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A brief overview of individual differences in second language learning[1]

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Abstract

This special issue addresses the subject of individual differences in language learning, a topic whose complexity has meant little conclusive knowledge and thus need for continuing investigation. This paper offers a brief but broad overview of the field of individual differences in language learning, especially as they are reflected in learning styles, learning strategies, and affective variables, and touches on some areas for further research.

Keywords: Individual differences; Learning style; Cognitive style; Learning strategy; Learning strategies; Motivation; Language learning; Anxiety; Self-efficacy

1. Introduction

Learner differences include, among others, factors classified under the following three areas:

1. learning styles;
2. learning strategies; and
3. affective variables.

These three areas are the focus of the current article. Other major areas of individual differences relate to learning aptitude, gender, culture, age, and other demo-

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graphic variables, but this overview has inadequate space to deal with these. For more on these areas, see Ellis (1994), Robinson (2002), and Skehan (1989).

In this article, we paint a picture of individual differences in language learning in broad-brush strokes. Our aim is to provide a general portrait of where the field is now, where it appears to be going, and where we believe it should go.

2. Learning styles

The actual term, *learning style,* did not appear until Thelen (1954) used it in discussing group dynamics. Although Allport (1937) proposed the term, *cognitive style,* to mean ways of living and adapting modulated by personality, we more commonly reserve that term for preferred forms of brain activity associated with information acquisition and processing and consider personality variables to represent another kind of learning style. However, the literature on learning styles uses the terms *learning style, cognitive style, personality type, sensory preference, modality,* and others rather loosely and often interchangeably.

Cognitive-style research in the 1920s and 1930s addressed such phenomena as perceptual speed and flexibility. The field independence–field dependence (FI–FD) construct in the late 1940s started with Witkin's efforts to distinguish variations in proprioception and perception of the vertical (Witkin and Goodenough, 1981). Later, researchers focused on processing styles from the point of view of ego psychology, which was the origin of such cognitive style scales as levelling–sharpening and impulsivity–reflectivity (Schmeck, 1988). In recent years, the influence of personality variables on learning styles has increased greatly, using, for example the Five Factor Personality Model (Busato, et al., 1999), temperament theory (Thomas and Chess, 1977), and the Myers–Briggs Type Indicator (MBTI) (e.g., Ehrman, 1996; Leaver, 1998; Myers et al., 1998).

All three of these models overlap in significant ways. The least known in SLA is the concept of temperament (Thomas and Chess, 1977), which refers to biological differences in life and learning. Rothbart and Derryberry (1981) defined it as constitutionally based individual differences in reactivity and self-regulation (influenced over time by heredity, maturation, and experience). It is generally identified with relatively stable traits across ages, situations, and cultures (Rothbart and Derryberry, 1981).

Researchers and practitioners use learning style research with personality and cognitive styles to determine ability, predict performance, and improve classroom teaching and learning (Reiff, 1992; Ehrman, 2001; Ehrman and Oxford, 1995). In recent years, the language-teaching profession has also embraced its interpretation of the multiple intelligences model (Gardner, 1983, 2000) as a learning style model for curriculum and materials development (e.g., Gabala and Lange, 1997; Hatch, 1997). Another well-known model adopted by language teachers is the 4-MAT (McCarthy, 1980), which is based on a combination of the brain hemisphericity metaphor (Torrance et al., 1977) and Kolb's (1984) Jung-based model of cognitive style.

For the most part, there have been few changes in the models used for learning styles since the 1980s. These few include Sternberg's mental self-government model (Sternberg, 1994), which comes from his study of pragmatic intelligence; this is a metaphor using the US government's legislative, judicial, and executive branches. Another, beginning in the 1990s (Ehrman, 1993, 1998b; Hartmann, 1991), is the use of Hartmann's psychoanalytically based ego boundaries approach to address tolerance of ambiguity and defensive style. Ehrman (1996, 1997) has reworked the field independence construct by unpacking it into two interactive scales, field independence–dependence and field sensitivity–insensitivity (Fig. 1).

Ehrman and Leaver (2002, 2003; Ehrman, 2001) have reorganized a number of the scales for cognitive styles like random–sequential, levelling–sharpening, and abstract–concrete, along with the Ehrman-defined field (in)dependence/field sensitive styles, under a new, comprehensive construct, called the E&L Construct,[2] that labels the overarching categories "ectasis-synopsis" (to avoid confusion with other, similar but different models variously called analytic–global atomistic–gestalt, analytic–holistic, serialist–holist, and the like). In the Ehrman and Leaver model, an ectenic learner wants or needs conscious control over learning process, whereas a synoptic learner leaves more to preconscious or unconscious processing. The result is that the product of the processing seems to come all at once to the synoptic, whereas it appears to come out in a drawn out and extended way to the ectenic (Ehrman and Leaver, 2002; Ehrman, 2001). The contribution to the learning styles field made by this latest entry is the concept and implementation of a complex profile that can combine attributes from each of the two "poles" in multiple combinations (see Ehrman and Leaver, 2003).

3. Learning strategies

Learning styles and learning strategies are often seen as interrelated. Styles are made manifest by learning strategies (overt learning behaviors/actions).[3] A given learning strategy is neither good nor bad; it is essentially neutral until it is considered in context. A strategy is useful under these conditions: (a) the strategy relates well to the L2 task at hand, (b) the strategy fits the particular student's learning style preferences to one degree or another, and (c) the student employs the strategy effectively and links it with other relevant strategies. Strategies that fulfill these conditions "make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990, p. 8) and enable more independent, autonomous, lifelong learning (Allwright, 1990; Little, 1991).

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[3] Styles are not manifested by strategies when there is a deliberate attempt to become more flexible in style by employing out-of-style strategies or when they are using strategies more-or-less at random because they are they have no rationale for selecting them, as often happens with less successful learners. Furthermore, such strategies as analyzing, synthesizing, and making associations cannot typically be observed, though their products may be visible.

	Field Independent	Field Dependent
Field Sensitive	Type 1: Most flexible	Type 3: Dealing with the whole situation
Field Insensitive	Type 2: Spotting what is important	Type 4: Least flexible

Adapted from Ehrman, 1996.

Fig. 1. Ehrman's model of field independence–field sensitivity Adapted from Ehrman (1996).

In the language-learning field, virtually all definitions of strategies imply conscious movement toward a language goal (Bialystok, 1990; Oxford, 1990, 1996). A well-orchestrated set of strategies used is called a *strategy chain* (Oxford, 2001), i.e., a set of interlocking, related, and mutually supportive strategies.

In subject areas outside of L2 learning, the use of learning strategies is demonstrably related to student achievement and proficiency (Pressley & Associates, 1990). It is thus not surprising that students who frequently employ learning strategies enjoy a high level of self-efficacy, i.e., a perception of being effective as learners (Zimmerman and Martinez-Pons, 1986). Less able learners often use strategies in a random, unconnected, and uncontrolled manner (Abraham and Vann, 1987; Chamot and O'Malley, 1996), while more effective learners show carefully orchestrated, targeted strategies.

There are so many learning strategies that a variety of schemes have arisen for accounting for them. Among the relatively early taxonomies is that of Weinstein and her associates; their model is represented by the LASSI questionnaire (Weinstein, 1987; Weinstein et al., 1987; 1988). Their self-report instrument, designed for use in general, not just for language learning, provides information on the categories listed in Table 1.

Around the same time, Oxford (1990, 1992) was developing her Strategy Inventory for Language Learning (SILL), which uses factor analyses to group strategies into six categories. Oxford (1990) identified six major groups of L2 learning strategies:

1. *Cognitive strategies* enable the learner to manipulate the language material in direct ways, e.g., through reasoning, analysis, note-taking, and synthesizing.

Table 1
LASSI strategy categories

time management	use of support techniques and materials
concentration and attention to tasks	self-testing, reviewing, preparing for classes
information processing and reasoning	test-preparation and test-taking
selecting main ideas, recognizing important information	

2. *Metacognitive strategies* (e.g., identifying one's own preferences and needs, planning, monitoring mistakes, and evaluating task success) are used to manage the learning process overall.
3. *Memory-related strategies* (e.g., acronyms, sound similarities, images, key words) help learners link one L2 item or concept with another but do not necessarily involve deep understanding.
4. *Compensatory strategies* (e.g., guessing from the context; circumlocution; and gestures and pause words) help make up for missing knowledge.
5. *Affective strategies*, such as identifying one's mood and anxiety level, talking about feelings, rewarding oneself, and using deep breathing or positive self-talk, help learners manage their emotions and motivation level.
6. *Social strategies* (e.g., asking questions, asking for clarification, asking for help, talking with a native-speaking conversation partner, and exploring cultural and social norms) enable the learner to learn via interaction with others and understand the target culture.[4]

Both Weinstein and Oxford base their work on categorizing heterogeneous strategies into a smaller number of categories. An alternative taxonomy has been offered by O'Malley and Chamot (1990), who emphasize the interaction of teacher and student and place emphasis on scaffolding and the development of metacognitive strategies, under the rubric of CALLA (cognitive academic language learning approach).

Another approach to bringing order and more simplicity into the seemingly infinite universe of learning strategies is to group learning approaches by the purpose of learning, e.g., Biggs (1992) model, which uses his Study Processes Questionnaire. Biggs' work is based on that of Schmeck (1988). This model and instrument address both motivation and learning strategies, categorizing each into:

- surface (to get a task done with little personal investment),
- achieving (to succeed in competition and get good marks), and
- deep (to make personal investment in the task through associations and elaboration).

Ehrman (1996) describes deep processing as

> an active process of making associations with material that is already familiar, examining interrelationships within the new material, elaborating the stimulus through associations with it and further development of it, connecting the new material with personal experience, and considering alternative interpretations. The learner may use the new material to actively reconstruct his or her conceptual frameworks (p. 173).

[4] Oxford's work is probably best known on strategies in the second language field. It has been translated into multiple languages and referenced in countless works.

Surface processing, on the other hand, is completion of the task with minimum conceptual effort, with the result that much less information will stay in memory, because it has been encountered much less and there is no emotional or cognitive investment in it. Ehrman (1996) suggests that the most successful combination of these strategies and motivations is deep and achieving strategies, though she indicates that there is a place for surface strategies, because sometimes the cost/benefit ratio of a task does not justify any deeper investment.

Biggs' (1992) model exploits the probable connection between intrinsic motivation and deep strategies in that he treats motivation in parallel with strategies, as indicated above. Ehrman (1996) points out, however, that students may not have the choice of using deep strategies, no matter what their motivation, for reasons of weak educational background, lack of aptitude for learning, inexperience, or inflexible learning style.

Other important treatments of language learning strategies are to be found in Cohen (1998) and Wenden and Rubin (1987). Cohen's approach is generally to research strategy use, synthesize extant models, and provide teacher materials for learner awareness; his contribution to understanding how and when students use specific strategies has helped inform strategy training programs. Wenden and Rubin's work is relatively theoretical, providing a comprehensive overview of theory and research on learning strategies, most of which is still relevant.

Appropriate learning strategies make such a difference to learning success that many have attempted to design and execute strategy training programs, especially for inexperienced learners. To increase L2 proficiency, some researchers and teachers have provided instruction that helped students learn how to use more relevant and more powerful learning strategies. Positive effects of strategy instruction emerged for proficiency in speaking (Dadour and Robbins, 1996; O'Malley et al., 1985) and reading (Park-Oh, 1994), although results for listening were not significant (O'Malley et al., 1985). Chamot and O'Malley (1996), and Cohen and Weaver (1998) investigated the effects of strategy instruction among native-English-speaking learners of foreign languages and found some positive results mixed with neutral findings. In other studies, strategy instruction led to increased L2 learning motivation (Nunan, 1997) and, among native-English-speaking learners of foreign languages, greater strategy use and self-efficacy (Chamot and O'Malley, 1996). The most effective strategy instruction appears to include demonstrating when a given strategy might be useful, as well as how to use and evaluate it, and how to transfer it to other related tasks and situations. So far, research has shown the most beneficial strategy instruction to be woven into regular, everyday L2 teaching, although other ways of doing strategy instruction are possible (Oxford and Leaver, 1996).

Thus, L2 learning strategy instruction has had mixed results, as documented by Dörnyei (1995) and Oxford (2001). One main reason for these mixed results might be that the students' diversity of learning styles and needs was not systematically taken into account in the presentation of strategy instruction. As with any type of instruction, strategy instruction is more effective when adjusted for students' learning styles. One book that teaches strategies in the context of styles for students

studying in the classroom, at home, or abroad is *Passport to the World* (Leaver et al., 1999). For students studying abroad, Paige, et al. (2002) offer other useful techniques. That book describes learning styles using the dimensions of the E&L Construct, among other scales, although it does not explicitly present learning strategies through styles. Other books that help learners learn languages better (e.g., Brown, 1991; Rubin and Thompson, 1994) abound and can be included in strategy instruction.

Yet another approach to learning strategies is Ehrman's (1996) list of principles for strategy use, excerpted in Table 2. These are guidelines for teachers and students to be used for choosing and applying learning strategies.

4. Affective factors

Affective factors include motivation, self-efficacy, tolerance of ambiguity, and anxiety, among others. As early as the 1950s (or one might say, as late as the 1950s), theories and models of motivation began to appear in language learning literature (Gardner and Lambert, 1959). R.C. Gardner and various colleagues proposed the Socio-Educational Model of Language Learning (Gardner, 1985, 1988, 2000a,b). In the original versions of this model, there were two kinds of motivation: integrative (positive attitude toward the foreign culture and a desire to participate as a member of it) and instrumental (goal of acquiring language in order to use it for a specific purpose, such as career advancement or entry to postsecondary education). Much of the research conducted by Gardner and his co-researchers suggested that integratively motivated students are more successful language learners than those who are instrumentally motivated.

Table 2
Study skill principles

1. Deep processing strategies are preferred over surface ones, e.g., links with other knowledge or experience; personal relevance; advance organizers for initial "priming;" connecting new with previous knowledge or experience; recombining new material; analysis; hierarchies of information; guessing and evaluating outcomes; images related to the new thing; associations with context(s)

2. Learning activities should simulate anticipated real life tasks to the degree possible.

3. Most goals can be reached by multiple routes. Choose learning strategies for the demands of the learning task and consistent with the learner's style. There is no cookbook of learning strategies.

4. Provide the amount of independence and external structure that is appropriate to the learner. Learning autonomy does not come with appropriate support and scaffolding.

5. It's best to begin something new and possibly difficult using one's preferred learning styles. After a bit of a firm base is achieved, it is appropriate to encourage use of less preferred styles and the associated strategies.

6. It is at least as important to manage feelings as it is to use more cognitive strategies, since negative feelings reduce the effectiveness of most learning activities. Appropriate self-efficacy promotes persistence in the face of difficulty.

7. Peripheral learning is valuable and as good as the more directly focused approaches promoted by most strategy lists.

Adapted from Ehrman (1996), p. 185.

Early studies, based on social psychology (for instance, Gardner and Lambert, 1972), treated L2 learner motivation as a relatively static trait. Those studies suggested that learners who wanted to integrate into the target culture (''integrative orientation'') were more motivated and more proficient than those who were ''instrumentally oriented'' for reasons of academic or job advancement. However, integrative orientation proved far less important in foreign language settings where such integration is virtually impossible (Au, 1988; Crookes and Schmidt, 1991; Oxford and Shearin, 1994), and, in some cases, highly ethnocentric individuals who do not even like the cultures of the languages they are studying have achieved very high levels of foreign language proficiency (Leaver, 2003). This spurred many new studies about reasons for L2 learning. For example, Clément et al., (1994) identified five orientations of foreign language learners: (a) friendship- and travel-related, (b) identification with the target language group (similar to the integrative orientation and rarely endorsed by the learners in the study), (c) general interest in the culture and in world events, (d) knowledge expansion and career improvement, and (e) desire to understand L2 media. Work by Gardner and his colleagues in the last decade has substantially expanded the Socio-Educational Model based on new research (see, e.g., Tremblay and Gardner, 1995).

The model proposed by Deci and Ryan (1985) and widely used in educational psychology distinguishes between intrinsic and extrinsic motivations. *Intrinsic motivation*, comes from within the individual and is related to the individual's identity and sense of well-being. Students are intrinsically motivated when learning is a goal in itself. They find intrinsically motivating tasks interesting and challenging; the reward is the enjoyment of the activity itself or a feeling of competence (self-efficacy) in doing the task (Bandura, 1997). In such tasks, students may experience *flow,* an in the moment, optimal sensation of enjoyment and competence (Csikszentmihalyi, 1991) that has yet to be sufficiently explored in the L2 field.

Extrinsic motivation comes from outside the individual. Students are extrinsically motivated when learning is done for the sake of rewards (such as grades or praise) that are not inherently associated with the learning itself, that is, when learning or performing well becomes necessary to earning those rewards. A number of researchers and theorists (e.g., Walqui, 2000) have contended that intrinsic motivation correlates more closely with language learning success than extrinsic motivation, but a student's total motivation is most frequently a combination of extrinsic and intrinsic motivation. External rewards can either increase or decrease intrinsic motivation, depending on how they affect self-efficacy (Pintrich and Schunk, 1996).

By providing students with learning experiences that meet their needs for competence, relatedness, self-esteem, and enjoyment, teachers can increase their students' intrinsic motivation; and by giving students choices, teachers can often enhance both students' persistence and sense of autonomy. Motivation thus depends greatly on the context, people involved, and specific circumstances (Pintrich and Schunk, 1996).

Intrinsic motivation was strongly reflected in early definitions of L2 motivation. Gardner (1985, p. 10) defined L2 motivation as ''the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity.''

The expectancy-value model of motivation distinguishes between valuing something and expecting to be able to do it. One part of this model is valuing something (Csikszentmihalyi, 1985; deCharms 1976, 1984; Deci, 1975; Deci and Ryan, 1985; Hunt, 1965; Lepper, 1983). The second part of the model is expectancy: the self-perception of the ability to do that which is valued or receive its rewards (Bandura, 1993; Schunk, 1991; Weiner, 1986). Within the area of expectancy, two key theories stand out: attribution theory and self-efficacy theory.

Attribution theory, advanced by Weiner (1986), suggests that expectancy is tied to attributions about one's success. Some learners believe that their language learning success is attributable to their own actions or abilities, while others believe that their success depends on other people or on fate.

Bandura created a model based on self-efficacy, defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Such beliefs influence the amount of effort people put forth and how long they continue to pursue tasks, including learning tasks, in the face of obstacles and failures. "If people believe they have no power to produce results, they will not attempt to make things happen" (Bandura, 1997, p. 3).

Psychological research indicates that, generally speaking, highly motivated, successful learners (a) possess self-efficacy; (b) have an internal locus of control (Rotter, 1966), the belief that they control to a significant degree the outcomes of their learning and that their success is not externally controlled by fate, the teacher, or other factors; (c) have positive attitudes toward learning, a need for achievement, and intrinsic motivation; and (d) desire both social relatedness and self-direction or autonomy (Bandura, 1997; Cramer and Oshima, 1992; Deci and Ryan, 1985; Weiner, 1986; Wigfield et al., 1998).

Eccles and Wigfield (Eccles, 1984; Wigfield, 1994; Wigfield and Eccles, 1992) suggested that motivation is based on how much students expect to succeed at a task and how much they value that success. Building on the theory of the times, plus the intrinsic–extrinsic work done earlier (Deci and Ryan, 1985), Eccles proposed four dimensions: (a) attainment value (importance of success to the individual) (b) intrinsic value, (c) extrinsic utility value, and (d) cost attainment value or what learners must "pay" in terms of money, time, anxiety, loss of face (Wigfield, 1994; Wigfield and Eccles, 1992), or, at the highest levels of foreign-language proficiency, loss of praise, criticism, and increased performance expectations (Leaver and Atwell, 2002).

All of these models have come under a fair amount of criticism as being too broad, too simplistic, and too ambiguous. As a result, today, theories about and even instrumentation for motivation abound. Many, if not most, are somehow continuations of or reactions to what are considered the "traditional" models—Gardner's instrumental-integrative dichotomy, Deci and Ryan's intrinsic–extrinsic one, and expectancy–value theory. For example, the Affective Survey (Ehrman and Oxford, 1991) contains and expands on elements from Gardner, as does Dörnyei's (1994) components of foreign language learning motivation. Others are expansions of the expectancy–value theory [e.g., Schumann's (1998) model of stimulus appraisal, which suggests that motivation arises from the brain's methods for evaluating

received stimuli, Scherer's (1984) causation stimulus appraisal model of motivation, Pintrich's (1988) three-way model of attainment value, intrinsic value, and utility value, and Feather's (1988) model, which synthesizes the personal importance of a task and the interest and enjoyment of it into one concept of intrinsic value].

Where interesting changes have occurred in recent years is the expansion of motivational theory beyond the individual student to the entire class or to groups of students. Dörnyei (2001a,b) proposes a "process model" of motivation in which he suggests that in the classroom teachers hold significant responsibility for student motivation and outlines the major steps for creating classes of motivated students; however, he does not let students off the hook and suggests that teachers need to encourage student self-evaluation. Beyond the importance of group cohesion (Clement et al., 1994; Ehrman and Dörnyei, 1998), a critical element in developing a motivated class is to understand the dynamics that motivate small-group behavior and inter-group dynamics (discussed at length in Ehrman and Dörnyei, 1998).

Of course, a number of other affective factors besides motivation exist, and yet they are all in some way related to motivation. These include anxiety (Dickinson, 1995; Ehrman, 2000; Ehrman and Dörnyei, 1998; Heron, 1982; Horwitz and Young, 1991), defense mechanisms (Ehrman, 1996, 1998a; Ehrman and Dörnyei, 1998; Vaillant, 1992), internal attitudes (Crookes and Schmidt, 1991), self-esteem (closely related to the self-efficacy factor discussed above), activation or the alertness required to act (Reichard et al., 1992), hierarchies of need from safety to self-actualization (Maslow, 1968), self-regulation (Schunk and Zimmerman, 1997), self-management (Mechanic, 1978), beliefs (Tittle, 2000), emotional intelligence (Goleman, 1995), self-monitoring—perhaps more a metacognitive variable than an affective one (Krashen, 1987), and others. All of these factors play an important role in promoting or preventing learner autonomy (Dörnyei, 2001b; Ehrman, 2000; Ehrman and Dörnyei, 1998; Wenden 1991).

An area that still needs clarification—and opens up a wealth of research agendas for researchers of motivation in the future—is the interaction of learning style, cognitive styles, cultural and cross-cultural variables, proficiency level, and (de)motivation. While some studies have shown that teacher and peer (and even parent) influences and affective variables can be strong motivators (Dörnyei, 2001a; Ehrman, 2000; Ehrman and Dörnyei, 1998; Reilly, 1997), the experience of other teachers and researchers have shown that for some learners, particularly those who are highly successful in reaching professional and near-native levels of proficiency, affective variables such as positive input from teachers and peers are relatively insignificant, and instrumental/intrinsic motivation far more important (Leaver and Atwell, 2002; Leaver and Shekhtman, 2002; Shekhtman, 2003). Oxford (1996) suggests that both cultural and cognitive variables have an impact on motivation. The work that Ehrman (1996, 2000) has done with individual students at all levels of proficiency indicates that motivation is a very complex-compound factor in learning and must be considered in the light of non-affective variables, such as learning styles, personality type, demographics, general cognitive abilities, language aptitude, preferences for deep or shallow learning strategies (as discussed earlier in this paper),

language learning history and beliefs, even psychological boundaries, and the host of other variables discussed above.

Perhaps the definition of success affected the results of earlier research. In an extensive qualitative study (Leaver and Atwell, 2002) of attributes of highly successful languages learners, interviewees reported high levels of extrinsic and instrumental motivation, especially once they had reached the Superior level (ILR Level 3) of language proficiency. In fact, many were not viewed as highly successful students in classrooms at lower levels of proficiency. While a large percentage were intrinsically motivated by an interest in linguistics and nearly all were, surprisingly, polyglots, some of them having reached near-native levels in more than one foreign language, a surprisingly small number were truly interested in the foreign culture itself. Concerned that this last attribute might be an artifact of the population studied, Leaver suggests a number of additional hypotheses for use in empirical research on this and a larger group of native like speakers.

L2 performance anxiety (Ehrman, 2000; Ehrman and Dörnyei, 1998; Heron, 1982; Horwitz and Young, 1991; Young, 1998) is often highly related to motivation. Language learners who are overly anxious about their performance are often less motivated to perform in ways that bring active attention to themselves in the classroom or in natural language-use settings.

Some researchers have demonstrated that specific socio-political factors are aspects of, or influence, motivation to learn. An example is Norton's (2001) view of L2 motivation as an investment that involves social interaction. Sometimes the emotional investment is so strong that learners are afraid of using the L2 in the presence of gatekeepers to the imagined communities and therefore lapse into non-participation.

5. Conclusion

The fact that most treatments of individual differences, despite their varying foci, touch on learning styles, learning strategies, and the affective domain, suggests that these categories are ultimately inseparable. Language aptitude, not treated directly but addressed indirectly in most of the articles in this issue through focus on learner success, is a good example. In her work on aptitude, Ehrman (1998a) makes a strong case that language learning aptitude is a complex "nexus" of cognition (both stylistic and strategic), personality—especially tolerance of ambiguity, and affect (motivation, self-efficacy, and affective self-management). In much work on individual differences, we see the issue of aptitude addressed indirectly through the question of who succeeds (or not) in second language learning addressed through learning styles (including personality), strategies, and affect.

Learner differences are both old—from the time of Hippocrates and his physician/successor Galen and the four humors—and new—with increasing understanding of how much their application can increase the success margin of our teaching and can enhance learner autonomy through appropriate metacognition and targeted learning strategies. Language-teaching methodologies have come and gone,

each leaving traces in how we currently teach languages. The most recent, and still influential, is Communicative Language Teaching (CLT): The older Natural Approach (Krashen and Terrell, 1983), contemporary models of content-based instruction (Stryker and Leaver 1997), and more recent task-based instruction (e.g., Long, in press; Long and Norris, 2000; Leaver and Willis, 2004; Nunan, 1989; Willis, 1996) are generally considered to be communicative teaching approaches, However, there is increased awareness of the limitations of these approaches, too (Leaver, 2002; Decoo, 2001). It is still an open question of what comes next. Among the various candidates, however, is a fully individualized program in which each learner's purposes, learning styles, interests, and resources are considered in order to draw on the best that the multiple methodologies of the past century and new ones to come have to offer, and certainly some nascent models of such learner-centered instruction have been proposed (Aliev and Leaver, 1993; Beyer, 1992; Leaver, 1992; Nunan, 1988).

Something very much like the language learning consultation service that Ehrman (2001, 2003) has established at the Foreign Service Institute would make such individualized programs more feasible. So would a variety of algorithms to help pinpoint learner needs, both to save the time of learning advisors and to target more automatically target distance learning options.

In order to enable the most learners possible to learn as much as they can, we need to give them every advantage, including a program that enables them to start out in a relatively comfortable and stress-free way. That means giving them the opportunity to learn in their preferred styles, rather than always outside of them, which can happen in the interests of keeping classrooms paced to the majority or to a standard curriculum.

This in no way excludes good teachers and well-constructed syllabi; in fact, they are even more important than ever for the majority of learners. It is expert teachers with flexible but clear syllabi who can most systematically provide for the individual differences among their students. And just as students vary, so do teachers: in motivation, in overall aptitude, in self-efficacy as teachers, in teaching/learning style, and in preferred strategies. Self-knowledge can be as important for teachers as it is for students. A case in point is the teacher, who has worked comfortably for years teaching grammar to the students early in the program, and is suddenly faced with a strongly inductive student, who feels that the teacher is getting into his or her learning space by teaching grammar. Sometimes it helps for the teacher to understand how a genuine desire to help can become interference for a learner whose approach to learning differs from the teacher's preferences.

All of these points suggest the beginnings of a research agenda to build on work already accomplished, some of it represented in this issue. As mentioned above, identification of ways to speed up the "diagnostic" process and make it more accurate represent an important next step in making individual differences practical in the classroom. There is much research to be done on how individual differences play out at the highest levels of proficiency (see Ehrman, 2002; Leaver and Shekhtman, 2002 for some thoughts about a research agenda on this topic). Other questions that remain to be answered include the following, among many other possible topics:

- What kinds of performance tests like the Modern Language Aptitude Test (Carroll and Sapon, 1959) or the Defense Language Aptitude Battery (Petersen and Al-Haik, 1976) might be used to replace self report?
- Does self-report really need to be replaced at all?
- Are there better instruments or methods for "diagnosis" and prediction of performance under different combinations of individual difference and external circumstances?
- How do different learner populations differ according to these variables?
- What role do individual differences play outside the classroom, in job settings, for example?
- How can teachers and program administrators be trained to make better use of what is known about individual differences?
- What more can be learned about enhancing learner autonomy, especially in non-instructed contexts?
- Can temperament theory (Thomas and Chess, 1977) be extended to adults to enhance what we know about the relationship of personality and learning? [Much of the research has been conducted with children, e.g., Buss and Plomin (1984).]

Researchers in the early years of the 21st century are exploring all the questions raised in this article—and more. The more we learn about individual differences, the more complex the field becomes. We are learning that what we thought were unitary characteristics, like language aptitude (discussed above), are really ambiguous composites of multiple factors. We are also gaining a sense of how many different ways we can understand how we work, both as students and teachers, and how much we are both different and similar.

This seems to be a very fertile time for unraveling the issues that relate to how *individuals* learn languages, how and why they undertake and succeed in language study, and how one person differs from another in their styles, strategies, and motivations, among other attributes, yet succeeds in his or her own way. What is universal and what is individual is, indeed, a challenging mystery to unravel.

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