (90 minutes for each week) since the participants with high ability were expected to be more successful in a short time.

At the end of the training period, OPT was administered to students again as the post-test to find out the difference. With the re-application of OPT, the data collection process ended, and the data were prepared for the analysis.

3.5. Data analysis

RQ.1- What is the relationship between language aptitude and the achievement (placement test scores) of the learners?

The relationship between language aptitude and the placement scores (achievement) of the learners were investigated under three steps. First, whether there is a significant increase between the pre and the post-test scores of the learners was determined with Paired Samples *t*-Test. Second, the effect of language aptitude on this increase was investigated, and Paired Samples *t*-Test was used to reveal the effect of language aptitude levels on achievement scores for each sub-aptitude test. Third, the correlation between language aptitude tests and the learners' achievement was analysed with Pearson Correlation Analysis.

Table 3. Paired samples t-test results of the pre and post placement tests

	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Pre-Test	101.2	9.7	151	-4.5	0.001
Post-Test	104.9	8.9			

Paired Samples *t*-Test Analysis results indicate that participants showed improvement after the treatment ($M_{pre} = 101.2$, $SD_{pre} = 9.7$; $M_{post} = 104.9$, $SD_{post} = 8.9$). This increase in the mean scores between pre and post-tests is statistically significant $t(151) = -4.5$, $p < 0.001$.

In order to find out the effect of language aptitude on this increase, language aptitude level-based increase between the pre- and the post-placement test scores were found for each sub-aptitude test with Paired Samples *t*-Test.

Table 4. Paired samples test results showing the language aptitude level-based increase between the pre and the post placement test scores

Apt Level Cases	LLAAMA_B		LLAMA_D		LLAMA_E		LLAMA_F	
	Pre*	Post*	Pre*	Post*	Pre*	Post*	Pre*	Post*
Very Poor (148)	102.9	101.8	101.6	101.4	100.8	101.3	102.8	102.9
Average (141)	101.3**	105.6**	100.4**	104.8**	102.7	103.7	102.4	104.5
Good (124)	100.9**	104.7**	102.6**	105.7**	99.4**	104.5**	101.8**	106.1**
Outstanding (126)	102.6	104.3	N/A	N/A	101.5**	105.7**	102.7**	108.5**

*The mean score of the placement test (achievement).

**Significant at 0.05 level.

Table 4 shows that for the Very Poor Aptitude Level participants ($n_{case} = 148$), there is no significant increase in the scores. Average Aptitude Level participants demonstrated significant increase for the LLAMA_B (MD = 4.3) and LLAMA_D (MD = 4.4) while significant increase was observed for Good Aptitude Level participants in all applicable aptitude sub-tests; LLAMA_B (MD = 3.8), LLAMA_D (MD = 3.1), LLAMA_E (MD = 5.1) and LLAMA_F (MD = 4.3). For the Outstanding Aptitude Level participants, there is a significant increase in LLAMA_E test (MD = 4.2) and LLAMA_F test (MD = 5.8). Bearing on the results, language aptitude is more effective on language achievement for Good Aptitude Level participants in all sub-test and Outstanding Aptitude Level participants in LLAMA_E and LLAMA_F tests.

To find out whether there is a correlation between language aptitude tests and with the placement test scores (achievement), Pearson Correlation Analysis was made, and the results were demonstrated in Table 5.

Table 5. The correlation between /language aptitude tests and with the placement test scores (achievement)

	LLAMA_B	LLAMA_D	LLAMA_E	LLAMA_F
LLAMA_B				
LLAMA_D	0.08			
LLAMA_E	0.08	0.02		
LLAMA_F	0.22*	0.05	0.24*	
Achievement	-0.02	0.11	0.09	0.07

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

Pearson Correlation Analysis revealed that there is no significant correlation between achievement and any of the sub-aptitude tests. However, low correlation was observed between LLAMA_F and LLAMA_B [$rp(152) = 0.22, p < 0.001$] and LLAMA_E [$rp(152) = 0.24, p < 0.001$].

RQ-2. Is there any relationship between the learners' self-reported strategies and achievement scores?

In order to find out the effect of self-reported strategy use on the achievement scores of the participants, Multivariate Linear Regression Analysis was made and the analysis results revealed that self-reported strategy use has no significant effect on the achievement (placement) test scores of the learners [$F(6, 135) = 1.76, p = 0.11$].

RQ-3. What strategies did the participants report based on their language aptitude and achievement levels?

Table 6. Strategy domain mostly reported by the participants based on their language aptitude levels

Apt Level	LLAAMA_B	LLAMA_D	LLAMA_E	LLAMA_F
Cases	Strategy domain			
Very poor (148)	Social	Social	Social	Social
Average (141)	Social	Social–Memory	Compensation	Social
Good (124)	Social	Social	Memory	Social
Outstanding (126)	Social	–	Social	Memory

The descriptive analysis made on the reported strategies of the participants revealed that Social Strategies are the most commonly used strategies for all aptitude levels while Memory strategies are the most common for the good aptitude level learners in LLAMA_E and LLAMA_F tests. Additionally, Compensation strategies are mostly favoured by the average aptitude level learners in LLAMA_E test.

Table 7. Strategy domain mostly reported by the participants based on their achievement levels

A1 (n = 71)			A2 (n = 67)			B1 (n = 5)		
Strategy	M	SD	Strategy	M	SD	Strategy	M	SD
Social	3.08	1.00	Social	3.05	1.12	Memory	3.20	0.45
Memory	2.98	0.70	Memory	2.90	0.73	Metacognitive	3.12	1.17
Compensation	2.80	1.00	Compensation	2.88	0.99	Social	2.91	0.96
Metacognitive	2.57	0.97	Metacognitive	2.83	1.03	Compensation	2.89	1.11
Affective	2.52	0.83	Affective	2.56	0.90	Affective	2.55	0.88
Cognitive	2.33	0.75	Cognitive	2.45	0.76	Cognitive	2.54	0.38

Frequency analysis made on the reported strategies unveiled the most common strategy domain based on the achievement levels of the learners. For the A1 (n = 71) and A2 (n = 67) learners social strategies are the most dominant strategy domain ($MA_1 = 3.08$, $SDA_1 = 1$, $MA_2 = 3.05$, $SDA_2 = 1.12$) while the most common strategy domain used by the B1 learners are memory strategies ($MB_1 = 3.20$, $SDB_1 = 0.45$).

RQ-4. What is the relationship between achievement, self-reported strategies based on the clusters determined by the LLAMA tests?

First, in order to determine how many aptitude profiles are there based on the LLAMA scores, Two-Step Cluster Analysis was made. The Cluster Analysis results indicate three aptitude profiles with fair cluster quality.

Two-Step Cluster Analysis revealed three aptitude profiles. Profile 1 comprises participants who have high scores in all aptitude sub-tests (n = 47). Learners of Profile 1 had the highest scores on Sound Symbol Correspondence sub-test (LLAMA_E), while the lowest scores belong to Sound Recognition Test (LLAMA_D). Profile 2 is the one which has the most participants (n = 60). Within the group, they scored best in Sound Symbol Correspondence test (LLAMA_E) while the lowest scores are in Sound Recognition Test (LLAMA_D). The lowest LLAMA_D score in all profiles belongs to Profile 2. Profile 3 participants did better in Vocabulary Learning Test (LLAMA_B) and worst in Sound Recognition Test (LLAMA_D). However, though this group has the lowest scores in all sub-tests, Sound Recognition Test scores of this group are higher than the Profile 2 participants' Sound Recognition Test scores.

Table 8. The aptitude profiles determined by the cluster analysis

Size	Profile 1 n = 47 (32.6%)	Profile 2 n = 60 (41.7%)	Profile 3 n = 37 (25.7%)
Inputs	LLAMA_E	LLAMA_E	LLAMA_B
	M = 76.28	M = 76.17	M = 44.59
	LLAMA_F	LLAMA_B	LLAMA_F
	M = 70.32	M = 50.58	M = 40.81
	LLAMA_B	LLAMA_F	LLAMA_E

M = 56.70	M = 42.00	M = 35.14
LLAMA_D	LLAMA_D	LLAMA_D
M = 42.02	M = 24.67	M = 33.38

In order to find out the relationship between achievement and reported strategies of aptitude profiles, One Way ANOVA analysis was conducted and no significant relationship was found [$F(2, 137) = 0.41, p = 0.67$].

4. Discussion

The first question was about the relationship between language aptitude and achievement. First, it was investigated whether there was a significant relationship between the pre-test and post-test results of the participants. After a significant increase was found, the role of the language aptitude in this increase was also analysed with paired samples *t*-test for all aptitude levels in each subtest.

The results demonstrated that there is no significant relationship between language aptitude and the achievement of the participants who have low aptitude level in all subtests. However, there is a significant relationship between the language aptitude and the achievement of the learners who have good aptitude and outstanding aptitude level. That means that language aptitude has a significant effect on language learning achievement. The results are consistent with the studies that demonstrated the success of prognosis tests in prediction of achievement (Carroll & Sapon, 1959; Ehrman, 1994; Grigornko, Sternberg & Ehrman, 2000; Henmon, 1929; Meara, 2005; Pimsleur, Sundland & McIntyre, 1964; Service, 1992; Stoddard & Vander Beke, 1925). It is worth to note that Pearson Correlation Analysis does not show any significant correlation between achievement and LLAMA subtests.

Besides, the relationship between the language aptitude and achievement level of the learners who have an average level of aptitude is significant in LLAMA_B and LLAMA_D tests. It means that having an average language aptitude level in LLAMA_B and D can show the possibility of success. On the other hand, LLAMA_B does not have any significant relationship with the achievement of the learners who have outstanding aptitude level.

The second question was about the relationship between the reported strategy use of the learners and the achievement. According to results, there is no significant relationship between the overall self-reported strategy use of the participants and the achievement. That means that strategy use is not a determiner in learners' success. The reason for this result may be that participants are only at level A1, A2 and B1. These scores are not very high according to OPT, because there is no participant in C1 and C2 level. Khalil (2005) and Green and Oxford (1995) state that the competence level of the learners influences the overall strategy use of the learners. The absence of high-level participants in this study may have influenced the relationship between the overall strategy use and success.

The third question was about the self-reported strategy use of the participants based on their aptitude and achievement level. The descriptive analysis demonstrated that participants with low skills in all subtests use social strategies most often. While average level participants in LLAMA_B and F use the social strategies most, average level learners in LLAMA_D and E report the memory and compensation strategies. Good level learners use social strategies in all subtest except LLAMA_E (memory strategies), and outstanding level learners similarly use social strategies except LLAMA_F (memory strategies). The results show that there are no changes in the use of strategy depending on the aptitude levels of the learners and LLAMA subtests. Social strategies are the most commonly used strategies at all levels and subtests.

Frequency analysis demonstrated the self-reported strategy use of the learners based on their achievement level. According to results, participants in A1 and A2 levels use the same strategies and the social strategies are the most widely used while cognitive strategies are the least used. B1 level learners use memory strategies most and cognitive strategies least.

Many studies emphasise that the use of strategy varies according to the achievement level, and metacognitive strategies are the most used strategy group by successful students (Rubin, 1975, 2001; Oxford, 1990; Green and Oxford, 1995; Takeuchi, 2003). Table 7 confirms these studies. A1 and A2 level learners cannot use the metacognitive and cognitive strategies which are commonly used by successful learners. They also cannot use the effective strategies which have a significant relationship with metacognitive strategy use and a role in the success (Phakiti, 2003). On the other hand, B1 level learners mostly use metacognitive strategies after memory strategies. It suggests that the use of metacognitive and cognitive strategies in C1 and C2 students may be higher.

Griffiths (2004) described in detail the phase of conceptualisation and grouping of learning strategies and mentioned the apparent discrimination between the learning strategies and communication strategies until Rubin (1981). He mentioned Ellis (1985) as another scholar who separated the strategies as for learning and using ones. He stated that Ellis (1985) discussed the possibility of successful use of social strategies to prevent the use of learning strategies. Ellis (1985) thought that if this social characteristic makes up for the lack of language skills, it may make the requirement for learning unnecessary. This opinion may explain the social strategy use of A1 and A2 level learners as the most common one.

The fourth question was about the relationship between the achievement and self-reported strategy use based on the clusters determined by the LLAMA. First, Cluster analysis was made in order to determine the aptitude profiles. Cluster analysis determined three aptitude profiles based on the LLAMA scores. Table 8 demonstrates these profiles and the mean scores of the participants in all subtests. Profile 1 has good or outstanding aptitude level in all subtests of the LLAMA. Highest scores belong to the LLAMA_E (Sound Symbol correspondence task), and lowest scores belong to LLAMA_D (Sound recognition task). Profile 2 has the most participants. It has outstanding aptitude level in LLAMA_E and good aptitude level in LLAMA_B and LLAMA_F, but it has an average aptitude level in LLAMA_D. Profile 3 has an average aptitude level in all subtests of LLAMA. However, it has a higher score in LLAMA_D than Profile 2. Profile 2 has the lowest LLAMA_D scores among the three groups.

It shows that LLAMA_B, LLAMA_E and LLAMA_F (vocabulary learning task, sound-symbol correspondence task and grammatical inferencing task) are associated with each other. The scores of these three aptitude areas increase and decrease together. Otherwise, LLAMA_D scores move separately. While LLAMA_B, E and F scores are high in Profile 2, LLAMA_D has the lowest score in Profile 2 among all profiles. Similarly, while LLAMA_B, LLAMA_E and LLAMA_F scores are very low in Profile 3, LLAMA_D score is higher than Profile 2. Granena (2013) reached the same results and attributed this relationship to the practice time, which LLAMA_B, LLAMA_E and LLAMA_F tasks have. Granena (2013) states that this practice period ranging from 2 to 5 minutes causes students to develop strategies. LLAMA_D does not have practice period, and students cannot develop strategy while completing the task. It means that LLAMA_B, E and F assess the explicit language aptitude requiring analytical skills while LLAMA_D assess the implicit language aptitude requiring series learning competency. Granena (2013) also states that this increase and decrease in the scores of the subtests prove the existence of the different aptitude profiles.

After determining profiles, One Way ANOVA analysis was conducted to find out the relationship between three profiles, achievement and strategy use. Results demonstrated that there is no significant relationship between the three aptitude profiles determined by LLAMA and OPT scores and the strategy use of the learners. Since there are no participants at C1 and C2 level, the existing profiles are only determined among the students at level A1, A2 and B1. Because these learners are not very successful, this may have affected the relationship among the aptitude profiles, achievement and strategy use.

5. Conclusion

The studies, which have been shaped by the changing aptitude perspective after the 90s, have been more about how ID can be better reflected in the teaching process. The extent to which aptitude is

influenced by other ID and how the results reflect on success is the focus of the studies. Therefore, this study investigated the decisiveness of aptitude on success and how other ID, particularly strategy use, affect this decisiveness in Turkish EFL context.

As in many other studies, this study found out that language aptitude is an effective factor in foreign language learning achievement. It shows that LLAMA scores can be used to identify students who can learn a foreign language successfully in a short time. Nevertheless, it should be kept in mind that although language aptitude has a decisive role on the language learning success in a short time, the role of other ID cannot be neglected in long-term process.

6. Implications

Language aptitude testing aims to find out the learners who can learn a foreign language in a short time. As Carroll (1959) said, language learning is a matter of time and opportunity, and everybody can learn a language if there is enough time. Therefore, the focus of aptitude testing is to determine quick learners.

The real issue is the question of who these students are who need to learn fast. At standard primary, secondary and high school levels, there may be no need for students to learn a language quickly except for their personal needs. However, if the professional development of the students at the university level and the international training are considered, it can be essential to identify the students who can learn fast and train them as soon as possible when they need.

Aptitude tests are designed to determine whether a person can learn any language in a short time, not only English. For this reason, considering the occupational groups and the foreign languages that they need, aptitude tests are needed in a wide range. When we look at the use of language aptitude tests in the world and their purpose of emergence, these tests are mostly used by governmental organisations such as the army and central intelligence agency. Many studies mentioned the importance of training the soldiers and the pilots in the languages of the countries where they will serve during the war and the benefits of this training. Aggeler (1950) mentions the Army Language School, 21 languages which were taught in this school in a short time and how this method - the Army Method- transformed into the Audiolingual Method in the SLA. This process demonstrates the importance of the language aptitude tests and the studies carried out in this field, starting from the language education of the individuals who have a central position for the country, to the language education which should be given during the vocational education in universities or ESP.

Before LLAMA, other aptitude tests could not be administered to people whose native language was Turkish for the reasons mentioned in the study. Therefore, the studies in this field have been possible only after 2005 in the Turkish context. This study was carried out to determine the extent to which the LLAMA aptitude test can predict the Turkish students' achievement in language learning. Results showed that language aptitude has an influence on the language learning achievement of the Turkish EFL learners and that means that determining aptitude can give information about the learners who can learn a foreign language successfully in a short time.

Language aptitude and other ID are neglected subjects in foreign language learning in Turkey. It is ignored that not everyone can learn a foreign language in a short time, or that they must receive appropriate training for their ID. Identifying the aptitude level or strategy use of the learners enable the teachers to prepare appropriate lesson plans to their students' learning styles. On the other hand, ESP groups that need to learn a language in a short period, the training of the individuals by considering the aptitude levels and strategy use of them will save time. Therefore, there is a need to develop aptitude and strategy tests until the best result is achieved in the Turkish context. As a result, this study will make contributions to the field of language aptitude studies in Turkey by shedding light on the points where the researchers can focus on.

7. Suggestions for further research

Participants in this study are at the level of A1, A2 and B1 according to OPT results. When their achievement and proficiency scores were compared with overall strategy use of them, any correlation was not found. Khalil (2005) and Green and Oxford (1995) claimed that the competency level of the learners affects the overall strategy use of the learners. Since this study does not have any participants at C1 and C2 level, it is possible to get different results with a participant group, including C1 and C2 level learners.

Similarly, participants' strategy use was analysed according to their proficiency levels. Results were compatible with the literature that stated that successful learners can use metacognitive, cognitive and affective strategies well (Green & Oxford, 1995; Rubin, 1975, 2001; Oxford, 1990; Phakiti, 2003; Takeuchi, 2003). This study demonstrated that A1 and A2 level learners cannot use metacognitive and cognitive strategies well and they also cannot use affective strategies which have a significant relationship with metacognitive strategies and a role on success. On the other hand, B1 level learners can use metacognitive strategies well after the memory strategies. This may suggest that C1 and C2 level learners can use metacognitive, cognitive and affective strategies well. Since this study does not include any participant at C1 and C2, it is not possible to see the strategy domain of these participants in this study. Another research may be done to see the strategy domains of the C1 and C2 level learners.

Acknowledgements

This study is supported by Balikesir University Scientific Project Support Office with the project number (2018/033).

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