

INTRODUCTION

Language aptitude: Multiple perspectives

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Aptitude is one of the most important, intriguing, messy, and often controversial topics in second language research. Though the field agrees that aptitude is among the myriad of individual differences learners bring with them to the metaphorical language learning “table,” the agreement often stops there. Doughty (2019) details some unresolved debates over questions like whether aptitude is a stable characteristic over the lifespan or if it evolves (or if it can even be trained!), whether aptitude provides a blueprint for how much and how quickly a learner can become proficient in a new language (and, by extension, whether aptitude constitutes a language learning “ceiling”), and whether the constituent components of aptitude exert themselves differentially in the language learning process at various maturational and proficiency stages—just to name a few. The articles in this 2021 issue of *ARAL* contribute to this ongoing debate and drive forward understanding, as well as raise new questions in aptitude inquiry by examining the impact of aptitude from theoretical, empirical, metanalytic and review perspectives.

The first paper in the current volume, by Wen and Skehan, is entitled “Stages of Acquisition and the P/E Model of Working Memory: Complementary or contrasting approaches to foreign language aptitude?” This article probes and synthesizes the authors’ two current theoretical models of aptitude, exploring the roles of working memory (WM), input processing, and language analytic ability in the context of second language learning aptitude. Their perspectives on language aptitude (LA) are explained and compared. These are the Stages Approach, put forward by Skehan (2016, 2019), and the P/E Model described by Wen (2016, 2019). The authors discuss their models in the context of WM and LA, describing input processing, noticing, pattern identification, complexification, and feedback. While the authors concur that both working memory and language aptitude are of equal importance in input processing, their models diverge in other aspects, for example, in pattern identification. Other scholars—ourselves included—see working memory as a *component* of aptitude. For more views on the theoretically oriented approaches, we recommend the reader also see Doughty (2019), Granena (2020), Jackson (2020), Robinson (2005), Robinson et al. (2012), Sáfár and Kormos (2008), Sparks et al. (2011), and Wen et al. (2019).

The following article by Li and Zhao, moves from theory to methods. “The methodology of the research on language aptitude: A systematic review,” is a synthesis of methods utilized in current studies on the role of aptitude in second language acquisition research. Sixty-five studies were included, based on literature searches, and three meta-analyses by the first author (Li, 2015, 2016, 2017). The authors classify aptitude research into three categories: (a) the role of aptitude in naturalistic learning, (b) the association of aptitude with instructed learning, and (c) aptitude as it relates to individual difference

variables such as age, learning experience, and so on. Measures are presented and described in terms of reliability, content validity, divergent/convergent validity, and predictive validity. What has come to be termed *implicit aptitude* (Granena, 2020; Li & Qian, 2021) is also described and discussed. The synthesis concludes by examining research on L2 proficiency as an outcome of aptitude.

Having begun with theory and progressed to methodology, our consideration of aptitude in second language research next turns to empirical work. Hyltenstam's paper "Language aptitude and language awareness: Polyglot perspectives" begins a series of data-driven contributions. Hyltenstam focuses on successful language acquisition by polyglots characterized as those who have been able to learn languages to a high degree of success after puberty and operationalized as having picked up at least six new languages at the intermediate or advanced levels. Hyltenstam queries whether LA drives these successes or whether awareness may be the more likely factor in their impressive language learning outcomes. Making use of interviews and surveys on his participants' language learning experiences and professional histories, as well as established aptitude tests (LLAMA B–F and LAT C), Hyltenstam compiled rich profiles of his ten polyglots concerning their LA, motivation, language awareness and use of language learning strategies. This exciting study finds very high LA scores and high levels of motivation. Of particular interest to this volume, is the preference for explicit learning processes appearing across his participants' profiles, leading him to claim that LA is a prerequisite for developing high levels of language awareness. He concludes that some of the factors often believed to be LA may, in fact, be awareness. We believe it is likely that this observation will continue to drive research and testing in this area.

Continuing to think about how LA is measured, it seems clear that aptitude batteries themselves are a key aspect of research. In the second language research field, the LLAMA test is increasingly being used. The LLAMA's popularity across many language areas is unsurprising, given that its benefits include that it is language independent and can be administered to anyone who can read the Roman alphabet. Importantly, it is also readily available without cost, unlike aptitude tests such as the Modern Language Aptitude Test (MLAT) (Carroll & Sapon, 1959; Sasaki, 2012) or the research-underpinned High-Level Language Aptitude Battery (Hi-LAB) (Linck et al., 2013), which is still only available to researchers. One potential drawback, as the developer acknowledges, is that the LLAMA has not been adequately validated (Meara, 2013), especially with populations of low socio-economic status (Bokander & Bylund, 2020). Given this situation, it is incumbent on aptitude researchers to discuss, and preferably analyze, the reliability and validity of the measures they employ.

Lambelet's contribution to the current issue, "Lexical diversity development in newly arrived parent-child immigrant pairs: Aptitude, age, exposure, and anxiety," reports on a subset of findings from a large-scale study known as Language Aptitude Outside the Classroom (LAOC) that investigates English learning among newly arrived Spanish-speaking immigrants to the United States. She looks at LA (as measured by the LLAMA tests) and also at WM and the contextual affective factors of L2 exposure and anxiety. The LAOC study investigates the L2 English proficiency development over a 12-month period of pairs of parents and children (aged 7–16), as measured by a listening comprehension test, a verbal fluency test, and an oral narrative. In her article, Lambelet reports a subset of results related to lexical diversity found in the oral narratives, based on the Guiraud Index (1960). Her statistical analyses show that the development of lexical diversity is predicted by: (a) exposure to the language (i.e., the relative amount of English the participants use in a variety of social contexts like school, work,

church, etc.) and (b) L2 anxiety (though this was only relevant when considering the children's scores). She also found that subtests of the LLAMA aptitude battery (LLAMA_D and LLAMA_E) were associated with learning when the entire sample was considered, but not when adults were modeled separately from children. In her data, WM was not predictive of L2 proficiency development, meaning that exposure to English was of paramount importance to all participants' proficiency development. Lambelet's results reinforce the argument that additional attention should be paid to the reliability of aptitude measures like the LLAMA in under-researched populations like the newly arrived immigrants in this study, those with low literacy levels, and those from low socioeconomic backgrounds (Bokander & Bylund, 2020). It is possible that the LLAMA is not an appropriate measure for these and other populations and, because of this, the test itself could have failed to sufficiently detect and discriminate components of aptitude relevant to lexical diversity. Anxiety is another increasingly important topic in the L2 field, with research showing it may have a mediating effect for learners, teachers, parents and, as this study showed, children.

The next article is a short review piece, by Turker and Reiterer entitled "Brain, musicality and language aptitude: A complex interplay" which illustrates the tremendous variety of language aptitude research being carried out in the fields of applied linguistics and second language research. The authors investigated the interactions between music and language, arguing that they are intertwined auditory phenomena and, importantly, that there is overlap on both the behavioral and neural levels. Arguing that behavioral research suggests that language learners' musicality levels (expressed by singing, instrument playing and/or perceptive musical abilities) are associated with language learning, particularly the acquisition of phonetic and phonological skills (e.g., pronunciation, speech imitation), they further suggest that from a neurological standpoint, "both skills recruit a wide array of overlapping brain areas, which are also involved in cognition and memory" (page 95). The seemingly intuitive relationship between music and language has long been of interest, but difficult to demonstrate. In their fascinating short review of the most recent findings on the neurobiology of language aptitude in terms of the connections between language aptitude and musicality, we can see the emergence of another line of aptitude research worth pursuing as we try to understand the connections between aptitude and acquisition.

We next turn to a small-scale study by Kara Duman, Yalçın, and Erçetin called "Language aptitude and working memory in relation to listening strategy instruction in an instructed SLA context." Again, we see an emphasis on LA and WM. In this study, Kara Duman et al. investigated the extent to which LA and WM might account for variance in L2 listening comprehension scores within an instructed EFL setting using a pre-test/post-test, non-randomized group design. They provided explicit, strategy-based instruction on L2 English listening for 12 hours to their experimental group, while the control group received non-strategy based L2 listening instruction that was already employed as part of the course syllabus. L2 listening comprehension was measured with an L2 academic listening comprehension test. Kara Duman et al., also examined aptitude using the LLAMA (Meara, 2005), like Hyltemstam and Lambelet's studies in this issue. WM was measured by an operation span task, a symmetry span task and a rotation span task. Their analysis suggests that baseline listening scores explained fifty percent of variance in the post-listening scores, and listening strategy instruction explained another fifteen percent of variance. It is important to note that in their data, neither WM nor LA explained any variance in listening comprehension scores, echoing others in the field of language learning research that LA does not

always exert influence on language performance or gains (Andringa et al., 2012; Vandergrift & Baker 2015, 2018). The authors note, however, that other studies measuring holistic, top-down listening found no relationship between listening performance and WM or LA (Sáfár & Kormos, 2008; Ranta, 2002). Therefore, it is possible that the listening task was not challenging enough or sufficiently targeted in its scope to force participants to make use of WM or LA resources.

The final contribution to this issue, from Pawlak and Biedroń, is titled “Working memory as a factor mediating explicit and implicit knowledge of English grammar.” As noted previously, many researchers conclude that WM is a part of LA (Doughty, 2019 and recent work by Jackson, 2020; Vasylets & Marín, 2020; Zalbidea & Sanz, 2020). As in the Lambelet piece, Pawlak and Biedroń report on a subset of results from a larger scale study. They examined the relationships between (a) phonological short-term memory (PSTM), (b) WM capacity, and (c) overall mastery of English grammar (operationalized as course grades) with the ability to produce and comprehend the English passive voice (with reference to explicit and implicit knowledge of English passive voice). Regression analyses suggested that PSTM was weakly related to implicit productive knowledge (and to a lesser extent, explicit productive knowledge) and WM capacity was related to explicit productive knowledge. These weak relationships though, were ultimately mediated by overall mastery of target language grammar, operationalized as final grades in a grammar course—arguably, not a pure measure of language proficiency. These results indicate that other individual difference factors (e.g., proficiency, grit, motivation) merit exploration in the larger picture of this study and that all these factors need to be separated out to detect impact.

In summary, this issue of *ARAL* covers theoretical, methodological, empirical, and review work in LA, with longer papers and shorter reports alike contributing to the ongoing discussion of the role of aptitude in language learning. Data discussed range from highly successful polyglot learners, to newly arrived immigrant child-parent pairs. Studies in Sweden, the United States, Turkey, and Poland have been discussed. Some of the empirical work found aptitude to be linked to language learning, and some did not. Study design factors could have contributed either way. Continued careful scrutiny of LA in the context of other factors that contribute to second language acquisition is essential if we are to determine definitively whether aptitude constitutes a ceiling and discover how to harness the power of LA during instruction. One thing that seems clear is that the topic of LA continues to draw attention and play a central role within the second language research field. As the empirical work drives the theory development (Doughty, 2019), the methodology advances, and aptitude batteries are refined. WM and language awareness—either close cousins or LA components themselves, depending on the models—also figure in aptitude research and will likely advance theory development as more becomes clear in this exciting area in applied linguistics.

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