Social factors and variation in production in L2 phonology

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Introduction

This chapter focuses on two domains of research in the acquisition of L2 phonology: the effect of social factors on L2 phonology and variation in production in L2 phonology. The discussion of social factors focuses on gender, extent of L1 and L2 use, social identity, and target language variety while the discussion of variation focuses on interlocutor/speech accommodation, attention to speech/monitoring, and the effects of linguistic and social factors on production.

The research on social factors and variation is unified in the underlying theoretical framework that learners are active agents in their language use, language choices, and targets for acquisition. That is, they are not passive recipients of the target language, and variation in production is typically systematic and may be due, in part, to social marking due to gender, identity, accommodation to the interactant, and the linguistic environment, etc. As a result, differences between the target language and the language of the learner may not necessarily be errors, but may be evidence of users targeting a particular variety that is not necessarily the standard or marking their identity by using a certain variant in a specific situation with particular interactants. In other words, as Dowd, Zuengler, and Berkowitz (1990) state, performance in the L2 may be socially conditioned. This research raises issues of whether a 'deviation' from the standard target language is a lack of acquisition or social marking and of the learner's knowledge about the language and use of the knowledge to construct L2 identity. These issues will be explored in this chapter.

The structure of the chapter is as follows: First, a review of the research on social factors and variation will be presented. As theoretical frameworks vary based on the focus of research, these frameworks will be discussed under each topic area. Methodological options are also discussed briefly within each section and then

synthesized in a separate section, which follows the literature review. Finally, a synthesis of the major findings on social factors and variation and suggestions for future research are presented.

Literature review

The literature review will first examine research on social factors and then research on variation, with each major topic covered in a separate section. The review will focus predominantly on recent findings, with these findings discussed in light of past research, especially in reference to classic and fundamental studies in each area.

Gender

Gender has long received attention from L2 phonology researchers. Early research (cf. Asher & Garcia 1969; Elliot 1995; Flege & Fletcher 1992; Olson & Samuels 1973; Snow & Hoefhagle-Höhle 1977; Suter 1976; Purcell & Suter 1980; Tahta, Wood, & Loewenthal 1981; Thompson 1991) defined gender biologically as 'sex', and focused on pronunciation accuracy, employing experimental data elicitation techniques such as word lists or reading passages that would be rated for accuracy and/or accent. In these studies, gender was one of a number of predictor variables, along with length of residence and age of arrival, among others.

Overall, these studies did not show gender to be a strong predictor of pronunciation accuracy; in fact, in a recent review of research on accent, Piske et al. (2001) concluded "the results obtained for gender do not lead to any strong conclusions" (p. 200). Additionally, early research on gender has been criticized on both theoretical and methodological grounds: theoretically, for confusing gender and sex and for the tendency to "exaggerate and overgeneralize differences between women and men, in addition to ignoring the social, cultural, and situational forces that shape gender categories and gender relations" (Ehrlich 1997:426). Methodologically, the research has been criticized for employing one-time data collection techniques in which gender is conceptualized as fixed and unchanging.

Sociolinguistic research has also defined gender as a stable construct. One such study is Adamson and Regan's (1991) research on the acquisition of the {-ing} variable by Vietnamese and Cambodia immigrants to the US. As the prestige variant of {-ing}, which is [iŋ], was present in the learners' L1, the researchers wanted to investigate the learners' use of the variant [ɪn] for {-ing}, the greater the use thereof the researchers hypothesized indicated a greater integration into the L2 speech community. Native speaker controls were also employed in the research. Results indicated differences between men and women in the use of the variants:

women had a greater use of the prestige variant [iŋ] for {-ing} while men used [ɪn] more. These results were found for both the native speakers and the L2 learners in the study, leading the researchers to conclude that the men and women L2 learners were aiming for different targets, with the women targeting the variants used by the women native speakers, while the men were targeting the variant employed by the men native speakers.

Recent research (e.g., Hansen 2006; Ohara 2001) has recognized that gender is "something individuals *do* as opposed to something individuals *are* or *have*" (Ehrlich 1997:422). These studies have employed poststructuralist theoretical frameworks (cf. Pavlenko & Piller 2001) and ethnographic and discourse-based methodologies and "...show that possibilities for comprehensible input, comprehensible output, and positive attitudes towards the target language and culture ...are determined almost exclusively by the social context of the learning environment" (Ehrlich 1997:440).

One study that examines the social construction of a gendered identity in the L2 is Ohara (2001). In Japanese, femininity is expressed by women through the use of a high-pitched voice and "...the use of a high pitched voice is an important way of performing or 'doing' gender" (p. 234). Ohara's research examined the extent to which L2 learners of Japanese were aware of these norms and were willing to perform Japanese gender. Employing three groups of participants–five L1 American English beginning learners of Japanese; five Japanese-English bilinguals with L1 Japanese and L2 English; and five English-Japanese bilinguals with L1 English and L2 Japanese–Ohara had them perform three tasks in both English and Japanese: read isolated sentences, perform a scripted conversation with the researcher, and produce a telephone message to a professor and to a friend. The fundamental frequency (i.e. pitch) of each person's voice was then measured across the three tasks; additionally, ethnographic interviews were conducted to determine the participants' awareness of voice pitch levels in their own Japanese.

The results of the linguistic analysis found that for beginning learners, there were no significant differences in pitch between English and Japanese for the conversation and reading tasks but that there was a difference in English, and not Japanese, pitch in the telephone task. Japanese (L1) – English (L2) bilinguals had a higher pitch in Japanese across all tasks with the highest pitch to professors. Finally, for English (L1) – Japanese (L2) bilinguals the results were mixed, as two participants had similar results to beginning learners and the other three were closer to Japanese-English bilinguals.

Ohara (2001) found that the beginning learners did not have the knowledge of symbolic uses of pitch in Japanese and therefore did not vary their pitch in English and Japanese. All the bilinguals, however, were aware of the use of pitch to signal gender in Japanese. In terms of the mixed findings for the English – Japanese bilinguals, the interviews found that "it became apparent for these women that the

voice pitch levels they employed correlated neatly with their attitude toward the kinds of images typically associated with Japanese women" (Ohara 2001: 242). The bilinguals who did vary pitch patterns did so in attempt to "fit into the culture" (p. 243) rather than because they were enamored of being viewed as feminine and cute; they were trying to project a Japanese identity and using pitch/voice as one way to do this. As for the two English (L1) – Japanese (L2) bilinguals who did not vary their pitch levels although they were aware of the need to do so in some social circumstances, Ohara found that they made a conscious choice not to vary their pitch as they felt it projected an identity they did not want accept (note: while not in the area of phonology, work by Siegal (1996) has found similar findings for white women studying Japanese in Japan).

Work by Hansen (2006) on Vietnamese learners of English examines how a husband and wife, recent immigrants from Vietnam to the US, had gendered access to L2 development through work places, how the participants reacted to differing types and levels of access to L1 and L2 use, as well as established and maintained this access within the family. The study also examined how these differential levels of access to L2 use impacted the participants' acquisition of English, in this case syllable final consonants and consonant clusters. Phonological data were gathered from naturalistic interviews three times during the space of one year; additionally, interview and observation data were collected for two years.

The study found that the work roles the husband, Nhi, and the wife, Anh, were able to fill were based on the constraints of both the L1 and the L2 culture. For Anh, the most viable work place – linguistically, as it required little English for training and work, and financially, as there were many jobs available – was the nail salon due to the help and support of her extensive network of Vietnamese women nail technicians. Nhi found a job more acceptable for men – an order filler in a golf factory. The workplaces offered differential opportunities for L2 use: On the surface, Anh, appeared to have more opportunities for L2 use as she needed to use English during the entire workday, while her husband had little chance to speak English during the day since his job required little interaction with other individuals. However, in reality, Anh's English language use was highly repetitive and formulaic as she only conversed briefly with her clients, many of whom were recent immigrants from Mexico and spoke very limited English. Nhi, on the other hand, had fairly limited opportunities to practice English if measured time-wise – his only chances were during short breaks and his lunch hour. However, he had a supportive English use environment at work, with four good friends at work, two American and two Mexican men. As he stated, "they teach English...if I if I speak wrong they correct for me."

The analysis of the linguistic data indicated that Anh's limited access to L2 use opportunities may have affected her acquisition of English since her production of English syllable codas was statistically significantly less accurate than Nhi's across

time. Nhi also had a greater accuracy in production of CC codas and appeared to be exposed to more complex coda structures as evidenced by his greater attempts at CCC codas. This is not surprising given the greater opportunities for interaction and correction that Nhi had in comparison with Anh. In contrast, Anh had difficulty communicating with her clients, who were often non-native speakers of English, making it more difficult for her to receive the opportunities for complex language use that may aid second language acquisition.

In summary, when gender is framed and investigated as a biological construct, it does not seem to be a significant factor in L2 pronunciation accuracy. However, when gender is framed and investigated as a social construct, it does appear to impact the level of access learners have to L2 use opportunities and therefore the ability to get L2 input and negotiate meaning, which appear to affect L2 development. Finally, the perception of and willingness to adopt gender roles also appears to affect L2 production.

Extent of L1/L2 use

While early research in this area (cf. Flege & Fletcher 1992; Purcell & Suter 1980; Suter 1976; Thompson 1991) has examined the effect of the amount of L2 use on L2 pronunciation accuracy, later research studies, the majority of which were conducted by Flege and his colleagues (e.g., Flege, Frieda, & Nozawa 1997; Guion, Flege, & Loftin 2000; Piske & MacKay 1999; Piske, MacKay, & Flege 2001), have examined the effect of L1 use on L2 production (see also Chapter 2 by Ioup and Chapter 13 by Derwing, both in this volume, for related discussion). Work in this area has largely been experimental in design and employed accent ratings on words and sentences and self-reports of L1 and L2 use.

The results of the early studies indicate that amount of L2 use may not significantly affect L2 accent: While Suter (1976) found that amount of L2 conversation at work and/or school was the third best predictor of pronunciation accuracy (after native language and level of speaker's concern about her/his pronunciation), a reanalysis of this data by Purcell and Suter (1980) found that L2 use was no longer significant. Additionally, research by Thompson (1991) and Flege and Fletcher (1992) found no significant effects of L2 use.

An exception to these findings is a study by Moyer (2004) on L2 learners of German. Moyer's study focused on twenty-five immigrants to Berlin, all advanced speakers of German with varying lengths of stay and ages of arrival. Moyer found that the frequency with which the participants had spoken interaction in German with native speakers was significantly correlated with ratings of the participants' nativeness by native speakers of German. As Moyer notes, "...how effectively and consistently the learner utilizes available linguistic resources may be a deciding factor in *constraints* on attainment" (p. 98). Contact with native speakers of German –

and the resulting spoken interaction based on this contact – was also viewed by the participants themselves as a critical element to their L2 success: "...many participants say that personal contact has been the most effective and important aspect of their experience in-country for developing near-native fluency" (p. 103). The research also indicated that age and extent of L2 use may be connected as younger immigrants may have an easier time establishing and preserving native speaker friendships and contacts than older immigrants, and therefore have greater access to L2 spoken interaction:

> ...contact must ultimately be welcome on both sides, and maintaining such connections may become more difficult as one gets older – a phenomenon several participants confirm. Maturation can thus be seen related to social adaptation, in mutually constitutive ways, impacting access to quality linguistic input.
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> (Moyer 2004: 101)

Interesting, Moyer (2004) also found that the participants in her study avoided interacting with speakers of their L1 in order to develop their L2 and attain cultural assimilation, indicating that L2 learners may actively employ L1 use avoidance as a L2 linguistic and cultural acquisition strategy.

The majority of recent research (e.g., Flege, Frieda, & Nozawa 1997; Guion, Flege, & Loftin 2000; Piske & MacKay 1999; Piske, MacKay, & Flege 2001) on extent of L1/L2 use has shifted to examining the effect of L1 use on L2 accent. In their research on native speakers of Italian who immigrated to Canada, Flege, Frieda and Nozawa (1997) found that while both high and low users of Italian were rated as having a detectable foreign accent, the participants who seldom spoke Italian had a significantly lesser foreign accent in English than those who spoke Italian more often. In a replication study, Piske and MacKay (1999) added the variable of early versus late bilingual, and found that regardless of whether the participant was an early or late bilingual, the group with higher L1 accent ratings had a higher use of the L1. Piske, MacKay, and Flege (2001) also conducted a study on Italian (L1) – English (L2) bilinguals and found that while L1 use was a significant indicator of accent in the L2 for both early and late bilinguals, late bilinguals had a stronger accent overall, with age of arrival having a stronger effect on L2 accent than L1 use.

Building on previous research, Guion, Flege, and Loftin (2000) examined the effect of L1 use on both L2 and L1 production on Quichua (L1) – Spanish (L2) bilinguals in Ecuador and found that individuals with high Quichua use had the strongest accent in the Spanish and that the majority of speakers with low Quichua use received native-like accent ratings in Spanish. In a follow-up experiment, the researchers examined whether a Spanish accent could be detected in Quichua by examining two groups of Quichua speakers – those who had acquired Quichua as infants and those who acquired it 'late' (e.g., after age 15). Results show that late learners of Quichua had more of an accent than early learners, which the re-

searchers state indicate that Spanish accent in Quichua is not result of L1 use but of age of acquisition of Quichua.

Guion et al. (2000) conducted a second study with Korean (L1) – English (L2) bilinguals and found that accent in L1 and L2 were inversely correlated: "... the subjects who had a relatively good pronunciation of English (mostly early bilinguals) tended to have poor pronunciation of Korean, whereas those who had a poor pronunciation of English (mostly late bilinguals) tended to have a good pronunciation of Korean" (p. 36–37). While they found that the low L1 use group had a significantly lesser accent in the L2 than the high L1 group did, the two groups did not differ in terms of L1 accent, indicating that L1 use did not affect L1 accent.

While Guion et al. (2000) explain their finding through the single system hypothesis (Flege 1995), they also note that, "Another plausible explanation for the asymmetrical effect of L1 use on L1 and L2 might be the greater importance of L1 production for social identity. The appearance of a Spanish accent in Quichua might well threaten individuals' identity as Quichua speakers and community members in ways which are quite different from the consequences of a Quichua accent in Spanish" (p. 40).

In summary, there is conflicting evidence on the effect of amount of L2 use on L2 acquisition although it appears that L1 use does affect L2 accent regardless of whether the L2 was acquired as a child or an adult.

Social identity

As Zuengler (1988) states, "...pronunciation is a domain within which one's identity is expressed..." (p. 34). Research on social identity has employed both sociolinguistic and social constructivist frameworks. Studies on social identity and L2 phonology (e.g., Gatbonton 1975; Lybeck 2002; Thompson 1991) that have employed sociolinguistic frameworks have primarily focused on the use and acquisition of particular sounds and their variants in terms of their role as social markers of identity. Social constructivist research (e.g., Marx 2002; Morgan 1997; see also Hansen 2006, and Ohara 2001, above) has focused on how learners construct a viable identity in the L2, as well as how identity is related to access to L2 use opportunities.

The earliest research on social identity and L2 phonology has focused on how learners use and acquire the L2 sound system and retain certain variants of the L1 sound system in the L2 as markers of identity. Two important studies in this area are Gatbonton (1975) and Thompson (1991). Gatbonton's research focused on French-Canadian learners of English and their production of interdental fricatives in light of the participants' self-identification as nationalistic, and therefore pro-French, or non-nationalistic, and therefore pro-English. She found a higher amount of English L2 dental fricative use among non-nationalistic learners as

well as an awareness among the learners of how accent signaled ethnic identity. Thompson's (1991) study focused on 36 Russian born immigrants, all of whom had professional ability in Russian, and their production of the English velar nasal and interdental fricatives on a reading passage and spontaneous speech. Ratings of global accentedness (see Munro, Chapter 7, in this volume) were conducted by both inexperienced and experienced raters. Interestingly, of the 36 participants that had come to the US when they were ten years old or younger, only 2 received any perfect ratings, and none was "consistently judged to be accent-free" (p. 193). Thompson believes that this can be explained by "the mutual effect between phonetic categories of English and Russian" (cf. Flege 1987), as well as the participants' social identity since they retained strong connections to a Russian community and had extensive use of Russian.

A recent study in this area, Lybeck (2002), combined social network theory with a reformulation of Schumann's acculturation model. In social network theory (cf. Milroy & Milroy 1992), there are three types of network structures: "*exchange* networks made up of ties with family and close friends, *interactive* networks constructed of ties with acquaintances, and *passive* networks that consist of physically distant ties" (Lybeck 2002: 176). As Lybeck notes, in close-knit exchange networks, "Individuals within exchange networks are likely to use the same linguistic variants as their network members whereas interactive networks are unlikely to enforce norms and are open to variation and change" (p. 176). Lybeck combines this with Schumann's Acculturation Model to theorize that learners who have exchange networks will have less social and psychological distance and will therefore have greater L2 learning than learners who only have interactive or passive networks.

Lybeck (2002) collected speech and social data through interviews from nine American women who had been living in Norway between one and three years at the time of the study. The participants' overall pronunciation accuracy, as well as the production of a particularly salient phonological marker, /r/, were analyzed against the women's social networks, categorized into three groups: "A: supportive engagement in exchange networks helped them reduce cultural distance; B: moderate cultural distance due to some success in developing contacts who were supportive; C: had a high level of cultural distance / unable to develop supportive networks" (p. 179). Lybeck found that the two women who had been categorized in the A group had the best pronunciation accuracy overall (over 80%), followed by the women in the B group. The C group had the lowest accuracy overall. Lybeck also found that the women in the A group, "used Norwegian *r* almost exclusively, showing identification with (low distance from) Norwegian culture" (p. 183). The women in the B group had more variable but still a great deal of /r/ use while the women in the C group either exclusively used American /r/ or decreased in their use of the Norwegian /r/ across time. As Lybeck states, "Those participants who were engaged in supportive exchange networks within the target culture were pro-

vided meaningful frameworks within which they could access and acquire both linguistically and culturally appropriate behaviors, effectively reducing their cultural distance, whereas those who were left outside of these networks or whose needs were not met by target-culture networks were not" (p. 184).

A second strand of work on social identity and L2 phonology has employed sociocultural and social constructivist frameworks to explore how learners construct a viable identity in the L2, as well as how identity is related to access to L2 language use and learning opportunities. One such study is Marx (2002), who conducted a first person reflective study of a Canadian English L1 speaker who moved to Germany for three years and then returned to Canada. Focusing her analysis on issues of accent and identity, Marx found that there were six main stages in her language learning and use: 1) displacement, which was initiated by her entry into the second culture, German. At this point, her German was English-accented and others perceived that she was American. In order to reject this identity, she worked hard to learn the L2 and avoided members of the L1 culture; 2) beginning stages of loss: after four months in the second culture, she took on a French accent (her first L2) because she perceived that French students were more positively perceived by Germans than American students; 3) towards a native speaker accent in the L2: after one year in the second culture she attempted to have native-like L2 accent in order to "be judged as a competent member of the [second culture]" (p. 272). During this period, she began to have difficulties in speaking the L1; 4) construction of an L2 identity and attrition of the L1: after 2 years in the second culture, many perceived her to be German due to her accent but also because she had also adopted clothing and manners of C2; she had more difficulties with speaking and writing in the L1; 5) re-entry into the C1: after 3 years in Germany, she returned to Canada. She had a British/German accented English for 3 months, as she wanted her L2 identity to be salient and wanted to preserve the outside identity/foreigner identity in C1; 6) reconstruction and renewal of the L1: Three months after her return to Canada, she moved to the US to study and teach. The 'false' L1 accent began to diminish. As Marx stated, "I returned to being a native Canadian and moved psychologically away from the [second culture]" (p. 276).

In Moyer's (2004) study on immigrants to German, discussed above, it was also found that the concept of 'confidence' in using the L2 was a major component in the participants' ability to develop not only L2 social contacts but also a sense of self or L2 identity, and that for the majority of the participants, developing a sense of self in the L2 was a struggle. However, the more they acquired of the language, and gained confidence in their ability to use the L2, the more the participants felt that they belonged in the L2 culture and were able to develop a L2 identity. Confidence in using the L2, as Moyer points out, has not received a great deal of attention from L2 researchers but may be a critical element in how learners view and make use of their linguistic abilities. Moyer's research also focuses on the issue

of 'passing' (cf. Piller 2002; Rampton 2001) and the dynamic nature of L1 and L2 identity: "Some participants describe how they 'play' with language identity, i.e. purposefully misrepresenting their national heritage for their own amusement, as they put it" (p. 112). This would occur most frequently when the participants were outside the L2 context, traveling to other countries. As Moyer states, "The fact that these stories were not unusual shows that identity represents a conscious choice, that it is flexible and that there may be some special purpose in passing for a native speaker, particularly as a temporary performance" (p. 112–113).

As these studies, as well as the research discussed in other sections of the chapter, have found, learners may be active agents in targeting which variants to use and acquire and may use the variants purposefully to mark gender, social, and ethnic identity. Learners may also resist using certain variants if they perceive that doing so creates a L2 identity that is not viable.

Target language variety

There have been a number of studies (e.g., Adamson & Regan 1991; Anisman 1975; Thompson 1976; Wolfram, Carter, & Moriello 2004), as well as a number of discussion articles and reviews (cf. Beebe 1985; Dowd et al. 1990; Zuengler 1989b), that have examined target variety selection by L2 learners. This research has typically been sociolinguistic in nature, employing sociolinguistic and ethnographic interview techniques to elicit linguistic data for analysis, as well as information on the learners' social networks and social group targets/ preferences. This work is based on the view that L2 learners are not "passive recipients of comprehensible input or incomprehensible input from native speakers (NSs) but [are] active participants in choosing the target language models they prefer and thus acquiring 'the right stuff' according to their values" (Beebe 1980: 404).

The earliest work in this area was conducted by Anisman (1975) and Thompson (1976). Anisman's (1975) work examined the effect of peer group influences on language choice among speakers of Puerto Rican English, focusing on the voiced interdental fricative, /aɪ/, and the schwa. Anisman found that Puerto Rican adolescents with Black peer group contacts had more Black English variants than Standard English or Spanish variants. In contrast, adolescents who were targeting mainstream values/norms had more Standard English variants over Black English or Spanish variants. Finally, the adolescents who had the greatest amount of contact with a Puerto Rican peer group had the most Spanish variants. In work on L2 English of Chicanos, Thompson (1976) found that social class impacted target variety: learners who were of higher socioeconomic status and felt accent was important for social mobility targeted a regional variety of English. Learners from the same social class who did not feel that accent was important for social mobility targeted non-regional variety while learners from a lower socioe-

conomic status used a Spanish influenced variety of English. Adamson and Regan (1991), as described above, also found that gender influenced the {-ing} variants targeted by their Vietnamese learners of English. As the researchers found that the Vietnamese learners of English had the same variant use patterns by gender, they speculated that the Vietnamese women were targeting the variant employed by native speaking women and likewise for men.

In recent research, Wolfram, Carter, and Moriello (2004) studied differences in use of the /ai/ diphthong by L2 learners in an urban (Raleigh) versus rural (Siler City) setting in North Carolina due to the pervasive nature of glide reduction in this diphthong in southern English. They collected conversational interview data with 60 L2 learners who were immigrants from Mexico, El Salvador and Central and South American countries. Results from the analysis of /ai/ indicated that the participants who lived in the rural area had some glide reduction although it was not as pervasive as it was by non-Hispanic residents of this setting. The learners who lived in the urban setting had less glide reduction although there was more glide reduction by learners who had lived in the urban setting longer. The researchers speculate that these findings indicate that, with more L2 acquisition, learners become more aligned with local norms.

In conclusion, findings from this line of research indicate that a number of factors, such as peer group, social class, gender, and the stage of L2 acquisition can affect which language variety L2 learners target.

Variation

Variationist work in L2 phonology has for the most part been based on the work of the sociolinguist William Labov (cf. Labov 1966) and social psychologists Howard Giles and colleagues (cf. Giles & Powesland 1975). The issue of variation has long been debated in the SLA literature (cf. Ellis 1990; Gregg 1990; Tarone 1990) for a number of reasons. Firstly, the issue of variability is problematic for the construct of acquisition. If variability is a feature of production, does it mean that learners have not acquired a target language form if they produced it variably, even if the variation is systematic? In other words, is variation part of 'competence'? This latter view is espoused by most variationists. As Bayley and Regan (2004) state, "Variationist sociolinguistics...has suggested, convincingly in our view, that far from being a peripheral element, knowledge of variation is part of speaker competence. The implication of this position is that, in order to become fully proficient in the target language, second language learners also need to acquire native-speaker (NS) patterns of variation..." (p. 325).

L2 research employing this framework can by and large be categorized into three strands: research on interlocutor/speech accommodation, research that examines stylistic variation based on attention to speech and monitoring, and re-

search that examines the role of linguistic and social factors on variation. The first strand was led by Beebe and colleagues (cf. Beebe 1977; Beebe & Zuengler 1985), and is based on the work by the social psychologist Giles and colleagues (cf. Giles & Powesland 1975). The second strand was led by the work of Tarone (cf. 1979, 1982). The third strand began emerging in the 1970s, with more recent work employing variable rule (VARBRUL) analysis for data analysis. Each is discussed in turn below.

Interlocutor/Speech accommodation

Speech Accommodation Theory (SAT), developed by Giles and colleagues (cf. Giles & Powesland 1975) has had a significant impact on how variation has been theorized in L2 phonology. As Zuengler (1989a) notes, SAT has received attention "as a paradigm for explaining second language (L2) performance variation" (p. 49) although it is not suggested that it is the only explanation for L2 sociolinguistic variation. As Beebe and Giles (1984) note, "SAT was devised to explain some of the motivations underlying certain shifts in people's speech styles during social encounters and some of the social consequences arising from them. More specifically, it originated in order to elucidate the cognitive and affective processes underlying speech convergence[1] and divergence" (p. 8).

Studies in this area have employed sociolinguistic interviews or short tasks and have usually focused on accommodation to the interlocutor (e.g., Beebe 1977; Beebe & Zuengler 1985; Sawyer 1973; Young 1987) or accommodation to the standard variant in the target language (e.g., Zuengler 1982, 1989a). For example, in research on Mexican-Americans interacting with Anglo and Hispanic interlocutors, Sawyer (1973) found that Spanish words were pronounced with Spanish pronunciation with a Hispanic interlocutor and with English pronunciation with an Anglo interlocutor. Similar results were found by Beebe (1977) in her study of the Thai usage of bilingual Chinese-Thai adults in Bangkok. When the participants were interviewed by a native Thai speaker, they had a significantly higher usage of Thai variants than when interviewers were Chinese and vice versa for Chinese interviewer and Chinese variants. These findings were also found for Chinese-Thai children (Beebe & Zuengler 1985).

Other factors may affect the extent to which a speaker identifies with, as well as accommodates to, the interlocutor. In research on Chinese speakers' production of the English plural, Young (1987) found that ". . .if interlocutors share other

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1.   Beebe and Giles (1984) go on to define convergence and divergence: "Convergence has been defined as a linguistic strategy whereby individuals adapt to each other's speech by means of a wide range of linguistic features including speech rate, pause and utterance lengths, pronunciations, etc. . . . whereby divergence refers to the manner by which speakers accentuate vocal differences between themselves and others." (p. 8)

characteristics such as occupation, education, or gender, these characteristics in combination may override any single effect of shared ethnicity" (p. 84). Zuengler (1989a) also found that 'dominance' may be a factor. In her study, Zuengler examined the interaction in native speaker (NS)/nonnative speaker (NNS) dyads. The research focused on how perceptions of 'expertness' by either the NS or NNS would affect the level of standardness of production of four phonological variants – voiced and voiceless dental fricatives, (r), and (oh), a mid-back rounded vowel – which had been found by Labov (1966) to be socially conditioned in New York City, where the study took place. However, an initial analysis of the data showed only limited evidence that expertness affected variant usage; other factors, such as 'dominance' (operationalized as 'amount of talk' and 'interruptions') and ability to move task along, were found to affect the interaction. As Zuengler notes, several factors may be at play in these interactions: "One is dominance and another may be accommodation. The latter could be competing with, or stifled by, the former. Consequently, to explain performance in such interactions in accommodative terms alone . . . is to risk missing an equally, or more important, dynamic underlying the subjects' language performance" (p. 65).

Zuengler (1982) also found that ethnic threat may affect the extent to which speakers accommodate to the target language form. In her study of native speakers of Spanish and Greek, she analyzed the pronunciation of English pre-vocalic /r/, /ɪ/, and word-final /z/ for both groups and the voiced interdental fricative for Spanish speakers across three questions, the last one of which was 'ethnolinguistically threatening'. Zuengler found that

> . . .some of the subjects may have identified strongly as ethnic group members, and defended their ethnic solidarity through making their IL phonologically distinctive from that of the Anglo interlocutor. The other subjects, who increased in TL correctness, thereby making their speech more like that of the Anglo interlocutor, might not have been displaying ethnic solidarity. If so, they were possibly maintaining a distinctiveness from their own ethnic group in responding to the Anglo interlocutor. (p. 85–86)

To summarize, results of this research indicates that a number of factors can influence learners' use of a particular variant. These factors include the learners' perception of ethnic identity and ethnic threat. Additionally, other factors, such as dominance, may mitigate accommodation.

Attention to speech/monitoring

Work in the area of stylistic variation based on attention to speech/monitoring has been led by Tarone (1979, 1982) and modeled on the work of Labov (1969, 1972) and his Observer's Paradox, which is "the problem of observing how people speak when they are not being observed" (Labov 1972:256). Tarone developed the

Capability Continuum based on Labov's Observer's Paradox, and gives a number of assumptions for the Continuum. The first assumption is that "The underlying IL capability is an abstract linguistic system which is inferred to exist apart from any particular instance of its use; this system consists of a range of styles, any one of which a speaker may use, for a variety of psychological and social reasons" (p. 152). According to Tarone, the range of speech styles in an individual's capability can be placed on a continuum, from less formal and more vernacular to more formal and more target-like. Although the degree to which each style is native-like differs, with the more native-like at the more formal end of the continuum, each style is systematic. The paradigm also assumes that the speech style of the learner is related to degree of attention (monitoring) paid to speech and that different speech styles can be elicited through different types of tasks. For example, tasks such as reading word lists would be perceived as eliciting more monitoring and careful speech, and therefore a more formal speech style. In contrast, a more naturalistic conversation would elicit less monitoring and therefore a more natural, vernacular style of speech.

A number of studies (e.g., Dickerson 1974, 1974; Dickerson & Dickerson 1977; Gatbonton 1975, 1978) support the assertion that learners' language differs across speech styles, and that tasks such as reading passages elicit more target-like speech. For example, in what is most likely the earliest variation study, Dickerson (1974, 1975), in her work on the pronunciation of English /z/ by Japanese learners, found that learners were more correct in word lists, then on reading dialogues, and least accurate in free conversation; additionally, production within each style was found to be systematic. Gatbonton (1975), in her research on the production of English interdental fricatives by French-Canadian learners of English, also found that in tasks where learners were hypothesized to pay more attention to speech (e.g., reading tasks), there were more target-like variants than in less formal tasks. Dickerson and Dickerson (1977) also found more correct usage of English /r/ for Japanese learners in word lists than in free conversation.

However, a number of other studies (Beebe 1980; Moyer 2004; Sato 1985; Schmidt 1977) have conflicting findings, indicating that style alone may not be the only factor to affect degree of accuracy. In her study of the acquisition of English word-final codas by a young Vietnamese boy, Sato (1985) found that task variation may depend on the phonological variable under study, as her results indicated that the learner sometimes produced the codas more target-like in the casual than in the more formal style. A study by Beebe (1980) on the production of /r/ by Thai learners of English found that linguistic environment had an effect on production based on the transfer of sociolinguistic patterns from Thai: while /r/ in final position had more target-like production in the careful style, initial /r/ was more correct in the vernacular style and had more L1 variants in the careful style. In his study of the production of English dental fricatives by Egyptian Arabic speakers,

Schmidt (1977) found that production of the dental fricatives was influenced not only by task variation, but also by social class and educational background.

Moyer (2004), in her study of immigrants to Germany, found that there was no significant effect for task type for the 4 tasks in her study (word list, reading passage, spontaneous speech, and reciting proverbs) in the ratings of nativeness of her participants by native speakers of German. However, Moyer found that spontaneous speech was rated closer to native speech than any other task and that speech rated as the most non-native was elicited in the word list and reading passage tasks. As Moyer states, "This indicates that informal speech, perhaps reflecting a more natural rhythm and individual style, brings out the best performance" (p. 73). The formality of word list and reading passage tasks may also not foster the use of stress and rhythm, which may make speech sound more natural and thus perhaps more native. As Moyer concludes:

> ... the presumed formality of a task may not be the salient factor in performance accuracy. It is far more likely that native-like delivery is a matter of suprasegmental and even pragmatic features, such as tempo, rhythm and style as well as linguistic control, or accuracy. The extent of contextual isolation, or even text type itself, may evoke varying degrees of naturalness in style, and therefore fluency. (p. 73)

In sum, there does not appear to be as direct a relationship between variation and task formality as Tarone's (1979) Capability Continuum suggests. While some research has suggested that learners are more target-like on more formal tasks, the extent to which task production can be linked to monitoring is unclear (cf. Brown & Fraser 1979; Giles 1973); additionally, other factors, such as linguistic environment, type of phonological variable under investigation, and social class and educational background may affect production.

Social and linguistic factors

This research has examined how linguistic factors (sometimes called 'internal' factors) such as preceding and following linguistic environment and extralinguistic and/or social factors (sometimes called 'external' factors) such as gender and social class, affect variable production. As Preston (1996) states, "The central claim of this approach is that the alternative forms of linguistic elements do not occur randomly. The frequency of their occurrences is predicted by 1) the shape and identity of the element itself and its linguistic context, 2) stylistic level (defined operationally), 3) social identity, and 4) 'historical' position (i.e., an assumption that, in much variation, one form is on the way in, the other on the way out" (p. 2). Early research typically employed descriptive statistics (e.g., percentages) while later research has employed variable rule (VARBRUL) analysis to develop probabilistic rules. VARBRUL employs loglinear regression to quantitatively model the effect (i.e., weight) of a particular factor (e.g., preceding linguistic environment)

on the use by a learner of a particular variant.[2] Not all studies examine both linguistic and extralinguistic factors, so the interactions of these constraints are only discussed when they have been employed in a study and found to be significant.

Some of the work in L2 variation has focused on morphophonemics, such as past tense marking (e.g., /t d/ deletion), plural marking (e.g., /s z/ production), and {-ing}. For example, influenced by the work on /t d/ deletion in native varieties of English, L2 researchers have examined the extent to which the constraints operating on /t d/ deletion in nonnative varieties of English are similar to those for native varieties of English. In research on Vietnamese speakers of English, Wolfram (1985) found that both extralinguistic and linguistic factors constrained /t d/ deletion: participants who had a longer length of residence (4–7 years vs. 1–3 years) had a higher rate of past tense deletion in consonant clusters followed by a consonant, as well as more deletion on monomorphemic rather than past tense clusters, both patterns being similar to those found in native varieties of English.

In work on Chinese learners of English, Bayley (1996) found both divergence and convergence with target language patterns for /t d/ deletion. Findings on the effect of phonological environment, including preceding environment, following environment, and voicing agreement, were overall similar to findings for native speakers of English. However, the L2 learners in this study were more likely to reduce inflectional than lexical /t d/ clusters, which is the opposite of the pattern for native speakers of English, but confirms research by Wolfram and Hatfield (1984) on other non-native speakers of English, in this case, Vietnamese learners of English, who also had higher /t d/ deletion rates on inflectional rather than lexical /t d/ clusters. In terms of the effect of social factors, Bayley divided the participants into two groups: one that had a mixed social network, which included both Chinese and Americans, and another that had a primarily Chinese social network. He also examined the effect of language proficiency, rated either high or lower. Both of these extralinguistic factors were significant, with participants with a mixed social network being more likely to have /t d/ deletion; lower proficiency participants were more likely to delete the /t d/ than those participants labeled as having a higher proficiency. As Bayley explains, the lesser likelihood of lower proficiency learners to mark /t d/ appears to be a lack of acquisition of past tense as well as consonant clusters. However, the higher level of /t d/ deletion by learners who have a mixed social network may appear puzzling although, as Bayley asserts, this may be due to them acquiring more native-like patterns of /t d/ deletion as they are exposed to native speakers' variation patterns, more so than participants with

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2.   See Paolillo (2002) and Young and Bayley (1996) for detailed discussions of how to employ VARBRUL in linguistic analysis.

primarily Chinese social networks, who may speak more careful English as their primary English input may be in formal classroom settings.

Hansen (2005) also researched the /t d/ deletion patterns of Chinese learners of English, and focused on the acquisition of target language patterns by learners in the study. She found that four constraints operated on the deletion of /t d/ for the participants, with the following order of greatest to least effect: following linguistic environment, preceding linguistic environment, voicing agreement, and grammatical conditioning. The patterns overall indicated a process of acquisition of target language patterns of /t d/ deletion, though some individual differences existed. However, there were a great number of similarities across speakers and between the participants of this study and those of native speakers of English, indicating that the learners were in the process of acquiring the native speaker linguistic variation patterns.

Another area of research has been the {-s} morpheme. For example, Saunders (1987) conducted research on the production of voiceless stop + sibilant clusters in the third person singular on verbs or the plural morpheme on nouns. His participants were Japanese learners of English. Saunders found grammatical category had an effect on production, as learners had a higher rate of errors on third person singular (45%) than on plural nouns (32%). Preceding linguistic context, in this case type of voiceless stop, also had an effect on production: across both verbs and nouns, error rates were highest on /ts/ clusters, followed by /ps/ and least on /ks/.

Young (1988), in research on {-s} inflection on plural nouns by Chinese learners of English, also found that preceding linguistic environment affected plural marking, with preceding non-sibilant fricatives, vowels and stops promoting marking and preceding sibilants, nasals, and laterals inhibiting marking. The extralinguistic factor of proficiency was also found to affect plural marking, with participants with high proficiency favoring plural marking over those with low proficiency. Other factors, such as position of the noun in the noun phrase, function of nouns in noun phrases, and following linguistic environment also affected plural marking.

Wolfram, Christian, and Hatfield (1986) investigated four grammatical structures – plural absence, agreement marking, negation, and tense marking – along with age and years in the US for Vietnamese immigrants to the US. The researchers found that native-like variation was conditioned by years in the US and age, with adolescents (versus adults aged 20 and over) more likely to conform to native-like patterns if they had been in the US for over four years, while the other groups did not conform nearly as well.

In their research on the variable {-ing}, Adamson and Regan (1991) also found that both linguistic and social factors affected whether the participants employed [ɪn] or [ɪŋ], with gender, style, and grammatical category all being significant. Specifically, the researchers found that women tended to use [ɪŋ] more than men,

that this variable is used by both groups more often in monitored over unmonitored tasks, and that nouns favored [iŋ] while verbs, particularly the progressive and periphrastic future, did not.

There have also been a number of L2 phonology variation studies. For example, Dickerson's (1975) research on the production of /z/ by Japanese learners of English (discussed in more detail under "Attention to speech/monitoring" above) found that in addition to task, phonetic environment also affected /z/ production, with a following vowel promoting accurate production of /z/, while a following pause or following consonant promoting the deletion of /z/ or production of /z/ as [s] or [dʒ], for example.

Ross (1994) focused on paragoge (final vowel insertion) and apocope (final vowel deletion) in Japanese English, and found that three factors affected paragoge while two factors affected apocope. For the former, intonation of utterance, ultimate syllable of the word, and following segment were significant, with a low-falling tone promoting paragoge while a rising tone inhibited it; [-son] in the final syllable motivated paragoge as obstruents promoted paragoge while nasals, glides, and laterals inhibited it; and paragoge was promoted when the following segment was a consonant and inhibited when the following segment was a pause or a vowel. For apocope, word stress and syllable final consonant were significant. Stressed syllables had more cases of apocope than unstressed syllables, and apocope occurred more often with final affricates than with continuants.

Hansen (2001), in research on the acquisition of English L2 syllable codas by native speakers of Chinese, found that both grammatical conditioning and linguistic environment affected the production of codas. Specifically, she found that the participants of this study deleted final /t d/ on lexical over inflectional clusters, which contrasted to the patterns found for other non-native speakers of English (e.g., Bayley 1996; Wolfram & Hatfield 1984), but was similar to patterns for native speakers of English (Labov 1989). Both preceding and following linguistic environment were found to have an effect on coda production. The study also found that homovoicing of segments favored absence while heterovoicing favored retention.

Hansen (2004) found that different factors had an effect on different types of production. She analyzed the production of English syllable codas by Vietnamese learners of English across five types of production (or lack thereof): target-like production, production with epenthesis, production with feature change, deletion, and two types of production modifications (e.g., in a two-member cluster, deletion of one member and epenthesis of the other). For both target-like production and deletion, both coda length (one, two, or three member coda) and preceding linguistic environment had an effect, while for epenthesis, these two factors along with following linguistic environment, syllable stress, and time (data were collected three times over the duration of one year) were significant. For fea-

ture change, following linguistic environment, length, and stress were significant while for two types of production modifications, length had a significant effect. Finally, individual difference were also found for three of the production types: target-like production, absence, and two-types of production.

While not variation studies, other studies on L2 phonology have also found that linguistic environment affects L2 production. For example, both Gatbonton (1978) and Major (1996) also found that a following vowel may facilitate production (vs. deletion) of a given segment while other researchers (Edge 1991; Major 1987; Tarone 1980) have found that a following pause may facilitate devoicing and/or epenthesis. Benson (1988), Osburne (1996), and Yavaş (1997) also found that the preceding linguistic environment had an effect on production, with a preceding diphthong promoting absence of the following coda for Vietnamese speakers, a finding that was confirmed by Hansen (2004) as well, and a high vowel promoting devoicing.

Additionally, a number of non-linguistic factors have been found to affect variation. Flege, Munro, and MacKay (1996) examined the voice onset time (VOT) values of English stops by native speakers of Italian as well as the production of interdental fricatives, and found that for production of interdental fricatives, age of L2 learning, home use, integrative motivation, and work use were significant while for VOT in stop consonants, age of L2 learning, social use, home use, and work use were significant (see Zampini, Chapter 8 of this volume, for a complete description of VOT and related studies).

As these studies show, there have been consistent findings indicating that a number of linguistic and non-linguistic factors constrain production. Linguistic factors such as voicing agreement, preceding linguistic environment, following linguistic environment, stress, intonation, coda length, and grammatical category, as well as non-linguistic/social factors such as gender, proficiency level, task, use of L2 at home, work, and socially, age of L2 learning, motivation, and length of stay affect L2 variation.

Methodological choices

There have been a number of approaches to the study of social factors and variation in L2 phonology: experimental approaches that typically entail recording word list and/or reading passage data that is then rated by native speaking judges; sociolinguistic approaches that involve sociolinguistic interviews and either using variable rule analysis or other inferential or descriptive statistics; and the use of multiple techniques, such as self-reports, observations, and interviews along with more experimental data. Each of these approaches is discussed below.

The earliest studies on the effect of social factors on L2 phonology as well as more recent studies focusing on extent of L1 use have employed experimental research methods for both data collection and analysis. The focus of these studies (cf. early studies such as Asher & Garcia, Purcell & Suter 1980; Suter 1976; Thompson 1991 as well as more recent research on extent of L1 use such as Flege, Frieda, & Nozawa 1997; Guion, Flege & Loftin 2000; Piske & MacKay 1999; Piske, MacKay, & Flege 2001) has typically been the rating of pronunciation accuracy as measured against a number of predictor variables such as age of arrival, length of stay, extent of L1/L2 use, gender, etc. Data are commonly gathered via word list and/or reading passages, and questionnaires may be used to elicit background data about L1/L2 use, etc. Accent and intelligibility ratings are conducted on the phonological data and the questionnaire data is quantified; data are then analyzed via a variety a statistical procedures such as correlations, ANOVAs, and/or multiple regression to determine the strength and nature of the relationships between the predictor variables and the pronunciation accuracy rating (see Chapter 7 this volume by Munro for a further discussion of accent and intelligibility ratings).

One strength of this approach is that it offers researchers statistical power to support their findings. However, there are also a number of weaknesses with this approach: firstly, it is not clear whether ratings of pronunciation accuracy as based on highly controlled tasks such as word lists and reading passages accurately reflects the learners' abilities in the L2. Secondly, self-report on questionnaires and not interviews and/or observations are employed to solicit information on social factors such as L1 use – it may be the case that the participants over or underestimate their L2/L1 use. Finally, as will be discussed in more detail below, a number of social factors (e.g., gender and identity) are confounded, and using one-time research (i.e., gathering data only one time) that conceptualizes these concepts as stable and unchanging rather than dynamic may not fully portray the complex social context of the language learner.

Sociolinguistic research methods have also commonly been employed in L2 phonology research, particularly for research on variation and interlocutor/speech accommodation (cf. Adamson & Regan 1991; Bayley 1996; Beebe 1980; Beebe & Zuengler 1985; Dickerson 1974; Hansen 2005; Young 1987; Zuengler 1989a, 1989b). In this methodology, data is most commonly gathered through sociolinguistic interviews; in these interviews, the interlocutor may ask the participant to talk about emotional subjects such as dangerous experiences in the belief that these topics makes the participant less focused on how they are speaking and more on what they are saying. The interviews are then coded for the use of the variant under study in order to determine patterns in the use of the specific variants; this may be analyzed via descriptive statistics or through loglinear regression programs such as VARBRUL (see Paolillo 2002; and Young & Bayley 1996, for detailed discussions of VARBRUL). In a VARBRUL analysis, data are also coded for a number

of linguistic and social factors, such as preceding linguistic environment, following linguistic environment, gender, task, social networks, etc.; VARBRUL then models the variation through a series of loglinear regressions in order to determine the model that best fits the data. The effects are given as weights from 0 to 1.00, with weights below .50 perceived to inhibit the production or deletion of the phonological variant under study (e.g., in /t d/ deletion research, the presence or deletion of the /t d/) and weights above .50 said to promote the production or deletion of the variant. For example, the researcher may focus on /t d/ deletion patterns of L2 learners of English and analyze deletion patterns against such factors as preceding and following linguistic environment, length of the coda (CC or CCC), grammatical category (monomorphemic or bimorphemic), gender of the participant, time (if more than one data set is collected), etc. Typically, only a number of these factors may be found to best explain the variation patterns in /t d/ deletion.

This approach also has a number of strengths. For example, like experimental research, it offers the researchers statistical power to support the findings. Another strength is that it allows the researcher to explore multiple factors, including both linguistic and social factors. However, there are also a number of shortcomings to this approach. One criticism of this line of research is the nature of the interviews; it is questionable whether 'emotional' topics elicit a more vernacular (and less monitored) style of speech than other topics. Another criticism is that is it treats social variables such as gender and social networks as reductionist, and codes "...aspects of social identity as categorical and invariant across contexts" (Ehrlich 1997:421). As Eckert (1991) notes, an additional problem with this research is that "general sociological factors are applied without attempting to identify community-specific factors that might also be relevant" (p. 7). Without employing ethnographic data collection techniques in order to examine the community and the participants' lives and interactions in more depth, it is not possible to determine whether:

> the social factors traditionally used in studies of majority sound change, such as age, sex and social class, are sufficient for an explanation of sociolinguistic variation in this community. .... The use of ethnography in the study of variation allows the researcher to discover the social groups, categories and divisions particular to the community in question, and to explore their relation to linguistic form.
>
> (Eckert 1991:7)

Recent variationist research acknowledges this problem and instead incorporates ethnographic research into the design to first determine variables that can then be examined through variable rule analysis. While there have been a number of research studies in this area in sociolinguistics, such as Eckert (1988, 1991) and Fought (1999), there has been no research on L2 phonology to date, as far as this researcher is aware, that employs this approach although this direction of vari-

ationist research provides a way of integrating both qualitative and quantitative research methods, which enables both deeper and wider analyses of issues under investigation.

Recently, L2 phonology researchers have begun employing a wider range of approaches to explore L2 phonology. For example, Marx (2002) employed self-report and self-observation in her research on her phonology use and acquisition across different social contexts. Hansen (2006), Lybeck (2002), Moyer (2004) and Ohara (2001) all employed both statistical analysis of data collected via interviews and/or controlled tasks as well as interviews and observations that probed the participants' social networks, social identities, and other social factors. The use of multiple data collection and analysis tools is the most promising direction for future research as it provides us with a deeper, broader, and more robust insight into the phenomena under study.

Synthesis of major findings

Two major finding emerge from the research on social factors and variation in L2 phonology. One finding is that learners are active agents in choosing not only what and how they use their L2, but also in choosing the L2 target, and therefore what they acquire of the L2. Another finding is that certain factors such as access to L2 use and linguistic environment, factors that may be beyond the learner's control, also impact L2 learning.

Much of the research on social factors, especially the work on gender, target language variety, interlocutor/speech accommodation, and identity, has shown that learners are sophisticated L2 users and L2 learners, and they are active agents in what elements of the L2 they target for acquisition and/or use in different contexts. For example, research has indicated that learners are able to accommodate their speech to their interlocutor based on perceived similarities such as ethnic identification (Beebe 1977; Beebe & Zuengler 1985; Sawyer 1973) and occupation, education, and gender (Young 1987). Additionally, learners may be aware of how certain variants are used by speakers in different contexts/communities. Therefore, they may actively use (or avoid using) some variants or linguistic features over others based on gender, ethnic, national identities (cf. Adamson & Regan 1991; Gatbonton 1975; Ohara 2001) and peer group identifications (Anisman 1975; Thompson 1976).

At the same time, both social and linguistic factors also limit/affect L2 use and production. As variation studies have shown, a number of linguistic constraints, such as following and preceding linguistic environment, grammatical conditioning, voicing agreement, etc., affect the production of a particular phonological variant. These linguistic constraints may be connected to the acquisition of a par-

ticular structure (e.g., see the research on the acquisition of /t d/ deletion patterns in Hansen 2005). Additionally, learners' abilities to gain access to L2 use opportunities and the density of this access, as well as attitudes to the L1 and L2 community (cf. Hansen 2006; Lybeck 2002; Marx 2002; Moyer 2004) may affect not only the learners' use of L2 but also their perceptions of their own L1 and L2 identities, and therefore, their willingness – or lack thereof – to acquire and/or use the appropriate speech markers to signal belongingness in that community (Lybeck 2002; Ohara 2001).

The nexus of these two phenomena – both having control over the use and acquisition of the L2 while at the same time lacking control[3] is what makes language learning highly individual. While linguistic (and task) constraints will always affect L2 phonological production, and therefore in a sense always be beyond the learner's explicit control, the acquisition of native speaker linguistic constraint patterns is probably connected to the extent to which the learner has access to L2 communities and L2 use opportunities. Access – or lack thereof – to various communities may affect what elements of the L2 are targeted for acquisition and use, as well as the extent to which L2 learners use or avoid using (or avoid acquiring) certain features of the L2, which they perceive would, if used, create an L2 identity that they do not find viable or conflicts with their L1 identity (cf. Hansen 2006).

There are a number of implications of these findings. Firstly, as Cook (2002) suggests, we need to shift our view of learners to 'users' of language rather than 'learners.' What we perceive as L2 learners' 'deviations' from the standard target language may not be mistakes or errors; instead, this usage could be purposeful. In other words, learners may know that they are deviating from standard L2 usage but choose to do so for a number of reasons. A second implication has to do with research methodology: ethnographic techniques such as long-term observations and interviews need to be employed along with experimental approaches to determine whether the speech that we analyze is in fact representative of the speech of the participant and under what social conditions. In particular, it is important to determine whether use of a non-standard variant or incorrect pronunciation is indicative of a lack of acquisition or avoidance of use, e.g., whether they are forms retained from the L1 as identity markers, are used to avoid a L2 marker that the participant finds stigmatizing, and/or is the form the participant is targeting due to her/his social group. Additionally, data should be subjected to a more complex linguistic analysis, such as those conducted in variation studies that examine the effect of linguistic and task constraints, since use of the L2 will always be variable

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3. See chapters on acquisition by Eckman and Major, this volume, for a discussion on how other factors such as transfer and markedness affect acquisition.

across different social and linguistic contexts. We need to understand how these contexts affect how learners acquire and use the L2.

Future directions

A number of issues, given below, need investigation:

- Research needs to be conducted to investigate the interface between variation and acquisition. For example, do learners acquire the variation patterns found in the target language as they acquire the variant in question, or do learners need to be proficient to a certain extent in order to acquire these patterns?
- Research needs to be conducted on suprasegmentals and variation/social factors, especially in relation to gender, culture, and identity, as well as variation;
- Research needs to incorporate more ethnolinguistic research techniques in order to determine which social factors are relevant in a given community or for the participants in the study rather than assigning social factors apriori;
- Gender and social identity research needs to be expanded to research on men; as yet, there have been only a few research studies that have focused on men in L2 phonology;
- Research needs to view language learners as 'users' of the L2, who construct their own identities, instead of comparing them, typically negatively, against standard target language models. We need to understand the use of certain variants against social context to determine whether not acquired or a marker that functions specifically in a context (e.g., /t d/ deletion);
- Research on "passing" for L2 users should be conducted. As Rampton (2001) states, "crossing's defining interest [is] in the use of a language that doesn't obviously belong to the speaker" (Rampton 2001:50). Research by Piller (2002) on German L1 users' use of different German regional dialect markers indicate "L2 users may strategically employ stereotypical features characteristic of a particular variety in order to pass" (p. 193). As she states, some want to hide L1 background "Thus, successful L2 users do not necessarily aim to pass for native speakers. Rather, they just don't want to be perceived as members of a particular national group right away" (p. 194) to avoid being stereotyped. Research by Marx (2002) and Moyer (2004) gives some insight into this phenomenon; however, further research in this new direction is necessary;
- Finally, in light of recent research in SLA on how the L1 and L2 community may constrain the access L2 learners have to linguistic resources (cf. Blackledge 2001; Cumming & Gill 1992) and the findings on the effects of L1 use discussed above, it appears that research adding a phonological analysis component to this focus would be promising.

Suggested readings

Bayley, R., and Preston, R. 1996. *Second language acquisition and linguistic variation.* Amsterdam: John Benjamins Publishing Company.

Dowd, J., Zuengler, J., & Berkowitz, D. 1990. L2 social marking: Research issues. *Applied Linguistics* 11: 16–29.

Fought, C. 1999. A majority sound change in a minority community: /u/-fronting in Chicano English. *Journal of Sociolinguistics 3: 5–23.*

Paolillo, J. C. 2002. *Analyzing linguistic variation: Statistical models and methods.* Stanford, California: CSLI Publications.

Piske, T., MacKay, I. R. A., & Flege, J. E. 2001. Factors affecting degree of foreign accent in an L2: A review. *Journal of Phonetics* 29: 191–215.

References

Adamson, H. D., & Regan, V. M. 1991. The acquisition of community speech norms by Asian immigrants learning English as a second language. *Studies in Second Language Acquisition* 13: 1–22.

Asher, J. J., & Garcia, R. 1969. The optimal age to learn a foreign language. *The Modern Language Journal* 53: 334–341.

Anisman, P. H. 1975. Some aspects of code switching in New York Puerto Rican English. *Bilingual Review* 2: 56–85.

Bayley, R. 1996. Competing constraints on variation in the speech of adult Chinese learners of English. In R. Bayley and R. Preston (eds.), *Second language acquisition and linguistic variation,* Amsterdam: John Benjamins Publishing Company, 97–120.

Bayley, R., & Regan, V. 2004. Introduction: The acquisition of sociolinguistic competence. *Journal of Sociolinguistics* 8: 323–338.

Beebe, L. M. 1977. The influence of the listening on code-switching. *Language Learning* 27: 331–339.

Beebe, L. M. 1980. Sociolinguistic variation and style shifting in second language acquisition. *Language Learning* 30: 433–447.

Beebe, L. M. 1985. Input: Choosing the right stuff. In S. M. Gass & C. G. Madden (eds.), *Input in second language acquisition,* Cambridge: Newbury House, 404–414.

Beebe, L. M., & Giles, H. 1984. Speech-accommodation theories: A discussion in terms of second-language acquisition. *International Journal of the Sociology of Language* 46: 5–32.

Beebe, L. M., & Zuengler, J. 1985. Accommodation theory: An explanation for style shifting in second language dialects. In N. Wolfson and E. Judd (eds.), *Sociolinguistics and language acquisition,* Rowley, Mass.: Newbury House Publishers, Inc., 195–213.

Benson, B. 1988. Universal preference for the open syllable as an independent process in interlanguage phonology. *Language Learning* 38: 221–235.

Blackledge. A. 2001. Complex positionings: Women negotiating identity and power in a minority urban setting. In A. Pavlenko, A. Blackledge, I. Piller, & M. Teutsch-Dwyer, (eds.), *Multilingualism, second language learning, and gender,* Berlin: Mouton de Gruyter, 53–75.

Brown, P. & Fraser, C. 1979. Speech as a marker of situation. In K. R. Scherer and H. Giles (eds.), *Social markers in speech,* Cambridge: Cambridge University Press.

Cook, V. 2002. *Portraits of the L2 user.* Clevedon: Multilingual Matters.

Cumming, A., & Gill, J. 1992. Motivation or accessibility? Factors permitting Indo-Canadian women to pursue ESL literacy instruction. In B. Burnaby & A. Cumming (eds.), *Socio-political aspects of ESL education in Canada*, Toronto: OISE Press, 241–252.

Derwing, T. M. 2008. Curriculum issues in teaching pronunciation to second language learners. In J. G. Hansen Edwards & M. L. Zampini (eds.), *Phonology and second language acquisition*, Philadelphia: John Benjamins.

Dickerson, L. 1974. *Internal and external patterning of phonological variability in the speech of Japanese learners of English: Toward a theory of second-language acquisition.* Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.

Dickerson, L. 1975. The learner's interlanguage as a system of variable rules. *TESOL Quarterly* 9: 401–407.

Dickerson, L., & Dickerson, W. 1977. Interlanguage phonology: Current research and future directions. In S. P. Corder, & E. Roulet (eds.), *The notions of simplification, interlanguages and pidgins and their relation to second language pedagogy*, Faculté des Lettres, Neufchâtel, and Librairie Droz, Genève.

Dowd, J., Zuengler, J., & Berkowitz, D. 1990. L2 social marking: Research issues. *Applied Linguistics* 11: 16–29.

Eckert, P. 1988. Sound change and adolescent social structure. *Language in Society* 17: 183–207.

Eckert, P. 1991. *New ways of analyzing sound change.* New York: Academic Press.

Edge, B. A. 1991. The production of word-final voiced obstruents in English by L1 speakers of Japanese and Cantonese. *Studies in Second Language Acquisition* 13: 377–393.

Ehrlich, S. 1997. Gender as social practice: Implications for second language acquisition. *Studies in Second Language Acquisition* 19: 421–446.

Ellis, R. 1990. A response to Gregg. *Applied Linguistics* 11: 384–391.

Elliott, A. R. 1995. Field independence/dependence, hemispheric specialization, and attitude in relation to pronunciation accuracy in Spanish as a foreign language. *The Modern Language Journal* 79: 356–371.

Flege, J. E. 1987. The production of 'new' and 'similar' phones in a foreign language: Evidence for the effect of equivalence classification. *Journal of Phonetics* 16: 47–65.

Flege, J. E. 1995. Second language speech learning: Theory, findings, and problems. In W. Strange (ed.), *Speech perception and linguistic experience: Theoretical and methodological issues*, Timonium, MD: York Press, 229–273.

Flege, J. E., & Fletcher, K. L. 1992. Talker and listener effects on degree of perceived foreign accent. *Journal of the Acoustical Society of America* 91: 370–389.

Flege, J. E., Frieda, E. M., & Nozawa, T. 1997. Amount of native-language (L1) use affects the pronunciation of an L2. *Journal of Phonetics* 25: 169–186.

Flege, J. E., Munro, M. J., & MacKay, I. R. A. 1996. Factors affecting the production of word-initial consonants in a second language. In R. Bayley and R. Preston (eds.), *Second language acquisition and linguistic variation*, Amsterdam: John Benjamins Publishing Company, 47–73.

Fought, C. 1999. A majority sound change in a minority community: /u/-fronting in Chicano English. *Journal of Sociolinguistics* 3: 5–23.

Gatbonton, E. 1975. *Systematic variations in second language speech: A sociolinguistic study.* Unpublished doctoral dissertation, McGill University.

Gatbonton, E. 1978. Patterned phonetic variability in second-language speech: A gradual diffusion model. *Canadian Modern Language Review* 34: 335–347.

Giles, H. 1973. Accent mobility: A model and some data. *Anthropological Linguistics* 15: 87–105.

Giles, H., & Powesland, P. F. 1975. *Speech style and social evaluation.* London: Academic Press.

Gregg, K. R. 1990. The variable competence model of second language acquisition, and why it isn't. *Applied Linguistics* 11: 364–383.

Guion, S. G., Flege, J. E., & Loftin, J. D. 2000. The effect of L1 use on pronunciation in Quichua-Spanish bilinguals. *Journal of Phonetics* 28: 27–42.

Hansen, J. G. 2001. Linguistic constraints on the acquisition of English syllable codas by native speakers of Mandarin Chinese. *Applied Linguistics* 22: 338–365.

Hansen, J. G. 2004. Developmental sequences in the acquisition of L2 syllable codas: A preliminary study. *Studies in Second Language Acquisition* 26: 85–124.

Hansen, J. G. 2005. -t/d absence and the acquisition of linguistic variation by second language learners of English. Unpublished manuscript.

Hansen, J. G. 2006. *Acquiring a non-native phonology: Linguistic constraints and social barriers.* London: Continuum Publishers.

Ioup, G. 2008. Exploring the role of age in the acquisition of a second language phonology. In J. G. Hansen Edwards & M. L. Zampini (eds.), *Phonology and second language acquisition*, Philadelphia: John Benjamins.

Labov, W. 1966. *The social stratification of English in New York City.* Washington, D.C.: Center for Applied Linguistics.

Labov, W. 1969. The study of language in its social context. *Studium Generale* 23: 30–87.

Labov, W. 1972. *Sociolinguistic patterns.* Philadelphia: University of Pennsylvania Press.

Labov, W. 1989. The child as linguistic historian. *Language Variation and Change* 1: 85–97.

Lybeck, K. 2002. Cultural identification and second language pronunciation of Americans in Norway. *The Modern Language Journal* 86: 174–191.

Major, R. C. 1987. Variation in second language phonology. *ERIC reproduction service document.*

Major, R. C. 1996. Markedness in second language acquisition of consonant clusters. In R. Bayley and R. Preston (eds.), *Second language acquisition and linguistic variation,* Amsterdam: John Benjamins Publishing Company, 75–96.

Marx, N. 2002. Never quite a 'native speaker': Accent and identity in the L2 – and the L1. *The Canadian Modern Language Review/La Revue Canadienne des Langues Vivantes* 59: 264–281.

Milroy, L., & Milroy, J. 1992. Social network and social class: Toward an integrated sociolinguistic model. *Language in Society* 21: 1–26.

Moyer, A. 2004. *Age, accent and experience in second language acquisition: An integrated approach to critical period inquiry.* Clevedon: Multilingual Matters.

Munro, M. J. 2008. Foreign accent and speech intelligibility. In J. G. Hansen Edwards & M. L. Zampini (eds.), *Phonology and second language acquisition*, Philadelphia: John Benjamins.

Ohara, Y. 2001. Finding one's voice in Japanese: A study of the pitch levels of L2 users. In A. Pavlenko, A. Blackledge, I. Piller, and M. Teutsch-Dwyer (eds.), *Multilingualism, second language learning, and gender*, Berlin: Mouton de Gruyter, 231–256.

Olson, L. L., & Samuels, S. J. 1973. The relationship between age and accuracy of foreign language pronunciation. *Journal of Educational Research* 66: 263–268.

Osburne, A. G. 1996. Final cluster reduction in English L2 speech: A case study of a Vietnamese speaker. *Applied Linguistics* 17: 164–181.

Paolillo, J. C. 2002. *Analyzing linguistic variation: Statistical models and methods.* Stanford, California: CSLI Publications.

Pavlenko, A., & Piller, I. 2001. New directions in the study of multilingualism, second language learning, and gender. In A. Pavlenko, A. Blackledge, I. Piller, and M. Teutsch-Dwyer (eds.), *Multilingualism, second language learning, and gender*, Berlin: Mouton de Gruyter, 17–52.

Piller, I. 2002. Passing for a native speaker: Identity and success in second language learning. *Journal of Sociolinguistics* 6: 179–206.

Piske, T., & MacKay, I. 1999. Age and L1 use affects on degree of foreign accent in English. *Proceedings of the 14th international congress of phonetic sciences,* San Francisco, 1–7 August 1999, 1433–1436.

Piske, T., MacKay, I. R. A., & Flege, J. E. 2001. Factors affecting degree of foreign accent in an L2: A review. *Journal of Phonetics* 29: 191–215.

Preston, D. (1996). Variationist perspectives on second language acquisition. In R. Bayley and R. Preston (eds.), *Second language acquisition and linguistic variation,* Amsterdam: John Benjamins Publishing Company, 1–45.

Purcell, E. T., & Suter, R. W. 1980. Predictors of pronunciation accuracy: A reexamination. *Language Learning,* 30: 271–287.

Rampton, B. 2001. Crossing. In A. Duranti (ed.), *Key terms in language and culture,* Oxford: Blackwell, 49–51.

Ross, S. 1994. The ins and outs of paragoge and apocope in Japanese-English interphonology. *Second Language Research* 10: 1–24.

Sato, C. J. 1985. Task variation in interlanguage phonology. In S. M. Gass and C. G. Madden (eds.), *Input in second language acquisition,* Cambridge, Mass., Newbury House.

Saunders, N. J. 1987. Morphophonemic variation in clusters in Japanese English. *Language Learning* 37: 247–270.

Sawyer, J. 1973. Social aspects of bilingualism in San Antonio, Texas. In R. W. Bailey and J. L. Robinson (eds.), *Varieties of present-day English,* New York: Macmillan Publishing Co., Inc.

Schmidt, R. W. 1977. Sociolinguistic variation and language transfer in phonology. *ERIC Reproduction Service Document ED 135 235.*

Siegal, M. 1996. The role of learner subjectivity in second language sociolinguistic competency: Western women learning Japanese. *Applied Linguistics* 17: 356–382.

Snow, C. E., & Hoefnagel-Höhle, M. 1977. Age differences in the pronunciation of foreign sounds. *Language & Speech* 20: 357–365.

Suter, R. W. 1976. Predictors of pronunciation accuracy in second language learning. *Language Learning* 26: 233–253.

Tahta, S., Wood, M., & Loewenthal, K. 1981. Foreign accents: Factors relating to transfer of accent from the first language to a second language. *Language & Speech* 24: 265–272.

Tarone, E. E. 1979. Interlanguage as chameleon. *Language Learning* 29: 181–191.

Tarone, E. E. 1980. Some influences on the syllable structure of interlanguage phonology. *IRAL* 18: 139–151.

Tarone, E. E. 1982. Systematicity and attention in interlanguage. *Language Learning* 32: 69–84.

Tarone, E. E. 1990. On variation in interlanguage: A response to Gregg. *Applied Linguistics* 11: 392–400.

Thompson, R. 1976. Mexican-American English: Social correlates of regional pronunciation. *American Speech* 50: 18–24.

Thompson, I. 1991. Foreign accents revisited: The English pronunciation of Russian immigrants. *Language Learning* 41: 177–204.

Wolfram, W. 1985. Variability in tense marking: A case for the obvious. *Language Learning* 35: 229–253.

Wolfram, W., Carter, P., & Moriello, B. 2004. Emerging Hispanic English: New dialect formation in the American South. *Journal of Sociolinguistics* 8: 339–358.

Wolfram, W., Christian, D., & Hatfield, D. 1986. The English of adolescent and young adult Vietnamese refugees in the United States. *World Englishes* 5: 47–60.

Wolfram, W., & Hatfield, D. 1984. *Tense marking in second language learning: Patterns of spoken and written English in a Vietnamese community.* Washington, DC: Center for Applied Linguistics [ERIC document ED 25 960].

Yavaş, M. 1997. The effects of vowel height and place of articulation in interlanguage final stop devoicing. *IRAL* 35: 115–125.

Young, R. 1987. Variation and the interlanguage hypothesis. *Studies in Second Language Acquisition* 10: 281–302.

Young, R., & Bayley, R. 1996. VARBRUL analysis for second language acquisition research. In R. Bayley and R. Preston (eds.), *Second language acquisition and linguistic variation*, Amsterdam: John Benjamins Publishing Company, 253–306.

Zampini, M. L. 2008. L2 speech research production research: Findings, issues, and advances. In J. G. Hansen Edwards & M. L. Zampini (eds.), *Phonology and second language acquisition*, Philadelphia: John Benjamins.

Zuengler, J. 1982. Applying accommodation theory to variable performance data in L2. *Studies in Second Language Acquisition* 4: 181–192.

Zuengler, J. 1988. Identity markers and L2 pronunciation. *Studies in Second Language Acquisition* 10: 33–49.

Zuengler, J. 1989a. Assessing an interaction-based paradigm: How accommodative should we be? In M. R. Eisenstein (ed.), *The dynamic of interlanguage: Empirical studies in second language variation*, New York: Plenum Press, 49–67.

Zuengler, J. 1989b. Identity and IL development and use. *Applied Linguistics* 10: 80–96.