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As the study and use of second and foreign languages continue to gain world-wide prominence in the preparation of students for scholarly, professional, and recreational undertakings, educators are confronted with linguistic and academic questions in the formation of educational policy. This review will address three of these questions: What is the optimal age to begin formal second language study? Are there effective ways to integrate a yet to be acquired L2 with academic, subject matter content? and What are the contributions if an L1 to classroom learning and teaching? It will do this within two research orientations, *Applied* and *Applicable*. Applied research will be described with respect to original studies designed and implemented for the purpose of addressing each question directly. Applicable research will be described through relevant studies derived from fields such as cognitive psychology, anthropology, and pragmatics, and the educational sub-fields of policy and evaluation. The descriptions will reveal that, taken together, Applied and Applicable studies provide a foundation for research-informed decisions on educational policy, and for practical applications of research to classroom teaching and learning.

Focus and Purpose

This paper describes the relationship between second language acquisition (SLA) research and the field of applied linguistics across Applied and Applicable orientations. It focuses on applied studies designed to address practical questions and concerns and on applicable studies designed to address theoretical questions, but also relevant to applied questions and concerns. Three questions are addressed: Is there an optimal age to begin formal classroom L2 study? Are there effective ways to integrate a yet to be acquired L2 with subject matter content? What are the contributions of a first language (L1) to classroom teaching and learning?

Introduction: SLA Research within the Context of Applied Linguistics

It is difficult to pinpoint exactly when the study of SLA and the field of applied linguistics got officially underway. What is quite evident, though, is that the field of applied linguistics came first. Thus, the journal, now known simply as *Language Learning*, began publication in 1948, with its original subtitle, *A Journal of Applied Linguistics*. Several decades later, a new journal, *Applied Linguistics*, was launched. It has maintained its original title and grown in readership since that time. The *American Association for Applied Linguistics* was founded in the 1970s, well over a decade after the *AILA* (International Association of Applied Linguistics) was already an active community in Europe, convening Congresses on a regular basis and declaring language learning and teaching, and socio- and contrastive linguistics, as its principal lines of scholarship. One of the distinctive dimensions shared by these journals and organizations is that they reflect the ways in which the field of applied linguistics has broadened greatly in topics, issues, applications, and source disciplines over time, and has also sustained its role in addressing practical questions and concerns through application of a range of resources. This phenomenon is especially evident among applied linguists who specialize in SLA research. As they address practical questions about language learning and teaching, they design and implement new studies and draw on theoretical studies from a broad range of related fields.

Applied linguists have worked on language teaching and learning long before the label "SLA" gained widespread use in the late 1960s, as new theories emerged about language, its acquisition, and use, (See, for example, Corder, 1967; Ravem, 1968; Selinker, 1972). Initially, they looked to a structuralist model of language to guide their development of second language learning materials. They would identify differences between sounds, grammatical features, and words between the L1 of the learner and the L2 to be learned. They also turned to behaviorist psychology for a theory of learning. Applying its principles of repetition and reinforcement, they would develop exercises and drills that centered on individual linguistic structures and thereby lead the learner to L2 habit formation.

As cognitive and nativist approaches to psychology took hold and the study of child language grew in interest, applied linguists began to see that the learning of an L2 was much like the learning of an L1. Drawing on compelling evidence from the field of psycholinguistics that language acquisition was a creative, rule-governed process, they went to work at understanding SLA processes and outcomes, doing so with resilience and forward thinking approaches. They identified systematic patterns in the errors that learners made and in their manipulation of sentence constituents and used them to develop typologies and classification schemes (Richards, 1974).

In other studies, applied linguists identified language forms and functions across academic, professional and occupational fields, and used them to construct syllabi for specific purposes and content-based language needs. (Munby, 1978; Widdowson, 1978). They examined situated language learning and teaching through classroom observation and research, and created new inventories and approaches for understanding teacher and student relationships in what had long been considered a "black box." (Sinclair & Coulthard, 1975).

Around the same time, they were joined by scholars from disciplines such as sociolinguistics, anthropology, and psychology, from fields across the social sciences and humanities, and from professions and institutions of law, medicine, and business, who introduced research on questions about the efficacy of oral and written language in medical interviews, business transactions, religious texts, and courtroom procedures (DiPietro, 1982). Their importance and influence in defining the field of applied linguistics has continued to grow, and is evident in the vast number and range of publications, professional organizations, and research conferences available worldwide.

Just as the field has come to broaden the scope of its research contexts, take on new questions, and reach out to new colleagues, it has taken on societal, educational, and professional questions that seek practical answers. To address these matters, they originate their own studies and refer to completed studies in their field. They also turn to theoretical and empirical work from related disciplines and fields as sources of research methods, current evidence, and recommendations for work to be done.

SLA Research as a Context for Applied and Applicable Studies: Development, Trends, Traditions, Controversies, and Recommendations

Is there an optimal age to begin formal classroom L2 study?

As explained and reviewed in Hyltenstam and Abrahamsson (2001), questions on the optimal age for formal L2 or foreign language (FL) learning and instruction reflect practical concerns about schooling and theoretical issues about neurological development. These matters are widely different in origin but have been brought together within the context of education as decisions are made about language policy and classroom practice.

Applied research has designed and implemented studies that confront concerns about age by examining and comparing the timing, duration and intensity of instruction in the course of the learner's schooling. Learner needs, learning readiness and resource availability are taken into account as well (Lightbown & Spada, 2006). Many applied studies have distinguished between ESL contexts in which an L2 is the standard language of a community, country, or school, and EFL contexts in which an L2 is a goal set by Ministries of Education but is not used routinely. For children who must succeed academically and professionally in an ESL environment, it is essential that they begin the SLA process early in their schooling, as vital academic content and important socialization experiences are often available to them in the L2 only. In an EFL environment, there is less urgency to begin early, as academic content is likely to be widely available in learners' L1.

Despite these contextual distinctions, applied researchers consistently recommend meaning-based programs of L2 and FL enrichment, awareness, and communication throughout the early years. They emphasize that early learning of another language is more theoretically grounded and empirically supported by these

experiences than formal study of linguistic structures and features, and analysis, practice, and application to rules (Isik, 2000; Nikolov & Krashen, 1997). Arguments have been made that young learners lack the cognitive skills for success in L2 programs of formal classroom study and should delay their participation until adolescence (August et al., 2006; Lightbown & Spada, 2006). Even among adolescent learners, meaning-based programs have been found to make the L2 available in ways that eliminate a great deal of the need for formal study of its more complex or non-salient features (August et al., 2006; Lightbown & Spada, 2006).

1. Applied research

Research undertaken to address age related questions about formal L2 or FL instruction has compared adults and children in terms of rate and difficulty of learning. Some studies have shown that young children learn languages slowly, with a good deal of effort due to limitations in their attention span and background knowledge. They require at least three to four years before they can attain functional use of a language (Marinova-Todd, Marshall, & Snow, 2000) and perform better when instruction is delivered slowly and monitored intensively (Singleton & Lengyel, 1995). Early formal instruction may therefore not be the optimal choice for them.

Somewhat older children, especially adolescents, often fare better than younger learners (Krashen, Scarcella, & Long, 1979; Munoz, 2006; Snow & Hoefnagel-Hoehle, 1978). This is revealed in their near native performance in pronunciation and grammar, and has been attributed to the level of cognitive development, academic background, and social experience they have been able to develop (Genesee, Lindholm-Leary, Saunders, & Christian, 2006). Learners whose maturation process is still underway might not be able to cope with the intensity and precision required for the complex learning processes of acquiring an L2 and learning to read and understand academic content at the same time.

Further support for an approach that originates with somewhat older children comes from studies carried out within school contexts. A large scale study of British children learning French as an FL over a five year period revealed higher proficiency among learners who had initiated classroom study of French at age eleven than those who had initiated such study at eight (Burstall, 1975). These results suggested that older children are better second language learners than are younger ones in a school situation. Similar results have been reported by McLaughlin (1992) in studies of Danish and Swedish children learning English (See respectively, Florander & Jansen, 1968; Gorosch & Axelsson, 1964) and Swiss children learning French (Buehler, 1972).

Comparison research on children vs. adults has been more supportive with respect to the acquisition rate of L2 grammatical features by children. Features of input have been used to explain this finding. For example, Zdorenko and Paradis (2008) found that both children and adults whose L1 lacked articles omitted these features in their initial English learning, but the children overcame the omissions at a faster rate than adults. Although the basis for such results was not part of their study, one possibility, drawn from earlier applied research, was that the children had more access than the adults to opportunities for predictable, redundant input and contextualized interaction. This, in turn, enhanced L2 comprehensibility and drew attention to its grammatical forms and operations (Hatch, 1977; Long, 1990).

The heavy emphasis on age in making decisions about school policy and practice has overlooked the abundant research on psychosocial factors such as learner personality and motivation that have been shown to impact language learning in school contexts (Ioup, Boustagui, Tigi, & Moselle, 1994). A range of social, cognitive, and affective factors, especially those that bear on the ability to learn and apply SLA skills and strategies are relevant to explaining why, for so many, early L2 schooling is not necessarily better, and initiation of formal learning at a somewhat later time might be best. Such studies are far too numerous to include in this review paper but are cited in many textbook topics such as “Individual Differences” (R. Ellis, 2008; Gass & Selinker, 2007). As was emphasized earlier in this section, meaningful activities, grounded in comprehensible input and goal oriented interaction, transcend individual factors and have been shown to be far more predictable for success among all learners, young and old.

2. Applicable research

Over the years that age related questions have been advanced in the educational arena, applied linguistics has looked to theoretically grounded research in neurology, biology, and psychology as a source of answers. This theoretical foundation has provided important and suggestive insights into SLA processes and outcomes, but has had limited applicability to practical questions in education.

Much of the thinking on the age at which to launch L2 instruction has been based on the Critical Period Hypothesis (CPH) (Lenneberg, 1967), and the claim that there is a biologically determined period of activity for that part of the brain capable of learning a language with native speaker (NS) proficiency. Researchers share a good deal of consensus about the relevance of the CPH for L1 acquisition, but are less united in their views about its role in SLA (e. g., Marinova-Todd et al, 2000). Despite its theoretical importance and its contributions to the study of brain and mind, work on the CPH has been applied to educational questions, where its application is arguably inapplicable (Hyltenstam & Abrahamsson, 2001). Indeed, much has been written about brain plasticity, myelinization, hemisphericity, and the process of lateralization and the way they account for a child’s seemingly effortless ability to acquire language in the early years (Genesee, 1988; Long, 1990) in their early years.

These phenomena provide only a portion of what is needed to inform education policy and practice. Still this work contributes to the knowledge base that teachers can apply to their analyses of students’ errors and their decisions about their approaches to instruction and use of feedback. Long (1990) has shown that the effect of the Critical Period is mainly on phonological development, as pronunciation depends on neuromotor patterns that are acquired early in the L1 and are difficult to alter over time (Flege, Birdsong, MacKay, Sung, & Tsukadaa, 2006). Pronunciation is therefore one aspect of language learning for which younger learners might be better equipped than their older schoolmates to benefit from classroom instruction.

Research has revealed ways in which even older learners can overcome this age-related, neurological challenge. Moyer (1999, 2004) has found that adults who devote a great deal of attention to their pronunciation are able to develop near native like accents, especially with respect to pitch, stress, and intonation.

Some researchers have suggested that alternative instructional approaches (e.g., computer-assisted and task-based) might also be effective for assisting adults, as they require learners to emphasize message comprehensibility (Sicola, 2008). Other researchers have shown that an emphasis on prosody might be a more effective focus for adults than segmental practice (Pennington, 1996). These and other applied studies have ushered in a re-consideration of the learner's age as a primary determinant in educational decisions.

As was noted above, children require at least three to four years before they can attain even a functional use of a language (Marinova-Todd et al., 2000), and do best when instruction is delivered slowly and monitored intensively (Singleton & Lengyl, 1995). Such time requirements raise caution as to the feasibility of undertaking formal L2 study in early schooling in light of the institutional commitment that must be made and the cognitive challenges that learners must bear. These concerns suggest the need for more comparative, descriptive, and outcomes studies of the younger and older learner, as well as of different types of program models. One possible model calls for the integration of L2 learning with content learning. It is described in the following section.

Are there effective ways to integrate a yet to be acquired L2 with subject matter content?

Many students come to school, university, and employment settings with twofold needs—to learn an L2 or FL and to learn subject specific content in that language. Often the need is based on the fact that the content is available only or primarily in the language to be learned. At other times, it is based on the need for efficiency because a student must move quickly through a course of study, and the integration of language and content instruction is considered an expedient approach. To meet the needs of such students, several program models have been developed and investigated. They are described briefly below.

One model of integration employs the L2 as an instrument for instruction in mathematics, science, and history, and in designing materials, activities, and strategies. It holds as its goal the achievement of both content learning and language learning. This format has enjoyed a great deal of success in French and English immersion programs in Canada (Swain, 1991). A variation on immersion is found in sheltered subject content instruction. In this approach, a teacher whose primary expertise is in a subject content area but has been trained to make the content comprehensible to students, offers subject content instruction in an L2 or FL but uses explanations and demonstrations, and provides feedback on content and on L2 form (Brinton, Snow, & Wesche, 1989; Genesee, 1987; Met, 1991).

Many bilingual program models combine immersion and sheltered instruction, as students receive subject content instruction in their L1, then move to sheltered content instruction in the L2, and then on to the mainstream classroom, where the L2 is used for the remainder of the subject content instruction (Freeman, Freeman, & Gonzalez, 1987). Other integrated programs follow an adjunct model, as students receive tutorial support in the language skills that are relevant to their content area in the academic mainstream. Yet others follow the theme-based or specific purpose models in which subject content is used as the foundation for L2 instruction, and topics from a subject area of interest or professional relevance are used to support their language development and literacy learning.

1. Applied research

There is a great deal of research on approaches that address L2 learning as an outcome of content learning and on concurrent L2 and content learning. Research on programs that are time-intensive and extensive, such as French immersion, has revealed that learners are typically able to master content effectively, but have more difficulty with achieving native-like, L2 grammatical accuracy (Swain, 1991, 1996). Research on L2 skill development in the context of content integration has revealed positive results. Studies have shown that academic skills learned in an L1 can transfer to skills for the L2 (Turnbull, Lapkin, & Hart, 2001; Turnbull, Hart, & Lapkin, 2003). In mathematics, Bournot-Trites and Reeder (2001) have also found favorable results. Their research revealed that English L1 learners of French L2, who had received 80 percent of their instruction in French, performed significantly better on a standardized tests administered in English than a control group who had received their mathematics instruction in equal amounts of English L1 and French L2. While literacy skills take longer to transfer across languages, these, too, appear to progress positively across the academic subject areas of immersion students.

Content mastery among immersion students has been revealed world wide, seen, for example, in the schooling of French immersion students in Australia (de Jabrun, 1997). Some researchers have noted that it is not the integration alone that is responsible for such positive results. They have identified other crucial variables, including psychosocial factors related to socioeconomic status, ethnicity, and aptitude, and academic factors such as initial, language specific instruction (Genesee et al., 2006). Others have noted that the nature of the content and its compatibility with students' cognitive development play important roles. Thus, for example, Weber and Tardif (1991) and Pelletier (1998) found that students in early French immersion classrooms progressed well as they worked with highly contextualized materials and activities.

Time spent in immersion has also been revealed as a critical factor. As such, 50 percent or more of students' school day provides a decent base level of support for positive L2 and content learning outcomes (Genesee, 1987). In addition, it is the integration of content and language itself that appears responsible, as studies that have compared this approach with language-only approaches have revealed positive results (Wesche, 1993). Literacy gains were particularly strong and content appeared to remain on a par with that learned through the L1.

As was noted above, the consistent success of content and language integration has been revealed at the content and skill level. L2 learning, particularly in the area of grammatical accuracy, has also been documented, but grammatical progress has been shown to lag behind progress in listening, reading, and oral communication skills. For example, Harley (1993) found that, even after many years of French immersion, students' production of verb contrasts for *future*, *imparfait*, and *passé composé* still exhibited English L2 transfer, thus distinguishing them from NS French peers. Some of this phenomenon appeared to be due to the absence of L2 error correction, the content focus, and a classroom emphasis on discussion and lecture (Pica, 2002; Swain, 1985). Further explanation will depend on what is revealed in long term studies to track the progression of content and L2 learning over time. It might be that L2 learning lags behind content learning initially, but over time, catches up with content learning so that both are accomplished.

Although many studies have been deemed long term, their data have been limited to several weeks or months of treatment at best (e.g., Doughty & Varela, 1998; Iwashita, 1999). The usual design is to look for results of short term treatment and follow up with delayed post testing long after the treatment is over. Many studies do not appear to use a comparison group. Others have looked at both NS and FL learner populations as comparison groups with L2 learners (see Genesee, Polich, & Stanley, 1977; Sternfeld, 1988), while others have structured their comparisons solely between L2 learners and NSs (e.g., Harley, 1993). Differences of L2 exposure across these populations have made them poor candidates for research on questions about SLA. Among comparative studies that have been carried out, it is the FL learner whose achievement is used as a basis for comparison (as in Ho, 1982; Sternfeld, 1989). The contrasts in motivation, time, and context make the two groups ill suited for comparison.

Several researchers have shown that form-focused interventions within the content curriculum are an effective way to assist the learning of complex or low salience grammatical features such as pronouns, articles and determiners, and verb time and agreement markers, many of which are difficult to acquire through meaningful content alone (Day & Shapson, 1991; Doughty & Varela, 1998; Harley, 1993, 1998; Pica, Kang, & Sauro, 2006). Positive results for vocabulary learning have also been found in studies in which content specific words were taught directly (Gibbons, 2003). As many relevant studies have been implemented in controlled settings rather than in classrooms, they will be covered next, in the section on Applicable Research.

Another set of concerns, related to issues regarding the integration of content and language in the academic curriculum, has to do with the policies of the educational institutions which house content and language studies. There are concerns, for example, about the extent to which students are awarded language credit, or any credit at all, for their participation in content-based L2 courses. Most notably, in content-based and theme-based courses, the academic credit awarded to students is seen as providing entry level status to a mainstream curriculum, and is not transferable for grade promotion or degree program completion (Pica, 2002). Another institutional concern relates to the background and training of professionals responsible for teaching L2 and content. Many language teachers are given responsibility for teaching both language and content, despite their lack of training in the latter area. Conversely, content teachers are often expected to provide language instruction, and find themselves overwhelmed by this process (Shah, 1999). These concerns warrant serious qualitative and descriptive analyses that would provide documentation as to their veracity and scale.

Further, there are concerns about the research findings that have been used to promote the interface of content and language as an optimal approach to L2 teaching and learning. These concerns pertain to the dimensions of language that have been used to identify L2 accomplishments, and to the characteristics of the students who have been included for control and comparison analysis. In a literature survey, Pica, Washburn, Evans, and Jo (1998) found that in nearly all of the 35 studies they reviewed, L2 learning was defined in terms of global features of L2 proficiency or basic subject-matter skills in comprehension of written and spoken texts. Students' internalization or use of specific features of L2 morphology and syntax was seldom investigated. Many studies that reported L2 learners' success often did so without reference to a control or comparison

group. One quite legitimate reason was because the studies themselves had been designed not to compare groups of learners, but to answer theoretical questions or address policy issues regarding L2 development. (See for example, studies by Swain, 1991; Swain & Carroll, 1987).

2. Applicable research

Most of the theoretical support for the integration of content and language has come from the fields of cognitive psychology and the study of SLA processes and outcomes. Much of it has been theoretical in its grounding and research design, but it has been highly applicable to decisions about education policy and practice. It is widely held that subject content instruction provides a context for meaningful communication and a springboard for language learning to occur (Met, 1991). As L2 scholars have argued, language form and meaning are not readily separable in language learning (e.g., Lightbown & Spada, 2006). Subject content instruction provides meaningful comprehensible input (Krashen, 1985) and opportunities for learners to negotiate meaning (Long, 1996, 2007), which are known to enhance conditions in which students can access input, gain feedback in order to modify their output, and advance the process of L2 learning.

Subject content instruction is also believed to be effective for students who require academic language competence, and fits very much within an information processing approach to learning. According to Anderson (1990, 1993) and O'Malley, Chamot, and Walker (1987), language learners attend to language and content as information, and this in turn draws their attention to language features, forms, and constructions and their content embedded functional encodings. They gradually build their knowledge of a language until they can retrieve it automatically to understand and communicate meaningful messages. Such automatic behavior allows them to connect the linguistic system they have already internalized to individual features they are noticing anew. Little by little, they build their knowledge base. Other cognitive psychologists, working from connectionist perspectives (N. Ellis, 1994), also acknowledge these internal processes and have argued for their role in understanding L2 learning phenomena as well.

Challenges abound for acquiring L2 forms that appear infrequently in classroom input, lack perceptual prominence or communicative significance, or are too complex in function or operation to be mastered independently (Harley, 1993; Long, 1996, 2007). For learners of English, such forms include articles and determiners, pronouns, verb particles, endings and modals. Woven into connected discourse, they seldom carry much semantic importance. However, their abundance in subject content makes mastery of such forms and their multiple functions a critical component of spoken and written competence. However, as long as grammatical accuracy remains a concern, current immersion and theme-based models need to be further improved. This is an area where basic L2 research on form-focused dimensions of SLA can be readily applied.

Many professional resources provide approaches that integrate L2 skills, strategies, and literacy across the subject content curriculum (see, for example, Brinton, Snow, & Wesche, 1989). These volumes serve as a foundation for learners to access subject content and acquire a good deal of the L2. The tackling of linguistic forms with limited salience in the content, however, has required further precision and

sensitivity. Such forms need to be highlighted in ways that are likely to gain students' attention but do not interrupt their understanding of content meaning. Among the successful approaches are those that engage students in transactions with content texts in which needed forms are made more abundant and visually identifiable (Day & Shapson, 1991) and in content focused exchanges in which errors of form are recast (Doughty & Varela, 1998; Iwashita, 2003; Mackey, 2006; Mackey & Philp, 1998), negotiated (Mackey, 2006; Mackey & MacDonough, 2000), or subject to collaboration (Ellis, Loewen, & Erlam, 2006; Swain & Lapkin, 2001). These form-focused approaches are highly compatible with content teaching concerns, as they offer teachers a sense of anticipation that any number of difficult-to-learn L2 forms can be incorporated into meaning-based activities and implemented in a content focused classroom. Many have been conducted under researcher-controlled conditions and beg for application to actual classroom contexts.

To enhance their authenticity and insure their long term use, these activities must have enough variety to warrant sustained participation. With this in mind, Pica, Kang, and Sauro (2006) developed a portfolio of collaborative, interactive, goal-oriented tasks and integrated them into the curriculum texts, topics, and assignments for a course on American culture and daily life. The tasks were designed in keeping with the course emphasis on academic English. Thus task directions began with a purpose statement, i.e., the task would help the students become "more accurate and precise" in their speaking and writing in areas such as reviewing, editing, organizing and reporting information. In addition, the tasks were simple to implement for long term application by the teacher, as the researchers could not be on hand on a daily basis. Teacher, researcher, and student involvement was ongoing in task design, piloting, and revision. Directions were reworded and revised frequently, based on numerous pilot runs. Results thus far on learners' participation in tasks on difficult form and function relationships of article and pronoun reference have revealed greater awareness and accuracy in noticing and producing these features in and over time.

This study and others (Doughty & Varela, 1998; Harley, 1998; Swain & Lapkin, 2001) have expanded the role of the classroom as a more controlled SLA research environment than was previously thought. All used activities and tasks that were consistent with the curriculum, schedule, and format of the classrooms where the studies were implemented and were therefore not intrusive to the work of teachers and students. The classroom, with a cohort of learners in place over time, offers a site worth considering, for its validity in informing questions on content and language integration as an aid to language learners in the academic arena. Task-based activities and classrooms sites are rich resources for addressing policy and practice concerns about simultaneous learning of an L2 and the subject content it communicates.

What are the Contributions of an L1 to Classroom Learning and Teaching?

Learning-focused questions

As was noted at the beginning of this paper, questions and concerns about the impact of an L1 on L2 learning processes and teaching strategies have been a focus of the field of Applied Linguistics since its inception. Research has shown that the

learner's L1 can be a valuable resource in SLA (Atkinson, 1999). It is believed to provide a foundation for learners to test hypotheses (Auerbach, 1993) and to seek help from L1 speakers who share their L1 (Storch & Wigglesworth, 2003; Swain & Lapkin, 2001). Practical realities and urgent problems continue to demand effective, immediate, and efficient solutions. In many countries, where a world language such as English or Chinese is a majority language, L2 populations have increased with remarkable rapidity, as adults recognize the need to speak a world language to transact fields such as science, technology, and business, and children are enrolled in settings where a ministry of education requires L2 proficiency as a goal of their schooling. In the US, policies have been put forth at federal, regional, and local levels. Despite recent studies on "what works," educators continue to seek effective and efficient pedagogical practices. The role of the students' L1 figures heavily into their selections.

1. Applied research

Applied research has attempted to identify successful approaches to using the learner's L1 in L2 learning within the context of schooling. For most learners, success entails mastery of academic content, L2 forms and features, and literacy skills. Much of the research has been focused on learners of English. In a sequenced approach, learners are given initial language instruction in an L2 and content instruction in their L1. After several years, they are placed in classrooms where their academic content is taught through the L2. Early and follow up studies have revealed favorable results: Academic content and literacy skills that have been acquired in the L1 are transferred to the L2 (Genesee, 1987; Genesee, et al, 2006).

Collier (1992) has reported that dual language, two-way bilingual education, especially if initiated while learners are at elementary school levels, is a highly promising approach for their long-term academic success. Learners who speak languages that are considered majority and minority languages in the broader community, are taught academic content in both languages as well. Thus, both the L1 and the L2 are used for academic instruction. Research results have revealed that learners could maintain grade-level skills in their L1 at least through sixth grade and reach content proficiency in the L2 after four to five additional years. Many were able to maintain these gains when they reached the secondary level. When tested in the L2, they typically performed like NSs across all subject areas after four to seven years in the dual language program. This was not the case for students enrolled in programs that provided minimal, if any, academic instruction in the L1.

When L1 instructional support cannot be provided, several program characteristics have been found to make a difference in academic achievement for L2 learners. Children and adolescents, who need to work on cognitive, academic, and linguistic development throughout their schooling, have been found to be most successful in programs characterized by meaning-based L2 learning, problem-posing activities and strategies for solving them, teacher demonstrations of respect for students' home language and culture, and ongoing assessment through multiple measures (Collier, 1992; Genesee, 1994; Short, 1993, 1994). In addition, there is involvement among parents, faculty, and staff.

2. Applicable research

The learner's L1 was long considered a problem that interfered with L2 learning. This perception was linked with the "Contrastive Analysis Hypothesis" that learners' L1 could predict ease or difficulty in SLA. L2 forms and features that were similar to the L1 would be easy to learn and L2 forms and features that were different from the L1 would be difficult to learn. Application of this theory to classroom practice meant drill and practice of the different L2 items, an approach that was consistent with behaviorist principles, which, as noted in an earlier section of this paper, predominated learning theories at the time.

This approach to the L1 began to diminish in weight with theories advanced by Chomsky (1965) that language was a property of mind and language acquisition was a rule-driven, learner-focused process that was influenced by creative construction (Dulay & Burt, 1973, 1974). This spurred a need to undertake a new look at the L1 in SLA. Among the research efforts, studies revealed that many L2 forms had no L1 connections at the grammatical and semantic level, thus reducing the strength of the interference argument.

Over the years, research has revealed that the L1 plays a selective role in L2 learning at specific stages of development, especially for negation and question formation (Zobl, 1980). In English, consonant clusters (e.g., /-sk/, /-kt/, /-sks/) are sensitive to L1 influence in final positions of words and syllables. For English L2 learners, this can affect pronunciation and grammar, making *desk(s)* or *liked* more difficult to produce than *sky*, *score*, or *scare*. As these vital endings are used to mark grammatical functions of plural and regular past, student performance in both pronunciation and grammar may appear much lower than the students' actual knowledge (Sato, 1986). Many studies have revealed that L1 and L2 differences are only one factor in ease and difficulty in SLA. Other factors are related to the complexity of the L2 form or feature itself (Hyltenstam, 1987). As such limited transparency of form and meaning makes L2 forms for grammatical gender more difficult than those for plurality; complexity of form and meaning relationships makes, for example, French *connaître* and *savoir* more difficult to acquire than their single English counterpart, *know*.

Teacher-focused questions

There has been a great deal of interest in the teacher who speaks an L1 and teaches in an L2, and who is often called a non-native speaking teacher (NNST). This interest has been focused on English and reflects the growing number of English language teachers worldwide who are non-native English speakers. Much of the work so far has covered their qualifications and skills, perceptions of their abilities and effectiveness by their students, colleagues, the teachers, themselves, and the researchers who study them at work in their classrooms. Questions and issues pertaining to NNSTs emanate from many directions and constituencies: the students they teach, the colleagues with whom they work, the educators who train them, and the administrators who hire them. Yet research on their teaching and its impact on students' learning has been slow in coming. Comparative studies with native speaking teachers (NSTs) or between trained and novice NNSTs have only recently begun to appear.

1. Applied research

Canagarajah (2005) has reported that NNSTs comprise 80% of the English teachers worldwide. Liu (1999) has noted that NNSTs constitute a near majority of Master's program trainees in ESL settings. Most are international students who plan to teach in their home countries (Polio, 1994) after they obtain their degrees. NNSTs have been studied in comparison to NSTs, with respect to their views of themselves and those of others. Much of this work has examined self and other perception and much of it has been applied to the understanding of their unique skills and special needs, and to explain employment needs and outcomes.

Medgyes (1994) and Árva and Medgyes (2000) have described several strengths that NNSTs appear to bring to the classroom. They provide good models of language learning, are empathetic toward their difficulties, and can teach them the strategies that were effective in their own language learning. Their bilingualism can also be applied strategically to explain difficult concepts, provide directions, and explain assignments. Noting the uniqueness of these areas to the NNST, Barratt and Kontra (2000) have applied them to arguments that raise awareness of the limitations of NS teachers who work with NNSs.

The majority of studies have been carried out in ESL contexts. They portray a picture of NNSTs as concerned about their linguistic accuracy (Kamhi-Stein, Aagard, Ching, Paik, & Sasser, 2001) and teaching effectiveness (Reves & Medgyes, 1994), with feelings of inadequacy in a good deal of their classroom performance (Braine, 2004; Morita, 2004). Amin (2004) was able to trace this to their concerns about their English language performance, gender, and race. Canagarajah (2005) has noted the higher standard to which some NNSTs feel they are held. Those who are enrolled in degree programs are also keenly aware that they may be seen as inadequate, especially if they choose to work in L2 settings. Some report that they are prepared to address this in their professional life, by drawing on their strengths rather than limitations (Samimy & Brutt-Griffler, 1999). As researchers explore the professional contexts in which NNSTs work, they have identified numerous psychosocial factors that bear on their perceptions. These include the educational backgrounds of their students, e.g., the higher the educational level, the more favorable attitude was perceived by the teachers.

Studies undertaken in EFL contexts have revealed that teachers' perceptions of themselves appear to vary by placement and experience, with secondary teachers more favorable toward their skills than primary teachers, and those who had studied or taught in EFL contexts more likely to support the role and contributions of the NNST for students in their home countries (Llurda, 2005). Participants in Bayyurt (2006) also noted the unique skills and attributes that NNSTs bring to their students in an EFL context. Other research has revealed that NS teachers report favorable perceptions of NNSTs. Nemtchinova (2005) revealed that teachers who supervised and sponsored student NNSTs in their classrooms found them linguistically proficient and helpful to students. Some of the NS teachers noted that, despite their competence, NNSTs indicated a lack of confidence.

Research on student perceptions of NNSTs has shown a great deal of acceptance and appreciation and can serve to reduce the widespread perception by program administrators that their students want only NS teachers. Even students who had initial misgivings about NNSTs have been found to upgrade

their opinions as they came to know their teachers and benefit from their teaching (Moussu, 2002, 2006). Most of their negative views had centered around the NNST's linguistic skills and cultural insights. Additional work on learner reports has revealed their perceptions that NNSTs offer unique attributes as role models, sources of motivation and empathy (Benke & Medgyes, 2005; Cheung & Braine, 2007; Lasagabaster & Sierra, 2005; Llurda, 2005; Pacek, 2005). When asked to choose, however, learners have tended to view a teacher more favorably if the teacher used an American-English accent rather than a foreign-accented variety, even though the latter variety was as understandable to them (Butler, 2007).

Studies of NNSTs provide a rich and revealing data base that can be made available to policy makers and program administrators who make hiring decisions. Many NNSTs report great difficulty in obtaining employment in ESL settings, and even in EFL settings, as program administrators appear to favor NSs. In university settings, intensive English programs with academic English curricula tend to hire NSs (Mahboob, Uhrig, Newman, & Hartford, 2004). Among the factors fostering this reluctance, researchers have cited NNSTs' accented English, pedagogical formality, emphasis on grammar, and lack of NNST self confidence as concerns. At the same time, they have recognized the NNSTs' strengths in background knowledge of teaching techniques and curriculum, collegiality, and attitude toward students. Flynn and Gulikers (2001) found that the level of literacy skills and breadth of experience required often eliminates many applicants, both NNSTs and NSTs from securing teaching positions. Thus recent graduates of Master's programs are turned down for these reasons more so than their nativeness. In general, the research, which is small in scope, portrays administrators as reluctant to hire NNSTs, but drawing on their lack of experience rather than their non-nativeness as the basis for the hiring decision. Such attitudes warrant a broader dissemination of the results on this matter.

2. Applicable research

Considerable attention has been given to characterizing and describing the "non-nativeness" that has been applied to address questions about NNSs in general and NNSTs' competence in particular. Over time, the work has grown from an emphasis on standard English to a recognition of its many varieties across and within ESL-EFL contexts, and its reflection of the diversity shared among all world languages.

Chomsky's (1965) theoretical claim that native-speakers are the only reliable source of linguistic data in terms of judging sentence grammaticality, has often been invoked to justify decisions about teacher qualifications for language teaching. As Chomsky's statement was made in the context of arguments about mental properties, it has had little, if any, application to the evaluation of teacher qualifications and decisions about hiring and promotion. Researchers such as Cook (2005), whose expertise extend across theoretical and applied linguistics, have pointed out the fallacies in the way that Chomsky's original intention has been misplaced. Along with others (e.g., Rampton, 1990), they have argued that coinage and application of the NNS label is itself misleading because it suggests that teachers can be separated into groups of "have" and "have-not."

Widely known characteristics of individuals whose language proficiency extends beyond their L1 have been applied to assessments of qualifications for effective teaching. Cook (2005), Kramsch (1997), and Phillipson (1992), for example, have pointed out the value of knowing more than one language and culture and the experience of having learned another language, often through classroom study. New terminology has also emerged, which can also be applied to teachers. These labels suggest strengths and skills such as “expert speaker” (Rampton, 1990). Research has uncovered characteristics of the learner’s delegation of time and attention to L2 study that explain why many NNSs perform linguistically like NSs (e.g., Davies, 1991, 2003; Moyer, 1999, 2004), even though they might have different judgments from them, such as on sentence grammaticality (Coppetiers, 1987).

Much has also been written about the construct of World Englishes and indigenized varieties of English (Brutt-Griffler & Samimy, 2001; Higgins 2003; Kachru, 1992). Some of it has been applied to promote the role of NNSTs as speakers of local varieties that have greater familiarity with their students and are more intelligible to them than NS varieties (Modiano, 1999). Much of the emphasis has been on describing the linguistic features of these varieties at lexical, grammatical, and sociolinguistic levels (Mesthrie, 2006). As the number of English NNS continues to increase worldwide, (Braine, 1999; Crystal, 2003; Graddol, 1999), and the demand for English language education looms large, it is inevitable that NNSTs will implement most English instruction through different varieties. As a result, issues surrounding the non-nativeness of teachers may diminish in their relevance and application to language education.

Research is still needed at applied and applicable levels, to address new and emergent concerns and research questions on SLA and L2 teaching. Information that goes beyond specification of teachers’ grammar knowledge and communicative proficiency can be augmented through studies that examine credentials of practitioner training, knowledge, and skills, with a focus on those that correlate with successful learning outcomes. Outcomes criteria can come from SLA research on the sequences and processes of L2 development, so that learning progress can be tracked along the way to gauge attainment. Applied linguistics researchers could take the lead in translating this area of research into recommendations for teacher knowledge and practice, then communicating their findings to language program administrators and sharing them widely across the education arena. Both descriptive data and outcomes data are needed for such documentation. In order to pinpoint crucial differences between NNSTs and NS teachers, classroom researchers need to describe their use of instructional moves, feedback practices, and management styles, and link them with inventories of what constitutes effective teaching (e.g., Peacock, 2002; Richards, 1992), as well with documentation of their students’ L2 development over time.

Concluding Remarks and Future Directions

The questions and concerns and directional needs that were raised about the role of an L1 in the learning and teaching of another language are reminiscent of those covered in earlier sections of this paper. As was noted, questions about optimal age for formal classroom L2 study and content and language sequencing

and integration, require more comparative, descriptive, and outcomes-directed research on learners, programs, and practices. There is clearly much more applied research to be designed and implemented, just as there are questions and contexts waiting for extant research results to be applied. Over the years, the field of applied linguistics has shown both resilience and growth in addressing practical questions and concerns, designing relevant research, and generating publications and presentations. These accomplishments hold promise for future work, but findings and applications are needed now, and will continue to be of interest in the days and years ahead.

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