

ETAP 735
A Socio-cognitive View of Instruction

Research Paper

“A Critique of Language Aptitude Research From a Socio-cognitive Lens ”

To: Dr. Judith A. Langer

By: Cagri OZKOSE-BIYIK

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Research over the last five decades suggests that some people are better at learning new languages than others. Since the 1950s, many cognitive psychologists and second language learning (SLL) researchers have tried to explain the construct of language aptitude¹ and its components. Many cognitive psychologists and educational researchers have tried to explain what they understand by the construct of language aptitude. Cook (1991) sees the notion as “the ability to learn the L2 in an academic classroom” (p. 75). Miyaki and Friedman (1998) assert that working memory of one’s language may be one (if not the) major component of language aptitude. As cited in Dornyei (2005), Robinson theorized language aptitude “as the sum of lower level abilities, grouped into cognitive factors, which differentially support learning in various learning situations/ conditions” (p. 59). For Leaver, Ehrman and Shekhtman (2005), “it consists of relatively stable factors within an individual that promote successful language learners” (p.56).

Drawing upon the above definitions and others, researchers have designed various language aptitude tests. One of the prominent characteristics of language aptitude tests is that notwithstanding the time and the conditions under which they were developed, they always reflected the trends in second language teaching methodologies of their time. For instance, when one of the most commonly used language aptitude test, the Modern Language Aptitude Test (MLAT), was developed by Carroll and Sapon in 1959, audio-lingual method was considerably famous; consequently, the researchers were under the influence of this approach. Even though there has been a shift in the focus of SLL research from more cognitively-based approaches towards more socio-culturally-oriented

¹ Language aptitude will refer to “foreign language aptitude” throughout the paper.

ones since the 1990s (Mitchell & Myles, 2004) , tests regarding language aptitude still do not reflect this shift.

The efforts to measure language aptitude can be traced back to 1920s (e.g. Iowa Foreign Language Aptitude Examination, Stoddard and VanderBeke, 1925; Foreign Language Prognosis Test , Form B, Symonds, 1930, both as cited in Gardner, 1985); however, the most commonly used language aptitude battery so far is probably the Modern Language Aptitude Test (MLAT) developed by Carroll and Sapon in 1959. According to the MLAT, language aptitude is made up of four components: a) phonetic coding ability, b) grammatical sensitivity, c) rote learning ability for foreign language materials and d) inductive learning ability. It consists of five constituent sections: 1) Number Learning, 2) Phonetic Script, 3) Spelling Clues, 4) Words in Sentences, and 5) Paired Associates. These sections measure skills and abilities related to auditory memory, making inferences, cognitive restructuring of information, sensitivity to grammatical structure and effective rote learning (Leaver, Ehrman and Shekhtman, 2005).

Another aptitude test developed by Pimsleur (1966) is composed of six parts: 1) Grade Point Average, 2) Interest in Foreign Language Learning, 3) Vocabulary, 4) Language Analysis, 5) Sound Discrimination, 6) Sound-Symbol Association. Pimsleur (1966) conceptualized the aptitude for learning a modern language in terms of three factors: a) verbal intelligence, b) motivation, and c) auditory ability. Dornyei (2005) finds similarities between Pimsleur's verbal intelligence and Carroll and Sapon's grammatical sensitivity and inductive language learning ability as well as Pimsleur's auditory ability and Carroll and Sapon's phonetic coding ability. There are some fundamental differences between the two batteries. For instance, Pimsleur's Language Aptitude Battery (PLAB)

does not address memory as a component of language aptitude at all whereas the MLAT does. Furthermore, as Dornyei (2005) also talks about, the MLAT measures the inductive learning ability indirectly while the PLAB aims to measure this component specifically.

In 1986, Skehan conducted research taking Carroll's aptitude construct into consideration and proposed that language aptitude includes three components: a) auditory ability, b) linguistic ability and c) memory ability. For Skehan, Carroll's grammatical sensitivity and inductive language learning ability look different because of the emphasis given to each, not necessarily because they are different in nature (1986).

Canal-F Theory and the test based on it is another line of the research on language aptitude. According to Grigorenko, Sternberg and Ehrman (2000), the developers of the Canal F test, the language aptitude batteries, for example the MLAT, were devised in the era of the empirically-based, psychometric test development. Although the researchers accept the predictive power of these tests, they view language aptitude not a separable concept from intelligence. They claim that their test is "a) based on a cognitive theory of knowledge acquisition rather than being empirically derived; b) naturalistic in that it creates a situation in which FL learning occurs naturally; c) dynamic rather than static, in that it involves the ability to learn at the time of the test; d) multifunctional in that it both assesses students' levels of ability and provides information on students' strengths and weaknesses, so that appropriate teaching and learning strategies can be devised; and e) based on item response theory, thereby permitting adaptive testing and new item development" (p.392). The Canal F theory test was basically designed to see how people deal with novelty and ambiguity in their learning. As Dornyei (2005) puts it, "This is done in a naturalistic context by gradually introducing an artificial language, and

testtakers are to perform a number of mini-learning tasks” (p.51). Cognitive theory of knowledge acquisition possesses five processes in its scope: 1) selective encoding, 2) accidental encoding, 3) selective comparison, 4) selective transfer, and 5) selective combination (Grigorenko, Sternberg and Ehrman, 2000).

As seen from the tests described above, language aptitude research has been had a cognitive focus so far. According to the literature reviewed through various databases such as Education Full Text and Linguistics and Language Behavior Abstracts and other sources reached by means of the reference lists at the end of the previously obtained sources, no research study assessing the construct based on socio-cognitive perspectives could be located. Ironically, a significant bulk of the criticisms projected to this area of research came from the cognitive psychologists themselves (see below for some of these critiques). There is an urgent need for research that would explore the contextual and interpersonal factors surrounding language aptitude for the favor of more comprehensive, valid and state-of-the-art language aptitude tests. Thus, this paper attempts to critique the cognitively-oriented language aptitude research through a socio-cognitive lens.

Research on language aptitude has received noticeable criticisms in the second half of the twentieth century. One of the most fundamental criticisms came from Neufeld (1978), who questioned whether language aptitude was a meaningful construct or not. According to him, all human beings were able to learn a first language, so learning another one wouldn't be a problem. On the other hand, some researchers such as Gardner (1985) views language aptitude as a worthwhile construct, arguing that even though each human being acquires a language, there are extensive individual differences such as the

speed of acquisition, range of their vocabulary, complexity of the sentences that they construct, variety of the expressions that they use etc.

Another criticism associated with language aptitude research concerns whether the tests are comprehensive and valid enough. As cited in Gardner (1985), Oller (1979) suggests that all tests of this kind, in fact, measure language intelligence and researchers end up obtaining correlations between language proficiency and aptitude due to this common factor. Likewise, Ehrman (1998) claims that, since both the MLAT and the PLAB include an L1 vocabulary test, they might be measuring intelligence in general even though they don't aim to do so. In the introduction to their edited book, Parry and Stansfield (1990) commented that our "knowledge of the human learning process and the objectives and methods of language teaching have changed" (p. 2) as well as enclosing the need to refresh language aptitude tests so that they can take into account new approaches adopted by cognitive psychologists and up-to-date views of language learning. Sternberg (2002) and Robinson (2002) also arrived at a consensus in that we need more investigation to look into other variables so that we can come up with a more representative, broader definition of language aptitude.

Some researchers who directed criticisms to language aptitude tests noted that these tests were designed at the time when audio-lingual method was considerably famous; consequently, the researchers were under the influences of this approach. Cook (1991) revealed serious criticism against the MLAT:

Such tests are not neutral about what happens in a classroom nor about the goals of language teaching. They assume that learning words by heart is an important part of L2 learning ability, that the spoken language is crucial, and that grammar consists of structural patterns. In short, MLAT mostly predicts how well a student will do in a course that is predominantly audiolingual in methodology rather than in a course thought by other methods.

Krashen (1981a) asserted that performance measured by these aptitude tests is only non-communicative since they do not take place in naturalistic environment. However, Skehan (1982) found a correlation of .4 between language performance and aptitude in a test in which he utilized communicative criterion tests such as translating, interpreting, and conversation. Skehan (1989) acknowledges that the language aptitude tests can give us noteworthy correlations, regardless of their origins (e.g. communicative vs. audio-lingual); yet, he reminds us the possibility that test-takers' performances on the tests might be confounded by their "decontextualization ability" (p.44). Likewise, some learners who are proficient at taking multiple-choice tests might do better only because of this ability, not necessarily because they have high aptitude levels (Skehan, 1989). Parry and Child, who created another language aptitude test, VORD (which means "word" in the artificial Turkic language used in the test), draw our attention to the possible difference between "linguistic" and "language" aptitude, claiming that even though most of the aptitude tests attempt to measure language aptitude, they seem to deal with "analytical skills required for establishing formal paradigms at word, phrase, and sentence levels (in other words *linguistic* skills)" (1990, p. 52). They further suggest that one of the four subtests of the VORD is "a step toward testing language aptitude in a contextual framework, because general rules must be applied to particular segments of text" (p. 53). Parry and Child, at least, pointed to the fact that contextual emphasis is needed in the revised or newly-designed aptitude tests. Yet, their attempt to draw our attention to contextual factors is not sufficient; we need to work on towards more theory-oriented, structured and constructive criticisms for the favor of more state-of-the-art language aptitude tests.

Problems of the current language aptitude tests according to socio-cognitive approaches

1. According to the socio-cognitive view, language is learned on a social basis and cognition is built up as a result of these social experiences (Langer, 1991). As further proposed by Langer, "...learners do not learn rule-governed systems such as language by having the rules presented to them by others and then practicing the rules. On the contrary, they learn such rules in the process of interacting with others to complete tasks in meaningful and functional situations" (1991, p.17). Interactions between the teacher and students, among peers, and within students' inner worlds (e.g. inner speech, Lantolf, 2003) play a constitutive role in learners' language and literacy development (Langer, 1991). It is obvious that today's language aptitude tests overwhelmingly ignore the social aspects of language learning and thus do not address these issues in measuring the language aptitude.

2. Concerns emerge when we look at the issue from a Vygotskian perspective. Vygotsky (1978) strongly believed that language develops by means of the social interactions human beings get engaged in; it gradually becomes internalized and finally turns inward, taking on an intrapersonal function. Since the social aspects precede cognitive and psychological ones, it is impossible to deny the roots of these activities. Moreover, as cited in Lantolf (2003), Yaroshevsky (1989, p. 230) stated that "man controls his brain and not the brain the man". According to Lantolf, Vygotsky certainly acknowledged the constraining power of biological factors in mental activities; yet, claimed that biology is not the only factor controlling our mental activities (2003). Based

on these statements, one can draw conclusions regarding the contents of the language aptitude research. Apparently, treating the construct as if it is only intrapersonal does not lend support to a firmly-established methodology; interpersonal factors are to be integrated as well.

3. In keeping with the socio-cognitive view, one can claim that the current language aptitude tests measure language abilities by means of isolated, decontextualized, linguistically-oriented questions. For instance, the Phonetic Script section of the MLAT makes test-takers listen to a set of short meaningless words while making them follow their printed scripts. Subsequently, the test-takers hear one of these words and choose among the four printed alternatives. In total, there are 30 sets and four words in each set. Obviously, the Phonetic Script test tries to evaluate the learners' skills in matching the sounds with printed material. However, this is done totally out of context. Going through 30 sets including a total of 120 words does not seem an easy task considering the decontextualized nature of the task. Learners might easily lose their motivation to listen to the words eagerly and thus they may not provide answers in a way to reflect their accurate aptitude for matching phonetics and their corresponding letters. For this reason, providing information in a meaningful context might help the test-takers to stay on-task. However, this brings the issue of testing learners whose native language is different than the language used in the test because in order to provide a context, some kind of a modern language needs to be used. This encompasses both advantages and disadvantages. For example, in order to prepare test items in a context, there needs to be a language aptitude test for every language that exists in the world at the present time. Preparing a language test for every language would be remarkably costly and irrational.

On the other hand, socially more meaningful contexts can be embedded in the tests, which would be preferred by the socio-cognitive view of language learning (Langer, 1985) more than using only one cultural context and generalizing it over others.

4. The fourth problem is the fact that current language aptitude tests do not take units of language into account as a whole. Rather, they separate language into isolated chunks, which may not grasp the language in its integrity. Bakhtin, one of the leading opponents of this approach, never considered linguistics being adequate alone to explicate the nature of language (1986). For him, words and sentences gain meaning together with the “voice”, “dialogicality”, “addressivity” embedded in them. It is the “utterance” that embraces all of these factors as a whole, enabling the units of language to exist in reality. That’s why he criticized the methods that were abided by the field of linguistics and suggested “metalinguistics” as another study of languages bearing pragmatics and discourse in its scope (Sherzer, 1987 as cited in Wertsch, 1991). In brief, what is lacking in today’s language aptitude tests is that sounds, words, artificial languages used in them do not belong to anybody; they are only heard from the tape recorder and seen on the paper without allowing the test-takers associate them with a particular pattern of discourse.

5. The fourth problem brings out another important concern. Skehan (1989) provides us with a paragraph which requires some interpretative capacity for better understanding. Then, he comes up with the claim that readers will differ in their levels of difficulties when responding to this passage and further proposes that “...accessing relevant schematic knowledge and discourse capacities is extremely facilitating for comprehension; and that people vary in how readily they can do this. The implication is

that it would be extremely useful to devise aptitude tests to assess how effectively learners can mobilize such knowledge as an aid to general understanding, i.e. how efficiently they can convert input into some sort of intake” (p.46). The issue of varying capacities discussed above is closely related to Canale and Swain’s “communicative competence”, which was defined in terms of four components: linguistic competence: words and rules; sociolinguistic competence: appropriateness; discourse competence: cohesion and coherence; strategic competence: appropriate use of communication strategies (1980). Aptitude research seems to have been concerned only with linguistic competence as Skehan (1989) also touched upon. Language aptitude tests need to be extended to address the components of communicative competence to explore whether some learners are more able to improvise, appropriate language use according to the socially-accepted norms, or organize their language in a more coherent way.

Conclusion

This paper intended to discuss the cognitively-oriented research traditions of language aptitude, incorporating socio-cognitive and socio-cultural perspectives. The discussions eventually pointed to a need not only in the research field of language aptitude but also in socio-cognitive theory for an expanded definition of language aptitude and for more comprehensive and valid measurements of the construct.

Until now, language aptitude has remained as a cognitive construct which has been dealt with mostly by cognitive psychologists. Some researchers scrutinized it as it pertains to individual differences in second/foreign language learning. In most cases, the tests aimed to determine learner’s levels of language learning ability by isolated, decontextualized bits of linguistic knowledge. While some researchers conducting similar

studies using similar research designs found expected correlations between various language aptitude tests, some directed criticisms questioning the construct validity of these tests. In the 1980s, researchers started to inquire about whether language aptitude research keeps up with the developments in recent cognitive or SLA research or not. Some were positive, some still frowned. Although there was mention of communicative competence, the importance of the context and some other concerns stated above, no research study in the reviewed literature seemed to have approached the issue from a socio-cultural or socio-cognitive standpoint.

This paper finally suggests that research on language aptitude needs to be refined in line with recent developments in language learning and teaching. New methodologies and data analyses techniques other than regression analysis could be sought in the light of extended definitions of language aptitude to create new arenas for research. Efforts should be made to demonstrate the possible differences between language aptitude and linguistic aptitude. Criticisms based on sound theoretical foundations might inspire well-grounded, fresh research in this field.

References

- Bahktin, M.M. (1986). *Speech genres and other related essays*. Austin, TX: University of Texas Press.
- Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, 1 (1), 1-47.
- Carroll, J. B., & Sapon, S. (1959). *The modern language aptitude test*. San Antonio, TX: Psychological Corporation.
- Cook, V. (1991). *Second language learning and language teaching*. London, UK: Edward Arnold.
- Dornyei, Z. (2005). *The psychology of the language learner*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Ehrman, M. (1998). The modern language aptitude test for predicting learning success and advising students. *Applied Language Learning*, 9 (1, 2), 31-70.
- Gardner, R.C.(1985). *Social psychology and second language learning: The role of attitudes and motivation*. London, UK: Edward Arnold.
- Grigorenko, E., Sternberg, R., & Ehrman, M. (2000). A theory based approach to the measurement of foreign language learning ability: The Canal F theory and test. *Modern Language Journal*, 84 (3), 390-405.
- Krashen, S.(1981). Aptitude and attitude in relation to second language acquisition and learning. In K.C. Diller (Ed.), *Individual differences and universals in language learning aptitude*. Rowley, MA: Newbury House.
- Langer, J. A. (1985). Musings: A sociocognitive view of language learning. *Research in the Teaching of English*, 19 (4), 325-327.

- Langer, J. A. (1991). Literacy and schooling: A sociocognitive perspective. In E. H. Hiebert (Ed.), *Literacy for a diverse society* (pp.9-27). New York, NY: Teachers College Press.
- Lantolf, J.P. (2003). Interpersonal communication and internalization in the second language classroom. In A. Kozulin, B. Gindis, V.S. Ageyev, & S. M. Miller (Eds.), *Vygotsky's educational theory in cultural context* (pp.348-410). New York: Cambridge University Press.
- Leaver, B.L., Ehrman, M., & Shekhtman, B. (2005). *Achieving success in second language acquisition*. Cambridge, UK: Cambridge University Press.
- Miyake, A., & Friedman, D. (1998). Individual differences in second language proficiency: Working memory as language aptitude. In A.F. Healy & L.E. Bourne (Eds.), *Foreign language learning: Psycholinguistics studies on training and retention* (pp.339-364). Mahwah, NJ: Lawrence Erlbaum Associates.
- Neufeld, G.G. (1978). A theoretical perspective on the nature of linguistic aptitude, *International Review of Applied Linguistics*, 16 (1), 15-25.
- Parry, T.S., & Child, J.R. (1990). Preliminary investigation of the relationship between VORD, MLAT, and language proficiency. In T.S. Parry & C.W. Stansfield (Eds.), *Language aptitude reconsidered* (pp.30-66). Englewood Cliffs, NJ: Prentice-Hall Regents.
- Parry, T.S., & Stansfield, C. (1990). *Language aptitude reconsidered*. Englewood Cliffs, NJ: Prentice-Hall Regents.
- Pimsleur, P. (1966). *The pimsleur language aptitude battery*. New York: Harcourt, Brace, Jovanovic.

- Robinson, P. (2002). *Individual differences and instructed language learning*. Philadelphia: Benjamins.
- Skehan, P. (1982). Memory and motivation in language aptitude testing, Unpublished Dissertation, University of London.
- Skehan, P. (1986). Cluster analysis and the identification of learner types. In V. Cook (Ed.), *Experimental approaches to second language learning*. Oxford: Pergamon.
- Skehan, P. (1989). *A cognitive approach to language learning*. Oxford, UK: Oxford University Press.
- Sternberg, R.J. (2002). The theory of successful intelligence and its implications for language aptitude testing. In P. Robinson (Ed.), *Individual differences and instructed language learning*. (pp.13-44). Philadelphia: Benjamins.
- Wertsch, J.V. (1991). *Voices of the mind*. Cambridge, MA: Harvard University Press.
- Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.