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ABSTRACT

A discussion of the utility of research on language aptitude and learning style begins by examining the concept of language aptitude and the controversy surrounding it, which focuses on the nature of language aptitude, what characterizes it, and its significance. The research reviewed dates back to the 1920s. Tests used to assess aptitude are then discussed, from the Iowa Foreign Language Placement Test and others produced in the 1920s, through introduction of an auditory component in the 1940s, development of tests for military purposes during and after World War II, to correlation of aptitude test scores with achievement in the 1960s and 1970s. In the 1980s, it is noted, greater attention was given to learning styles and personality traits as significant factors in language aptitude. The uses of aptitude tests are then addressed, including: (1) providing students with experience in using learning styles other than their normal preferences, and (2) adapting curricula and expectations to student aptitudes. It is proposed that there is a need to develop tests predictive of student success in language study. A brief bibliography is included. (MSE)

# APPLICATIONS OF FOREIGN LANGUAGE APTITUDE AND LEARNING STYLE RESEARCH

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# APPLICATIONS OF FOREIGN LANGUAGE APTITUDE AND LEARNING STYLE RESEARCH

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John Carroll (1981 p.85) writes that "aptitude as a concept corresponds to the notion that in approaching a particular learning task or program, the indiv dual may be thought of as possessing some current state of capability of learning that task--if the individual is motivated and has the opportunity to do so." The concept of aptitude includes the ability to learn a foreign language quickly, or the ability to learn it without a great deal of effort, or the ability to learn it to a very high degree of achievement. While the experience of language teachers might make many feel that people really do differ in the facility with which they learn languages, the belief that there is such a thing as language aptitude is by no means unchallenged. This is so in bilingual societies, and even more so when everyone learns a second, third or even fourth and fifth language, if they have to (Sorenson, 1967).

It would seem axiomatic that it is desirable to understand a process before we make predictions about who will do well at it. In the present case, however, the absence of widely accepted definitions of language has not helped those designing aptitude tests. If much of what has been put forward in theoretical linguistics in the past thirty years or so has been irrelevant to language teaching, this is also the case for language aptitude. For instance, Chomsky stressed the

universality of language acquisition, and never focused on individual differences in the rate or degree to which languages are learned. Perhaps from the Chomskyan paradigms one might think of aptitude as the possession of a highly developed LAD (Language Acquisition Device) but unfortunately this term seems merely a reification or deus ex machina for something that cannot be seen, felt, or found.

Linguists interested in language aptitude have looked on it as the ability to develop whatever characteristics or faculties that they believe to comprise or contribute to language ability. A rich range of variables have been at one time or other thought to predict success in foreign language learning. Many formulations have been offered to account for "the good language learner". These range from measures such as scores on Intelligence Tests and evidence of success in handling first language, to assessment of personality variables (such as tolerance of ambiguity and a low degree of authoritarianism), motivation, personal (learning) history, individual learning strategies and styles. Even physiological factors have been the subject of speculation, such as the possible relevance of hemispheric lateralization (following Lenneberg's Critical Period hypothesis). Other questions have surfaced, such as the unitary or composite nature of foreign language aptitude, and the relationship of communicative aptitude to specifically linguistic aptitude. Incidentally, there is no firm support for the impression that musical ability correlates highly with language aptitude. Nor does it seem inevitable that aptitude is related to whether or not one likes foreign language study.

The foreign language aptitude testing tradition in this country is quite an old one, spanning over sixty years. The original impetus for aptitude testing, just as for all psychological testing, came with the First World War. At that time the United States Army was faced with quickly deciding how the vast numbers of its new recruits could be used to best advantage. It therefore sought to design an array of tests which would isolate particular abilities and even character traits among the young recruits.

In the years after the war interest spread to assessing the millions of pupils who were beginning to come into the expanded high school system. Schools were swamped by large increases in student numbers, and the student body came to be much more heterogeneous than before. The educational system was thus faced with teaching large numbers of children who were dissimilar in background to those the schools had been used to. A survey taken in 1925 found that about 83% of students in the high schools (public + private) went no further than two years of study (Wheeler 1928). Throughout the system, attrition rates, or "discontinuance" as it was called at the time, were for modern languages twice that for the schools as a whole. In fact, though the numbers of and in junior high schools were growing rapidly, teaching modern languages at junior school appeared to be a complete waste of time due to the problem of discontinuance.

Consequently administrators turned to aptitude testing as a way of putting some order on the incipient chaos. In the

1920s quite a few tests--known then as prognosis tests--were published. The emphasis in these efforts was pretty much functional rather than theoretical, the goal of aptitude testing being limited to predicting who would do well in foreign language study and who would not. This is in contrast to recent years, when language aptitude research has taken on broader objectives, even forming part of the global search for a theory of language.

A lot of language aptitude tests teach a little bit of a language and then test it. As far back as the 1920s and 30s, one test, the Barry Prognosis Test, actually used Spanish, on the sensible theory that to find out how well a student will do on Spanish, you should see how well he does on some Spanish. Barry claimed to have calculated correlations of around .60 between scores on his test and teachers' marks in a subsequent Spanish course. One of the most commonly used early tests was the IOWA Foreign Language Placement Test. This relied quite heavily on use of an artificial language--Esperanto. Herein lies the beginning of a tradition of using samples of artificial languages in aptitude tests. In the Iowa test Esperanto cognates to English were given, the student having to guess their meaning, and the student's ability to learn and apply grammatical rules was assessed by briefly teaching and testing Esperanto inflections.

The Iowa test was heavily used at some institutions. The test manual claimed that it yielded correlations from .51 to .71 with various groups of first-year college marks. At Ohio State University in the 1920s correlations around .50--at times reaching over .60--with course grades in French and Spanish were

reported (Tharp 1930). These statistics from long ago are provocative because there is not much evidence that any aptitude test we might use today would do any better.

The Iowa Test was just one of an array of prognosis tests developed in the 1920s. There was also the Symonds Prognosis Test, the Wilkins Test, the George Washington University test. All of these were oriented towards academic success in the language, so they tended to focus on testing ability to put grammatical rules into practice in particular exercises, and also on translating to/from the specimen language. None of the 1920s tests sought to measure a person's ability to discriminate foreign language sounds. Not until the 1940s did language aptitude tests have an auditory component. Till then they really were very like verbal intelligence tests, since they focused on the ability to decipher written texts. They were word-based rather than discourse-based, and were oriented towards the most academically inclined students. To some extent they were used not so much to see which students had an aptitude for foreign language but rather which students did not. "Foreign language prognosis tests of the Symonds and Luria-Orleans type are usually excellent means for reducing foreign language enrollments in nonfunctional courses taught by teachers incapable of adjusting either method or content to the needs, interests and abilities of children" (Kaulfers 1940, 1341). It was not until the 1940s that an auditory component was integrated into language testing (Bottke and Milligan 1945).

This has not changed too much over the years. Despite evolving definitions of language ability, it has been hard to operationalize aptitude. Language aptitude tests have been very intellectually oriented--focusing on ability to think in analysis and analogies rather on the candidate's potential ability to use a language globally for communication.

THe United States military and civil service have always been strongholds of aptitude testing. World War II presented once again the need to select people economically and efficiently on the basis of the promise they showed for particular endeavors. There was still no interest in the theory of language aptitude and language ability. The U.S. military continued in the tradition of predicting success in FL by giving the student a crash course of exposure to (another) foreign language and seeing how quickly he progressed. This remained a very functional, atheoretical view of aptitude--rather than worrying about what language aptitude might be, it was felt that the best thing was just to see it in action. While there was a certain logic in this, given the contemporary state of knowledge about language, it was a wasteful and expensive approach. Nevertheless it is worth commenting that the military in this country have traditionally been more concerned about cost-effectiveness in foreign language teaching than has the civilian sector.

The military's interest in foreign language aptitude testing continued after the War. Dorcus, Mount and Jones (1953) created an aptitude test for the Army Language Training School at

Monterey. This listed ten sub-aptitudes ranging from the capacity to assimilate vocabulary to the ability to detect phonemic differences in spoken speech. The Dorcus test was discarded after a few years, and the Army Language Aptitude Test came into use from 1957 (Berkhouse, Mendelson and Kehr 1959). This was a 57-item test based on an artificial language of a Western European type. Candidates were given seven minutes to study the language and then 20 minutes to do linguistic problems drawn from the language. However, the ALAT had poor predictive ability for Asian languages and the language used turned out to be so like English that it was easy to score very high on the ALAT. Modifications in the Army Language Aptitude Test led to the Defense Language Aptitude Test. This was used for many years at Monterey. In the early 1970s the DLI tried to develop a more sensitive instrument, including placing students for specific languages or particular courses such as those with a written versus an oral emphasis. This brought about the Defense Language Aptitude Battery, based on learning the rules of an artificial language, VORD, loosely related to Turkish. VORD included noun and verb morphology tasks, and subjects also had to deal with syntax on the sentence level. The aim was to measure analytical skill--the ability to use grammar rules. Students did not have to learn the rules--they had access to them throughout.

It is rather striking that so little aptitude testing has been done in the schools and especially in the universities. Does this imply that foreign language instruction in the United States is achieving good results ? Hardly. Hundreds of

thousands, if not millions, of students begin the study of a foreign language each year. Only a handful ever acquire any worthwhile ability--be it linguistic or cultural--in the language. In what other field of human activity would vast numbers of people undertake something they may have no aptitude for ? Consider all the expenses involved, from instructors' salaries to new language labs and satellite dishes. And think of the number of person-hours spent per year in the foreign language classroom. It was not until the early 1960s that interest in language aptitude testing spread to the civilian sector and the academic environment. John Carroll and Stanley Sapon developed the MLAT, oriented toward the university, and the MLAT-Elementary for dealing with children in FLES. Paul Pimsleur published the Pimsleur Language Aptitude Battery, designed especially for the junior high school. It is noteworthy that three decades later these tests remain the first to be mentioned when people address the topic of aptitude testing.

Those formulating language aptitude tests have never seen it as a unitary ability. Rather, at least if we judge by their testing procedures, have they seen aptitude as a composite of independent sub-abilities. John Carroll in 1962 proposed that language aptitude consisted of four major components: memory abilities, inductive language learning ability, phonetic ability, grammatical sensitivity. Carroll maintained that ability in native language--in this case English--had little relationship to foreign language aptitude. He suggested that English ability might become more relevant as level of instruction in the foreign language increased, and further that

it was more relevant to success in formal academic courses than in the audiolingual courses then being introduced. In the mid 1980s the MLAT lost support among US government agencies. For instance the Peace Corps dropped it because they feared that it might discriminate against minority groups. The Peace COrps fears are a reminder that aptitude testing has been too rooted in the classroom. Research at Monterey shows success in speaking skill to be less well predicted than reading or listening comprehension. Parry and Child concluded that MLAT was still about the best predictor, though there were questions about its applicability to those who would be studying non-European languages. Both the MLAT and the Pimsleur test are oriented to the syntax and semantics of western European languages.

The Pimsleur test also elicited grade point average and students' interest in learning a foreign language. For Pimsleur (1966, 182) "the 'talent' for learning foreign languages consists of three components--verbal intelligence, motivation and auditory ability. Pimsleur's LAB was thus innovative in allowing more recognition to the auditory element than had heretofore been customary. He considered it "the factor which accounts for differences in people's language learning ability which are not explainable by intelligence or interest". Pimsleur also allowed for the inclusion of measures of general scholastic achievement. and gave more importance to ability in native language in assessing foreign language aptitude.

There were a number of rather contradictory studies carried out on the validity of the MLAT and the Pimsleur test. Both MLAT and Pimsleur are claimed to correlate at around 0.60

with achievement. This is primarily restricted to a rather narrow set of learners, however, namely those who learned the language in the classroom environment. Gardner and Lambert (1972) found that MLAT aptitude test scores were reliable predictors of French grades and on the MLA Cooperative tests. Correlation of aptitude scores are usually around .4 to .6 against measures of achievement such as grades. While this might seem high, it leaves just 16 to 36% of the variance being accounted for. And it does little better than scores on other measures, such as so-called intelligence tests, grades on native language, average class grades.

## PERSONALITY TYPES AND LEARNING STYLES

In the 1980s academic interest in aptitude testing was directed to questions of learning styles and strategies--the way a person prefers to acquire and retain new information. According to O'Malley (p.163) "It seems entirely possible that the link between aptitude and effective learning strategy use is a strong one. If this is the case, then aptitude should not be seen as an innate trait but as a strategic ability that can be learned." It has been shown that successful language learners use more and more efficient learning strategies than do the less successful. In this sense their possession of or potential ability to use learning strategies could be taken as a predictor of success in language learning, and hence as a measure of aptitude. People with a so-called aptitude for learning foreign languages may be just people who have independently come cross the strategies that are especially effective. It seems that better language

learners are generally those who use a variety of learning techniques, focus on overall meaning rather than discrete lexical or grammatical categories, and are conscious of contextual and real-world clues.

There is speculation that different cognitive styles may have a bearing on how these strategies are used and hence on language aptitude. Several different elements in cognitive style have been identified. One of the dimensions is that of field dependence. Field dependent people depend more on context to extract and process information. They are more global thinkers. On the social level, they tend to be more accepting of social influence and more self-confident in interpersonal relations. They are influenced by their environment and are sensitive to others. Field independent people, on the other hand, are more analytical. They tend to be more self-contained, self-sufficient. One might think that both groups brought particular attributes to the language learning situation. Field independent people would be better language learners because they could separate the important from the trivial when learning the language. Studies such as Tucker et al. (1976) and Parry (1984) seemed to confirm this. Probably there is an element of cultural inculcation here, as there are certainly sex differences. Males tend to be more field independent than females. Of course analytic reasoning is the most highly valued in the very milieu in which formal learning takes place--namely the school and college. In fact the evidence that this variable is relevant to language aptitude is not too strong. Bialystok and Frohlich

(1978) found no differences in attainment between the two on foreign language tests. Stansfield and Hansen found field independent people seemed to have higher grammatical competence, but there was no difference in communicative competence. Perhaps these results are reflective of analytical testing methods, the way most formal learning is measured, since one might expect that field dependent people would do better on global tests. It is worth remembering that the measure of field dependence is rather crude--generally an Embedded Figures Test. And there is the suspicion that strategy preferences are to a degree predicted by the nationality of learners--Asians like to memorize, for example--it is quite possible that our ideas of what are good strategies are culturally determined. Perhaps preferences for analytical strategies reflect years of exposure to certain kinds of language teaching.

Outside of cognitive style, there are also personality variables. Lack of inhibition is one area that has been linked to success in foreign language. Rubin (1975) showed that good language learners were risktakers, who possessed an urge to communicate and little fear of making mistakes. They were more interested in content than form. In this case Rubin was characterizing an early and extreme form of communicative competence model. In later years there has also been recognition that it's not enough to take risks, there must be a consciousness of form and monitoring. Notice the difference between risk-taking as a psychological trait, and willingness to take risks when using the language--in the latter case risk-taking is merely a learning strategy. These are certainly not

the same and may be quite discrete. At best risk-taking is quite a crude notion. Almost the converse of this is the Reflection-impulsivity continuum--the person who slowly and methodically investigates hypotheses versus the person who quickly formulates one and accepts it. It has been argued that reflection rather than impulsivity is predictive of foreign language proficiency. Perhaps this too is a function of the kinds of testing situations, which are not heavily timed and value accuracy.

Extroversion: It is not that simply extroverts or introverts are better. Chastain (1975) found correlations between sociability and scores in German and Spanish, but not in French. There is a suggestion that introversion is good for adult learners. Again, that may still relate to the kinds of milieus in which learners are tested. All in all, attempts to link personality factors with success in foreign language learning have yielded poor results, both as regards achievement and aptitude.

Hemisphericity: Traditional neurological studies showed that the language function for most people was localized in the left hemisphere, whereas the right hemisphere was the realm of the visual and the spatial. Recent years have seen the break-down of this rather stark opposition, and it is now believed that both hemispheres process language, but in different ways, discrete versus holistic perhaps. There is some evidence of applicability to the foreign language situation. Leaver (1986) found that right-brain people were better at lower

proficiency levels, perhaps because the focus was on intonation and rhythm and stock phrases. Left-brain processors were better at higher proficiency levels which called for a lot of analysis. There is some evidence that bilingual people are less dramatically lateralized than monolinguals. Brain hemisphericity is suspected by some people to be related to language aptitude. "Left-brain" people--that is to say people in whom the left cerebral hemisphere is dominant--tend to be more field independent and analytic whereas right-brain people seem to be more field dependent and global.

General intelligence: If intelligence is what we bring to bear on any learning or cognitive task, then it follows that intelligence must be a factor in language learning. If one defines intelligence as the capacity to learn, then this obviously includes the capacity to learn languages. This is especially the case with measured intelligence, since there is such a verbal element in so many intelligence tests. It seems fair to say that the profession has avoided debate on the implications of the link between measured intelligence and foreign language aptitude. Similarly, motivation and attitude have not been well studied in U.S. foreign language teaching system. One factor in this may be that because so much of the research is conducted in the U.S. government agencies, where motivation to learn a foreign language is high as part of an individual's desire for career advancement. The other factor is that a lot of the language teaching research has been conducted with ESL. The earlier belief that integrative motivation was superior has been challenged. Another related characteristic

that hasn't fulfilled its early promise is empathy--the capacity of identifying with the speakers of the target language.

## APPLICATIONS OF APTITUDE TESTS

There used to be a general consensus that language aptitude cannot be improved. Theoretically if we were to isolate true aptitude as a pure psychological factor, we should be dealing with a tabula rasa. This would prompt the belief that aptitude is innate. Aptitude tests ought to tell regardless of a candidate's previous learning experience. Yet by the time people are old enough to do language aptitude tests they have been subjected to a lot. There have not been any test-retest studies of aptitude tests to show whether peoples' measured aptitude would improve over time or training. However the experience of the Scholastic Aptitude Test, and the success of courses that prepare students to take this test, is suggestive that individuals' scores on aptitude tests could be raised. Whether that means that peoples' aptitude could be improved is of course not the same thing. Long-term instruction also ought to boost aptitude. After all, this is supposedly one of the central goals of education--mental training. The more you are mentally trained the more equipped you should be to benefit from further mental training. The best we can say is that teachers should try to include activities that appeal to all learning styles and sensory modality preferences e.g. visual, auditory, tactile, field-independent etc. They should also give practice to students in using learning styles that are not their normal preference. Teachers should help to access students to these

facets of their cognitive styles, suiting each mode to different learning situations as needed. Continue to teach guessing, and use correctional strategies and tests that reward smart guessing. Advise students to focus on both form and content. There is a case to be made for some explicit teaching of strategies e.g. how to learn vocabulary. Forcing impulsive learners to slow down and encouraging over-monitored reflectives to take chances would seem to make pedagogical sense, and does not appear too difficult to design exercises for.

It is probable that people have different styles in different learning situations, e.g. learning a new game won't show the same style as learning to drive a car. Recognize the importance of culture and background, both in their widest senses, and in terms of the narrower experiences of students. Prior classes are part of the cultural background of students. For example, students whose initial strategy was rote memorization may have become good at it. This is apparently the case with Japanese students. It's hard, and a little illogical, to get them to abandon what works well for them.

Formal rule learning and memorization of vocabulary is still the most common strategy among university foreign language students. Rebecca Oxford points out how little students use affective and social strategies--perhaps because they have few opportunities to interact with native speakers ? Maybe most of our students never get to point where they begin to learn good strategies. Or rather people with poor learning strategies never make it to higher levels. As we continue to subscribe to communicative goals, and as professional debate questions the

role of formal grammar, the impression is that our students haven't changed; they still like to look up every word in the dictionary, still like to get comprehensive grammar rules. In that sense there is a lack of fit between their strategies and their teachers' goals.

Unfortunately, there is little convincing evidence that learning strategies can be successfully taught, at least using today's techniques. For now it seems that we know only that individuals differ in learning strategies; we are able to offer little to those whose strategies may be deficient. Whatever we know about teaching a language, we know even less about teaching people how to learn it.

Obviously teachers can use aptitude test results to adapt their curricula to match the level of their students. Such tests also provide teachers with realistic expectations for students. This does incur the risk of prejudging, of confirming students' belief that they are "not good at languages". We should remember that aptitude is functional--it acts on something else, namely the language to be learned. This might be an idea that universities might consider adopting--try to channel students of particular aptitudes towards particular languages, or to particular emphases in learning a language. Nowadays the spoken language seems to be emphasized in almost all our colleges, but why should oral language have primacy ? Earlier on we mentioned the wastefulness involved in requiring large numbers of people to engage in an activity for which they may have no aptitude. Given the rather low degree of success of the

large numbers of people who begin study of a second language in the United States, the need to formulate predictions as to who will fail and who will succeed is as pressing as ever. This is particularly relevant if we continue to stress the linguistic and communicative outcomes of foreign language teaching. It raises the question of the real goals of foreign language teaching. One possible definition of aptitude is the capacity to benefit from study. But we do not have aptitude tests to measure how much students will benefit from their exposure to the foreign language through the wider goals of language teaching. These are things such as increased command of English, a clearer understanding of the nature of language, and knowledge of the contributions to civilization of foreign peoples. Seventy years ago William Barlow, the AATS president, was especially shrewd in noticing a weakness of aptitude testing that has often gone undetected. He pointed out that a prognosis test provided no basis for predicting if a particular student would profit from foreign language study. In fact one could not speak about someone benefiting from foreign language study unless one could define the benefits of foreign language study. "The vast majority leave school with little book knowledge, and soon lose what they have. These people have, however, grown in various ways, and have developed certain attitudes of mind ... a prognosis test which does not take them into account, but merely indicates that one pupil is apt to be slower than another in his progress in language study is not satisfactory" (1926, 33).

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