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**Disability and Sociophonetic Variation
among Deaf or Hard-of-Hearing Speakers
of Taiwan Mandarin**



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This thesis submitted to
School of Philosophy, Psychology, and Language Sciences
for the degree of
Doctor of Philosophy

Supervisors: Dr Claire Cowie and Dr Lauren Hall-Lew

December 2021

for my family

獻給我的家人

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Abstract

Variationist sociolinguistics has not paid much attention to linguistically pathologised groups. This thesis studies pathologised speech from a third-wave variationist perspective, exploring how oral deaf or hard-of-hearing (D/HH) speakers of Taiwan Mandarin invoke variation in spoken Mandarin to embody hearingness or deafness.

This thesis is structured into three stand-alone journal articles bookended with introductory and conclusion chapters which tie them together in the broader picture of how disability can mobilise an agentive deployment of linguistic resources. This thesis starts with an examination of how pathologised speech has been approached in linguistics and discusses why we need a third-wave perspective, which foregrounds the agency of language users, to make a valid sociolinguistic analysis of pathologised speech.

The first of the three articles is built upon one of the traditional sociolinguistic methods – minimal pair reading task – to explore how five D/HH speakers perform themselves while being highly conscious of their own speech. Different from how minimal pair reading task is usually adopted in linguistics, this study does not adopt minimal pair reading task to report what a standard speech is, for D/HH speakers. Instead, the participants are informed that their participation in the reading task is to make hearing people recognise D/HH speech, thereby empowering D/HH communities. Results show that while a large portion of the participants believe they should speak like hearing people to empower themselves, not all of them do so in the reading task. The

results presented here call for a delicate inspection of the heterogeneity among D/HH people in how they view their relationship with society.

The second research reports the results of a “device-on/off” experiment where 19 participants read aloud the same sentences with and without turning on their assistive devices. Different from how this experiment is usually used in clinical linguistics and audiology, this study takes speaker agency into consideration and considers auditory deprivation as a moment where the body is transformed into a disabled body. Half of the participants report they experience negative psychological feelings during auditory deprivation, while the others report they do not. With the affective displays, we learn that the change in vowel quality during auditory deprivation should not be considered completely driven by mechanistic processes. Instead, results show that participants who display negative affect toward auditory deprivation invoke a greater degree of /i/-backing than the others do, and the negative affective display should be understood as a microcosm of how the participants think of disability in general in everyday life.

The final of the three articles explores topic-based linguistic variation in passage reading. 10 participants read aloud two passages: one is not relevant to deaf people, and the other is on the identity politics of D/HH communities, in terms of how hearing people oppress D/HH signers in a fictional kingdom. Rather than seeing passage reading as an activity where speakers neutrally transform written text into spoken language, this study invites the participants to share their thoughts about the identity politics passage. Six of the participants discuss the passage from a third person point of view, distancing themselves from the radical viewpoint of identity politics; the other four participants instead take the opportunity to condemn audism and share experiences with audism. Results show that when reading the deaf people-relevant passage, the former group shift to variants which index hearingness in their stylistic repertoires, and the latter group shift to variants indexing deafness to perform solidarity.

Lay summary

Deaf or hard-of-hearing (D/HH) people differ from each other in language use. Some mainly use signed language, some mainly use spoken language, and some use both. As spoken language is developed among hearing people (non-D/HH people), spoken language is not a very friendly type of language for D/HH people to learn. For example, some sounds in spoken language are not audible for some D/HH people. Therefore, D/HH people may speak with “deaf accents”.

In linguistics, most studies of deaf accents focus on how deafness physically leads to deaf accents. Not many linguists have paid attention to the how D/HH speakers think about their own accents and how they utilise the accents. Hearing people also have various accents, and hearing people use different accents for a variety of purposes. D/HH people are not different from hearing people in the aspect of how they also make use of different accents in different situations.

This thesis explores how D/HH people in Taiwan employ different ways of speaking Mandarin. By shifting the focus from hearing status to D/HH people, I foreground D/HH people’s role in engaging with the variation within their spoken language performance. This thesis includes three standalone studies.

In the first study, I invite five D/HH people whose accents are deemed “impaired” by speech-language therapists to read some words aloud. I told the participants that hearing people would learn from their speech and became

aware of “deaf accents”, so the society could become more inclusive. Most of the participants think they should speak in a way that sounds standard for hearing people, so hearing people can know that D/HH people can also speak spoken language well. However, not every of them really employs the more standard accent they have in the reading task. The results indicate that some participants do not switch to the more standard accent because they think the society does not really care about what D/HH people do.

In the second study, 19 participants are invited to read some sentences when they turn on their assistive devices (hearing aids or cochlear implants), and they are invited to read the same sentences again after they turn off the devices. Clinicians usually argue that the lack of hearing directly and solely leads to the change in D/HH people’s accent. However, by interviewing the participants, I observe that some of the participants feel negative about the reading task when the assistive device is off because it might remind them of negative experience living in the world where discrimination against disabled people is present. These participants demonstrate a different amount of change in their accent when the device is off. That is, we cannot ignore the fact that human beings are affective beings when we look at how machines contribute to any change in the language produced from the body.

In the third study, 10 participants are invited to read aloud two stories. One of the stories is about how hearing people oppress D/HH signers and deprive them of signed language. Some participants find this story relatable to their everyday life where discrimination against D/HH people happens; the other participants instead find this story not really relatable to them. The two groups make use of different accents when they read this story. The former group make use of deaf accents to perform their solidarity with deaf signers when reading the story aloud. It indicates that reading should not be considered as an activity neutrally transforming written text to spoken language. D/HH people are just like hearing people, travelling between different speech styles to achieve different social purposes.

Acknowledgements

This thesis would not have been possible without my participants. I would like to thank all the persons who spent your time participating in my project and sharing their life stories with me. I have learned so much from all of you.

To Claire and Lauren, you have been incredibly supportive of my work and all the things I've been doing. When I wasn't really sure where this project would be led to, you believed in me and encouraged me to believe in myself. Every time when you feel excited about my work after reading it, this makes me also feel excited about my work.

Thanks to my viva examiners – Scott Kiesling and Christian Ilbury. Your kind comments to my work really give me a lot of courage to move forwards in my career. Thanks to Michael Ramsammy for being my annual review examiner three times and giving me helpful suggestions to improve my work.

Thanks to my sociolinguistic network in Taiwan – Ann Lee, Hsi-Yao Su, Kerim Friedman, and Tzu-Kai Liu – for supporting my career in various ways. Thanks to Rebecca for supporting my work from Singapore. It really means a lot to me.

Special thanks to Devyani Sharma, Jon Henner, and Lynn Hou. This thesis has intellectually benefited from conversations with you.

While I spent more than half of the four years working from home and lost many opportunities to meet other young sociolinguists, I really appreciate the sociolinguistic network I have here in Edinburgh. Thanks to my fellow

sociolinguists, especially Andre, Bonnie, Nina, Sasha, Stephen, and Yujing, for all the conversations we have had in the past four years.

I would like to thank Chiawei and Jiuzhou for the conversations where I had the chance to think about how to better explain the fundamental ideas of sociolinguistics to fellow linguists. Especially, without you, I might have lived a lonely life during those lockdown days. Thanks to my Taiwanese friends – Emma, JunJay, Jing-Yi, and Ziruo – who hang out with me, making me feel home in this city. Thanks to my friends who also study PhD in Europe, especially Tzu-Hsin and Yu-Kai, for being my long-distance support system. Thank you, Hsiao-Chiao, for welcoming me when I arrived in Edinburgh. You saved me from all the anxieties I had with moving to Edinburgh.

Thank you to all the persons who keep me in company virtually or physically throughout the PhD journey. I cannot list all of your names here, but I really appreciate what you have done to support me, making me know I'm not alone.

I have been dreaming about being a linguist since I was a high school student, and it feels so surreal that I really achieved my goal. It is my family who always support me in my career. My parents and my brother, I know linguistics is very mysterious to you, and you've been finding it hard to explain to others what I am working on. But, you still believe in me. Your unconditional support makes me feel I'm doing the coolest thing in the world.

Thanks to the Ministry of Education in Taiwan for sponsoring my PhD study. Special thanks to the staff at Education Division, Taipei Representative Office in the UK for helping me through all the paperwork required to extend my stay in Taiwan during Covid.

Last, I would like to thank myself. Thank you for making our dream come true.

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Chapter 1

Introduction

Recent variationist sociolinguistic research is interested in how signers or speakers perform different axes of the social self via linguistic resources. By “axes of the social self”, I intentionally avoid the term “identity”, which may necessitate a person’s socio-psychological affiliation with a group of people. For example, Cowie (2007) discusses how agents at call centres in India pursue sounding “neutral” by shifting to American or British English accents in order to perform professional images; apparently, it does not mean the agents identify themselves as American or British.

Eckert (2012) addresses this turn to signer/speaker agency in variationist sociolinguistics as the “third wave”. In the third wave, sociolinguists highlight how linguistic variation per se can be exploited as a social semiotic system in styling various axes of the self. Among the various axes, disability has received less attention than others (e.g., gender, sexuality, ethnicity, social age, etc.). Disabled people deal much with the axis along the continuum between disabled-bodiedness and abled-bodiedness¹. Especially for people with “speech and language disorders”, the pathologised linguistic variation has rich semiotic

¹According to UK guidance on “inclusive language: words to use and avoid when writing about disability” (UK Cabinet Office, 2021), the term “able-bodied” is considered offensive to disabled people when it refers to non-disabled people; in this thesis, I use the term abled-bodiedness to specifically refer to the social-ideological construct of the prestige of being ‘abled-bodied’.

potential for styling disabled-bodiedness. For instance, Dumas (2016) portrays how a stuttering stand-up comedienne in the United States shifted to breathy voice, which neurologically stops stuttering, to perform how hilarious it is for stuttering women to follow suggestions from non-stuttering men to whisper in order to prevent stuttering. In this staged performance, disabled-bodiedness is styled to undermine the sexist and ableist norm imposed upon stuttering women.

To deepen our understanding of how pathologised speech can become mobilised as semiotic resources, the central research question of this thesis is concerned with how oral deaf or hard-of-hearing (D/HH) speakers², as people whose accents are often pathologised, invoke resources of linguistic variation to perform “hearingness” or “deafness”. Hearingness refers to not only the audiological state of being hearing but also the socially and politically privileged status of being hearing (or ‘abled-bodied’ in general) (Henner & Robinson, 2021a). In contrast, deafness refers to not only the audiological state of being deaf or hard of hearing but also the marginalised and disadvantaged status of being deaf (or disabled-bodied).

1.1 Disability

The classic (British) “social model” of disability distinguishes between “impairment” and “disability”. “Impairment” is “individual and private”, concerning the biological reality; in contrast, “disability” is “structural and public”, a social situation where abled people institutionally exclude disabled people from participation in the mainstreamed society (Shakespeare, 2006, p.197). In other words, impairment is socially neutral, whereas disability is a social construct. Although such a distinction is politically useful in social activism, it has received many criticisms.

²This thesis follows the house style and format guide of the *Journal of Deaf Studies and Deaf Education*: ‘hard-of-hearing’ is used as a prepositive adjective, e.g., ‘hard-of-hearing people’, and ‘hard of hearing’ is used as predicative adjective, e.g., ‘He is hard of hearing’.

The concept of impairment, like the concept of biological sex (Butler, 1999), is itself a social construct. Being a social construct does not mean impairment is not rooted in physiological reality. Instead, a social constructionist perspective highlights the social processes through which the physiological difference is conceived as socially meaningful difference. A dichotomy between impairment and disability is as problematic as a dichotomy between sex and gender. For instance, disabled people also utilise medical discourse of disability for a range of different social purposes, e.g., fighting for accessible health service. That is, disability is usually practiced within “interdependent discourses”, in that disabled people “can engage primarily with medical discourse, while simultaneously being part of an organization framework that operates, and sets its goals, according to a social model of disability” (Grue, 2015, p.55). The classic social model is therefore believed to neglect diverse individual experiences of impairment and reduces disability as an experience of oppression (Shakespeare, 2006).

Silvers (2010, p.477) highlights a necessity to develop a “neutral methodology” to model disability. She argues that the “badness” that is implicated by disability is actually not an inherent property of disability; instead,

“badness lies in the dislocation of familiar patterns of living, disruptions that may but need not be occasioned by disability, rather than in disability itself” (Silvers, 2010, p.480).

For disability to receive a neutral methodology, we need to foreground the practices concerning disability rather than discussing disability as only a category about either physiological situation or social oppression. For instance, by examining questionnaire data, Woodward and Allen (1993) notice that people who identified as “hard of hearing” and people who identified as “deaf” had very different practices concerning deafness: for example, the majority of the former reported little or no social interaction with other D/HH adults outside the classroom; in contrast, the great majority of the latter reported

frequent interaction with other D/HH adults.

Some oral D/HH people perceive deafness as “hearing loss” or “hearing impairment”. That is, they deem deafness as an audiological experience of **incomplete** hearing. However, for many D/HH signers, deafness captures no more than a physiological reality of audiological state (Ladd, 2003). Specifically, early deafened people do not experience a **loss** of hearing. Within this perspective, deafness and hearingness are variants of “normal human variation” (like skin colours) without one being naturally superior to the other (Sparrow, 2005).

Although deafness and hearingness should be equally treated, the social reality is that the audiological experience of being hearing is deemed naturally superior to that of being deaf within the hegemonic structure of **audism** (Humphries, 1977). The term audism captures hearing ways that dominate, restructure, and exercise authority over D/HH communities in hearing-dominated society (Lane, 1992). In the ontology of audism, deafness is understood as a physiological deficit. Hearingness is privileged, whereas deafness is rejected. Being hearing is encouraged; being deaf is discouraged. D/HH people are pressured to do “**performative hearingness**” by behaving more like hearing people, for example: speaking rather than signing; not speaking with “a deaf accent”; signing with a hearing accent (Henner & Robinson, 2021a). Campbell (2009, p.96) points out that the whole enterprise of hearing assistive devices is consolidated through enacting, performing and figuring a negative ontology of deafness and “assum[ing] an ethics of compulsory correction towards hearingness”. In other words, through medicalisation, D/HH people are not just recipients of certain politically neutral technologies; they are involved in a broader social, historical, and political process of ideologising the body (Valente, 2011; Viridi, 2020).

Disabled-bodiedness³ is about an ideological position of being disabled-bodied, and this ideological position ontologically frames disability as a negative experience. Variationist sociolinguists have explored how people pursue different kinds of social personae (D’Onofrio, 2020) or characterological figures (Agha, 2007) through linguistic style-shifting. Bucholtz (1999) identifies two types of identity practices – positive identity practice and negative identity practice. People engage in positive identity practices to “construct a chosen identity”, while people employ negative identity practices to “distance themselves from a rejected identity” (p.212). Considering how disability receives a negative ontology, it has not been depicted how disability may invite positive or negative identity practices in terms of linguistic style-shifting. How do people make use of disabled linguistic styles to construct disabled-bodiedness? Or, how do people engage with abled linguistic styles to reject disabled-bodiedness? Disabled people engage more in positive or negative identity practices, in terms of linguistic style-shifting? This dissertation aims to answer the broad research question: **how can disabled-bodiedness motivate linguistic style-shifting?**

Before diving into the linguistics part of this thesis, I would like to acknowledge that among oral D/HH people, the linguistic performance operates within symbolic violence (Bourdieu, 1979) where hearingness is formulated as an unchallengeably superior way of living. Cameron (1990) points out that when sociolinguists argue signers or speakers invoke certain linguistic resources to assume a particular social position, it is often implied that they are highly agentic. Yet, Cameron reminds us that we should also pay attention to “what determines the expressive resources available” to

³Within D/HH communities, there are debates over whether deafness should not be talked about under the umbrella of disability (Lane, 2002; Eckert & Rowley, 2013). In this thesis, I work with oral D/HH people. Oral D/HH people were disabled by the society since the moment when they were sent to schools where hearing people dominate everything. Deaf speech is pathologised and awaits treatments. In this sense, the discussion of deaf speech is very much about disability. In this thesis, I talk about audism in the sense that hearing people consider deaf speech is biologically impaired and should be corrected. In this thesis, in most of the cases, audism can be discussed under the ideological framework of ableism. If specifically talking about how hearing people oppress the use of signed language, I stick to the term audism.

particular social groups. That is, ‘langaugers’ (Henner & Robinson, 2021b) are not completely free agents; instead, they choose from a limited range of options which a certain system makes available (Cameron, 1990). The linguistic resources that can be used to perform hearingness are made available by the social structure that privileges hearingness; nevertheless linguistic resources indexing deafness are institutionally discouraged, suppressed, and excluded through social engineering like medicalisation. Specifically, we should be careful not to take an over-optimistic stance towards how D/HH people can make use of spoken language variation to assume hearingness and resist the oppression hearing people impose upon them. We should acknowledge the violent ableist nature underlying such performative hearingness.

1.2 Locating Social Factors in Linguistics of Pathologised Speech

1.2.1 The inadequate “difference model”

We lack a sociolinguistics of pathologised speech probably due to the division of academic labour between sociolinguistics and speech-language pathology (SLP). However, since the “first wave” variationist sociolinguistics emerged in the 1960s (Eckert, 2012), sociolinguists have countered the “deficit model”, in which certain nonstandard varieties (e.g., African American Language) were once regarded as naturally inferior, thereby being in need of medical calibration (Edelsky et al., 1983; Wolfram, 1993; Wolfram & Schilling-Estes, 2006; Heller & McElhinny, 2017).

From the perspective of critical disability studies, oral speech is given a “dignified position” in “shaping central questions of what it means to be human”, and to conserve such an ideological link between performing speech and performing the human, “voices not deemed rational and intelligible” have been excluded and erased through institutional powers like speech-language

therapy (St. Pierre, 2015, p.330). For example, Reno (2012) discusses how Picture Exchange Communication System (PECS) is seen as an “unnatural” way of language learning for autistic children by parents. PECS is a tool with which autistic children can express themselves without using their vocal voices. Reno points out that when speaking with the PECS, autistic children are regarded as “spoken objects” instead of “speaking subjects” – they are spoken for by a non-human tool rather than speaking by themselves. Reno points out that there is an ideology that humans are different from animals because humans have innate language acquisition device which allows us to naturally absorb words and convert them into language. This ideology makes the parents believe that when their children speak with PECS, they are actually less natural and less human-like. In Montiegel’s (2021) ethnography in a pre-school classroom, she also found that teachers frame vocalisation as a “moral practice that is necessary for the mutual understanding”; performing social actions by body gestures is discouraged – for example, gesturally imitating someone rather than verbally describing what they did.

In such oralist ideology, it is not simply using the voice that defines being human; being human necessitates speaking in a restricted range of ways. Since the 1960s, hearing people have described D/HH voice qualities as “tense”, “flat”, “breathy”, “harsh”, “throaty” and so on (Wirz, 1991, p.285). D/HH people have also been reported to produce ‘unnatural’ speech (Wirz, 1991, p.284). When Charlie Swinbourne, a deaf journalist, responded to hearing people’s mockery of a Deaf football player, he argued that “Deaf voices are simply the natural sound of a person who has never heard. Why should anyone be mocked because of that?” (Swinbourne, 2012). That is, the natural way of speaking for the D/HH is not how they naturally talk. The hearing way of speaking is considered the natural way of speaking that D/HH people should acquire, even if they need to unnaturally spend extraordinary costs (emotional, financial, time, and even physiological, if one receives cochlear implantation) to acquire a hearing accent.

As early as in the 1950s, speech researcher Wayland Parrish (1951) pointed out that the concept of ‘naturalness’ is problematic. For example, he noticed that people praised a reader’s performance for the ‘naturalness’ of their speech, even if they had no idea how the reader ordinarily talked. He argued that the naturalness actually referred to how the reader’s way of speaking seemed natural to the material or the character they represented. That is, when people talked about ‘naturalness’, apparently they were not talking about how a reader practiced being themselves by talking ordinarily. Instead, a “natural speech” is a “good speech when it seems natural to a properly qualified audience” (Parrish, 1951, pp.451). To put it another way, naturalness is socially constructed and construed. To say a person’s speech is not natural is saying that a person’s speech is not ‘good’ for their interlocutors. Such an evaluation of speech surely operates within a symbolic order where dominant social groups decide which of the linguistic varieties is the good variety (Bourdieu, 1991).

Usually, sociolinguistics resists the deficit model in which certain ways of languaging are considered in need of calibration. Instead, a “difference model” is adopted (Heller & McElhinny, 2017). (Some) pathological varieties have been proved to be legitimate varieties for having well-formed and autonomous linguistic structures⁴. These varieties are misrecognised within a violent power asymmetry between the dominant and the dominated. Varieties like “ethnic dialects” and “regional dialects” were thus de-pathologised.

In some cases, an identity is de-pathologised, and then its associated way of languaging is de-pathologised, for example, the so-called ‘gay-lisp’ (Munson, 2010). In some other cases, an identity is not pathologised, so its associated way of languaging is supposed not to be pathologised, but people still seek reasons for pathologising it. For example, in the United States, speech-language pathologists suggest women avoid using vocal fry because it attracts negative evaluations from others (Anderson et al., 2014)). In this case, it is

⁴Although not the focus of this thesis, from the perspective of de-colonising sociolinguistics, claiming a way of languaging has its own structure is however a problematic strategy to practice de-colonisation, as it reproduces the established hegemonic epistemology on what is considered a legitimate way of languaging, see Leonard (2021).

really clear that such pathologisation is completely driven by sexism, so the subjectivity of the listener is foregrounded (Chao & Bursten, 2021).

A middle ground seems to exist between sociolinguistics and SLP. Certain nonstandard forms of speech are still considered lesser linguistic varieties and receive little discussion on a possible de-pathologisation, thereby remaining pathologised. Linguistically, it may seem that one of the reasons underlying a not-yet-problematised pathologisation for those pathologised varieties lies in the high speech variability within a pathologised speech community like D/HH people, so the framework of speech community (which emphasises a shared way of languaging among its members) does not work. However, ethnic dialects such as the so-called African American Vernacular English also are not homogenous, but they receive attention from sociolinguists after social movements like the civil rights movement in the United States. Then, the lack of de-pathologisation of language use among linguistically pathologised groups actually results from a political power asymmetry between abled people and disabled people which has usually been backgrounded in public discussion on social inequality. In addition, the nature of disability rights movements is about the collective experience of oppression among different disabled groups. For non-linguistically disabled groups, language is usually not a site where disabled-bodiedness is embodied. Even in disability studies, linguistically disabled people receive little attention (St. Pierre, 2012). It is then unsurprising that the pathologised language use in disabled people has not become a focus of variationist sociolinguistics.

In addition to the absence of linguistically disabled groups in the political and academic agenda, linguistically disabled groups are also absent in the indexical fields of their own linguistic varieties. Calder (2021) reminds us that indexicality is interpreted by certain perceivers, and sociolinguists need to be careful about who interpret the connection between linguistic features and indexical meanings. As linguistically disabled groups are marginalised in or even excluded from activities led by abled people, abled

people often do not think of them when witnessing their linguistic practices. For example, in a perception study (Cowie & Douglas-Cowie, 1992), without knowing the speakers are D/HH, hearing listeners evaluated D/HH speech as indexing illiteracy, psychological disorder and disability which may have “a substantial cognitive component” (1992, p.170). In November 2019, a Taiwanese D/HH video game streamer Hemao (禾卯) published a YouTube video⁵, titled “I have hearing loss. In fact I can’t hear sounds” to respond to trolls’ negative comments on his accent where his accent was described as sounding “retarded”, “disgusting”, “unpleasant”, “fake lisping” and “not speaking properly (intentionally)”. No one thought of the possibility that Hemao might be deaf or hard of hearing.

Hemao therefore disclosed his deafness to call attention to the real identity that should be indexed by his accent. As Hemao used to livestream without showing his face, this video was the first one where the audience could see his face.



Figure 1.1: Hemao screenshots some of the negative comments towards his accent. English translation is added by me.

Ironically, while Hemao emphasises how his pronunciation indexes

⁵<https://www.youtube.com/watch?v=Cyzm5MjFZDo> [accessed on 6 December, 2021]

his deafness, most of the comments put their focus on how Hemao is good-looking and how Hemao's pronunciation sounds "cute" (which is supposedly an evaluation emerging after seeing his face). It seems that most of the comments still avoided commenting on deafness (disability). The participants of this thesis also experienced something similar. Some of them mentioned that they were often mistaken for foreigners, and when they revealed deafness, their (hearing) interlocutors usually didn't know how to properly respond and just changed the topic.

Performance theorists developed the concept of "acoustic shadow"; to capture how one's subjectivity is systematically excluded and thereby inaudible when they voice (Eidsheim, 2008; Marshall, 2014). A similar phenomenon is seen in Inoue's (2006) theorisation of the semiotic process of "indexical inversion", which captures how male Japanese intellectuals constructed the linguistic features of women's language after they claimed there existed women's language, through 'reporting' how women talked and naturalising this indexicality. The male intellectuals then further argued how women's language indexed how women became corrupted by modernisation. When women voice, for male intellectuals, it was not important what the women said; they cared about how the women spoke and interpreted the way of speaking as indexing something else. Likewise, the subjectivity of D/HH speakers falls in the acoustic shadow in a society dominated by hearing people. We see a process initiated by hearing people to deny being the interpretant (in Peircean sense) of the indexical relationship between D/HH accents and deafness, even when they have been exposed to the indexical field where deafness is present in Hemao's discourse. There can be many reasons. Hearing people might find talking about one's deafness being 'blunt' or 'rude', for they see deafness as a deficit; it might also be because hearing people are not interested in deafness at all. From the perspective of hearing people, it seems that they have already blocked off the indexical fields of the phonetic features induced by deafness and excluded "deafness" from the indexical fields. This is a process of "indexical blockage".

To work a “difference model”, we need two social groups whom we can compare to see the difference; a “difference model” has also been invoked to respond to how laypeople stereotypically understand the linguistic difference between social groups. When oral D/HH people are erased from abled people’s perception of the world in everyday life, they become people who are not comparable with the dominant group. As few hearing people comment on the indexical relationship between deafness and certain linguistic features, a “difference model” then appears not urgently needed. This applies to other linguistically pathologized groups as well.

Interestingly, although variationist sociolinguists have not paid much attention to pathologized language, first-wave-like approaches to macrosocial demographic factors have been adopted by speech-language pathologists. In the next section, I introduce how approaches to social factors included in speech-language pathology have also failed to be inadequate for studying D/HH accents sociolinguistically.

1.2.2 Speech-language pathology

Speech-language pathology (SLP) has taken social factors into consideration, thanks to the efforts made by first wave sociolinguists (Wolfram, 1993). The first wave sociolinguistics locates speakers in the society by borrowing Durkheimian macro-sociodemographic concepts (Woschitz, 2019), such as social class, gender, ethnicity, etc., as pre-given static categories to account for linguistic variation. Such methodology has influenced how SLP looks at pathologised linguistic varieties, probably because these social categories are easy to operationalise in empirical research. SLP has started taking macro-sociodemographic categories into consideration, probably because these social categories are easy to operationalise in empirical research. Yet, the ontology of such linguistic variation remains the same. Sociodemographic categories serve as “risks” which contribute to speech-language impairment.

One of the primary concerns in SLP is to determine **risk factors** that

may contribute to the developmental course of speech-language impairment. These include “cognitive risk”, “biological risk”, and “environmental risk” (Conti-Ramsden & Durkin, 2016). In the category of environmental risk, lower parental education and/or socioeconomic status (SES) are considered risk factors that may impede children from acquiring language in the manner in which language is considered typically developed (Conti-Ramsden & Durkin, 2016, p.26).

For example, in terms of the speech development of D/HH children, Geers (2006) reported that D/HH children (with early cochlear implantation) achieve a higher “spoken language score” if the parental SES is higher. Other studies found that parental education is correlated with the language development of D/HH speakers (Halliday et al., 2017), but it does not influence the speech development of children who participate in the same speech-language therapy (Hogan et al., 2010). That is, higher parental SES may give rise to better access to speech-language therapy, thereby leading to a better command of hearing speech. However, there is also research reporting the opposite finding. Parental education is not found to correlate with the language development of accusative clitic production among French-speaking D/HH children (Tuller & Delage, 2014). The nonword repetition scores of Swedish-speaking D/HH children do not correlate with parental education, either (Sundström et al., 2018).

We can see how the research interests of SLP in social factors are rooted in the conception of risks. That is, in SLP, speakers are victim to socio-economic disadvantages that ‘harm’ them. The approaches to macrosocial factors in SLP are like those found in cultural deficit theories, in which individual language impairment is considered a product of the lack of access to “cognitively and linguistically rich environments” in households (Heller & McElhinny, 2017, p.206).

Technically, SLP and first wave sociolinguistics, when looking at how pathologised speech is socially patterned, should not differ in their findings.

However, the two fields differ in ontology as well as research aims and questions. First wave sociolinguists try to identify the “orderly heterogeneity” (Weinreich et al., 1968) in variable patterns of language, and see such variability as a norm of human language. Yet, SLP sees the variability resulting from social factors as things to be fixed.

Sociolinguists reject the “deficit model” (Heller & McElhinny, 2017), thereby not seeing the social background which leads to nonstandard linguistic varieties as a ‘risk’. For first wave variationists, the social organising principle (e.g., social class) per se is not the source of variation; instead, the important mechanism that should be foregrounded is how the mappings between macrosocial categories and language use come into being (Woschitz, 2019). With such understanding, the social hierarchy existing among different linguistic varieties should be recognised as a violent symbolic order (Bourdieu, 1991) in which certain linguistic varieties are negatively evaluated in the interests of the dominant groups. Yet, for SLP, certain linguistic varieties receive a negative ontology naturally rather than ideologically. It is these pathologised varieties that impede users from having ‘normal’ lives. Such a problem concerning ontological difference, of course, cannot be resolved by division of academic labour.

Nevertheless, it seems little variationist research has been motivated by a positive or at least neutral ontology of pathologised speech. Linguistic anthropological work on American Stuttering English (ASE) speakers done by Dumas (2012; 2016) may explain this gap to some extent. Dumas found that some ASE speakers adopt different ways of speaking when talking to American Fluent English speakers and ASE speakers. However, Dumas (2012) noticed that ASE speakers do not seem to explicitly consider ASE as an important component of their identity; instead, ASE speakers also consider their own stuttering variety pathological (Dumas, 2016). Ableism is such a hegemony that there is little space for pathologised speech to be compared to other sociolinguistic variation. The case of ASE speakers demonstrates how even

the speakers of pathologised speech are also stuck into the way how ableism frames particular types of speech. It is not rare that the speakers dissociate pathologised speech from their subjectivities (see [Lockenvitz et al., 2020](#); [Isaacs, 2021](#)). It is then not difficult to imagine how sociolinguistics as a field dominated by people whose linguistic varieties are **not** pathologised has considered pathologised speech accountable only through a pathological lens.

Yet, social factors are irreducible to static social categories. Social factors also concern the processes through which the pathologised speakers negotiate with the pathologised varieties. When social factors are reduced to only static social categories, researchers are implying that speakers of pathologised speech do not exert speaker agency in negotiating subjectivities. As sociolinguistics has been moving on, we have had more theoretical tools to situate speakers of pathologised speech in a sociolinguistics world where they employ linguistic resources to achieve social purposes in agentive ways.

1.2.3 Clinical sociolinguistics

Ball ([1992](#)) proposed the idea of “clinical sociolinguistics” to enrich clinicians’ understanding of social factors that may affect patients’ language use (also see [Ball, 2005](#)). In the same way that linguistic variation is treated in first wave research, Ball divided “clinical sociolinguistics” into the study of inter-speaker variation (what he called “speaker variability”) and the study of intra-speaker variation (what he called “environmental variability”)([Ball, 1992](#), pp.157–158).

For the inter-speaker variation, the main message for clinicians is that they should not misrecognise linguistic variation derived from social class, regional, gender, or age as a pathological feature. However, such sociolinguistic contribution in clinical settings also leaves a sociolinguistic lens functioning like a medical separator, which extracts macro sociolinguistic variation from the speakers (also see [Oetting et al., 2016](#)) and preserves the macro-sociolinguistically unaccountable variation in the conical flask as a legitimate object for pathologisation.

For the intra-speaker variation, Ball reminds that clinicians should be aware of “the observer’s paradox” (Labov, 2006), in that:

“[i]f all we can gain on occasions is a speech style radically different from that used by the speaker with the friends and family, then we are in great danger of making a false analysis of the linguistic repertoire and abilities normally open to the patient.” (Ball, 1992, p.158)

Ball argued that it is likely that speakers with phonological disorders may “produce, under the extremely formalising context of the speech therapy clinic and perhaps of a formal test situation, phonological contrasts [...] that they do not employ in casual speech” (Ball, 1992, p.158). In other words, for clinical sociolinguistics, what can be observed at a clinical setting may not be an **authentic** representation of a speaker’s ‘normal’ linguistic proficiency in non-clinical settings. The implicature is that speech-language therapists should work with their clients to assure the target variants become the ‘normal’ speech styles in everyday life. This belief not only denies the legitimacy of pathologised linguistic features in all contexts but also negates the agency which pathologised speakers exert in clinical settings to assume abled-bodied speakerhood and reduces the linguistic practices as simply products of external pressure imposed upon the pathologised speakers.

In their discussion on how sociophonetics can inform clinical linguistic assessments, Docherty and Khattab (2008) mention how clinicians are often biased by their own standard language ideologies to evaluate whether their clients demonstrate pathological linguistic features. They point out that the idea of normalcy should not even be about how a community as a whole defines acceptable linguistic variants; it should be defined by speaker to speaker, as everyone has a different acceptable normalcy. That is, we should start a clinical sociolinguistics by foregrounding individual practices instead of community norms.

The framework of “clinical sociolinguistics” also faces the same problem

as many of the early variationist sociolinguists did – the ideology of **authenticity** (Coupland, 2007, p.179). Seeing the “conscious” speech adopted in a formal setting like reading tasks as imposed, aloof, and unreal, some early sociolinguistic studies instead pursued the vernacular, which was considered natural, down-to-earth and authentic (Eckert, 2003; Coupland, 2007). Coupland (2007, p.182) points out that, the idea of an authentic speaker (and speech) might be the underlying reason for why variationist sociolinguists paid low attention to style – style-shifting was regarded as “a movement away from the true vernacular system”. In fact, the differentiation of the social from the natural (i.e., the authentic) is an ideological construct (Eckert, 2003). There is much worthy of investigation within a conscious speech. For example, a conscious speech is often a site where speakers actively perform various axes of the self (e.g., Schilling-Estes, 1998).

This thesis does not aim to portray the most natural or authentic speech of D/HH speakers, if any. This thesis also considers normalcy as a context-dependent concept, in that the linguistic practices at every moment are equally normal. Throughout this thesis, I emphasise the legitimate speakerhood with which D/HH speakers employ different speech styles to achieve different social purposes in different situations. I consider every speech style as an authentic speech act, informing us how D/HH speakers invoke particular linguistic resources to relate themselves to the hearing-dominated world. That is, rather than viewing D/HH speakers’ performance of a certain phonemic contrast in a clinical context as an inauthentic representation of the speaker’s ‘natural’ speech, I regard it as a moment in which they attempt to accommodate to the audist expectation for them. It is not less authentic, nor more authentic, than the moment when they use another speech style to their family.

Then, another question emerges as to how a clinical setting is so extraordinary that we need a clinical sociolinguistics. If linguistic practices observed in a clinical setting share the same sociolinguistic mechanisms with those observed in the urban centre, the department store, and the countryside,

why do we need a unique term for speakers of pathologised speech? By “clinical”, it implies disabled speakers do not share the same sociolinguistic mechanisms as abled speakers do, so being “clinical” is being exceptional. This thesis aims to highlight that speakers of pathologised speech are not unusual speaking subjects; what makes them unusual is the norm imposed by abled people.

If we are talking about how clinical settings can broaden and deepen the scholarship of sociolinguistics, the focus should not be on the term “clinical”. Instead, we should put focus on how speakers of pathologised speech negotiate with the ableist **gaze** in a clinical setting, not the clinical setting per se. The speakers might cater to the ableist gaze; they may also resist such a gaze and even challenge or diverge from an abled speech. Jon Henner and Octavian Robinson are theorising “Crip Linguistics” (Henner & Robinson, 2021b), which concerns how “different people language in varying ways” and radically challenges the idea of language disorder by decentring the normal distribution and considering the margins as “a valid part of being human” (Henner, 2021). In line with the crip linguistics perspective, this thesis is focused on how D/HH people, located at the margins of Taiwan Mandarin speakers, employ spoken language variation as semiotic resources to negotiate with the centre part of normal distribution which is deemed as the superior (i.e., hearingness).

1.3 Locating Pathologised Speech in Sociolinguistics: ‘Style’ and ‘Style-shifting’

As discussed above, our sociological imagination about disabled speakers has been limited by SLP. We tend to see a linguistic feature that is relevant to a pathology to be completely explained by that pathology, rather than being a site where sociolinguistic meaning-making can take place. Speakers of pathologised speech are more than physiological beings, and highlighting this

fact is indispensable for linguistics as a field.

With a third wave variationist perspective (Eckert, 2012), this thesis foregrounds “individual linguistic practice” rather than external macrosocial factors. That is, I put emphasis on what social meanings speakers actively perform by exploiting linguistic resources, instead of what external social factors shape how speakers talk. While one specific linguistic feature may be associated with a variety of indexical meanings in society (hence an “indexical field” (Eckert, 2008)), which indexical meaning is invoked and performed depends on a person’s unintentional or intentional choice in a particular situation.

For instance, recent work on language and sexuality has been enriching our understanding of “style” in sociolinguistics (e.g., Levon, 2007, 2009; Zimman, 2013, 2017, 2018). The focus is not on for example, whether gay men really speak differently from straight men, or whether trans women really talk like cis women. Instead, sociolinguists pay attention to how the society perceives a link between certain linguistic qualities and particular human qualities (i.e., sexualities) – how sexuality is stylised through linguistic resources. **Style** is “a way of doing something” (Coupland, 2007, p.1). We may have many ways to say the same thing, in terms of referential meanings. Yet, language is more than representing a referent. Besides its referential value, a way of speaking or signing can be interpreted in iconic and/or indexical ways (Hanks, 1996). Speakers or signers shift to a speech or sign style because it is associated with a specific social meaning. When we adopt certain linguistic resources to perform particular social types of human beings, we are styling and becoming those social types of human beings. Talking about how language contributes to the construction or performance of a particular axis of the social self, sociolinguists do not argue language plays a necessary part in the management of self-presentation (i.e., linguistic determinism); instead, sociolinguists are interested in how different qualities of language **can** become exploited to serve self-presentation. For instance, Zimman (2016) talks about

how a trans man feels comfortable using traditional feminine speech features after he has been read as a man by others. That is, language is not always involved in self-presentation.

Sociolinguists have developed various models to explore the mechanisms underlying how people travel between different linguistic styles, i.e., style-shifting. In the Labovian paradigm, style-shifting is considered the product of “attention paid to speech” (1966). Labov argues that when speakers and signers pay more attention to their language production, the use of stigmatised language style may rapidly drop, and speakers and signers may instead shift to a standard language style, which is usually a prestigious style (Labov, 2006). Yet, speakers and signers do not always shift to a socially standardised style when they are highly conscious of their own language production. More attention paid to speech, in Labov’s terminology, is a “careful speech”. It is not always the case that when speakers and signers are careful about their own language production, they shift to a shared speech/sign style. To put it another way, when people take a selfie, we are very conscious about how we look in the photo. However, it does not mean we always attempt to look neat and tidy when taking a selfie. Some might attempt to look terrible or make a face in a selfie. It depends on what social meanings we would like to convey through this selfie.

Read speech is usually considered a highly self-conscious speech. Compared to conversational speech, reading tasks elicit more attention paid to speech from speakers (Labov, 1973). In some cultures, read speech is conventionally associated with specific speech styles. For instance, Gafter (2016) observed stigmatised Mizrahi (Middle Eastern) variants being elicited from Hebrew speakers of Mizrahi descent in Israel, for reading is an activity which is rooted in Mizrahi tradition. In contrast, for some people, they may not have any idea about what they should do when reading a wordlist or passage. For instance, adolescent speakers of Glaswegian vernacular were seen to not shift to the regional standard speech in a wordlist reading task (Stuart-Smith

et al., 2013). Instead, their use of all possible non-standard variants increased in the wordlist reading task. The non-standard variants were used to signal a stance toward the task itself, for these adolescent speakers did not seem to take it seriously but rather laughed and commented on the words. The researchers point out that reading a wordlist for a recording is “an unusual thing to do” for these speakers (Stuart-Smith et al., 2013, p.513).

Alternative models have been proposed to highlight the **active** nature of style design. Accommodation theory (Giles & Williams, 1992) and “audience design” (Bell, 1984) are proposed to highlight the style-shifting in which speakers and signers style in response to their interlocutors or audience. Yet, speakers and signers do not always style to cater to their audience; they may style to perform identities, self-images, or social personae through invoking language styles that are associated with particular social images, or even creatively reorganising the established linguistic resources and assuming new social meanings (Eckert, 2000). It is the active nature of style design that this thesis highlights throughout the analysis of read speech among D/HH speakers.

1.4 Positionality

I am a hearing cis man raised in New Taipei, Taiwan. When I am writing up this thesis, I am at the age of 28. Most of the fieldwork was done when I was 25 or 26. My first and dominant language is Taiwan Mandarin.

Very often, people asked me what brought me to this research topic. My participants are very interested in this question, as in their understanding, only D/HH people are interested in social issues relevant to deafness. I would like to approach this question from a biographical perspective.

When I was at junior high school, I had a classmate – Wei-Fei (pseudonym) – who is deaf and was heavily bullied. In addition to physical bullying, people mocked how he said “don’t force me”, and they called him by how he pronounced that phrase in order to mock him. After finishing junior

high school, Wei-Fei only keeps in touch with me (according to him), for I was one of the only persons who ‘helped’ him with his coursework (mainly Mandarin and English) and reported these bullying incidents to our homeroom teacher. When I assisted him in his coursework, I had the feeling that it was quite absurd to ask Wei-Fei to speak Mandarin, let alone English, but I didn’t have the knowledge or awareness of systematic oppression at that time.

Not until my undergraduate study did I develop an awareness of systematic oppression. One day, Wei-Fai complained to me that he needed to pass a standardised English test (e.g., TOEFL, IELTS, TOEIC, and the General English Proficiency Test in Taiwan), so he can graduate from his university. He said, he would never be able to graduate. Many universities in Taiwan have this graduation requirement of English proficiency due to the so-called “internationalisation of the higher education”. Yet, I had no idea that these universities also asked D/HH students to take these standardised tests of which English listening comprehension is a main part. I suggested Wei-Fei to talk to the people in charge of disability adjustment in his university and tell them how ridiculous this requirement is. A few months later, Wei-Fei told me the person in charge of disability adjustment brought his complaint to a university-wide meeting, and this requirement was then removed for D/HH students. Then, I talked to other D/HH students in my university, and I realised that some of them didn’t think of this requirement as something unfair to them and planned to strengthen their English listening comprehension to pass the tests. I brought this topic to a group assignment of a sociology course, and in our group project, we contacted different administrative departments of our university to inquire about why D/HH students were required to meet this graduation requirement. It was shocking that none of the people we contacted had any idea why this requirement was imposed on D/HH students. We collaborated with a deaf student to go through the process of examining whether they met this requirement, and it turned out that D/HH students could be exempted from the requirement only if they actually took the test, and proved that they were really terrible at the English listening comprehension part. This is, undoubtedly, a

humiliating process.

Following these things I heard, I decided to work on linguistic oppression of oral D/HH people for my bachelor's thesis. I messaged Wei-Fei to see whether he thought it's a good idea to look at how D/HH people negotiate with spoken Mandarin, and he was very excited about this research topic and became one of my main informants in my undergraduate project.

Not only Wei-Fei's experiences but also my personal experiences of standard language ideology brought me to the topic of this thesis. Taiwanese society has had a problem of standard language ideology since the Mandarin-only policy, and it does not only stick to Mandarin but also perpetuates to how people use English, Taiwanese Hokkien, and other languages (Hsu, 2018; Price, 2014; Lee & Su, 2019). I have experienced linguistic discrimination from various kinds of standard language ideologies, operating along the axes of ethnicity, race, sexuality, and social class. In various standard language ideologies, a major discourse is that individuals can work on their language use, seeking resources from language professionals. Lane (2002) points out that disability does not lead to the treatment, but the treatment leads to disability. It is widely believed that people can (and should) fix their language use via either language professionals, speech therapists, or accent trainers. Thereby, all the negative experiences of one's language use can be coped with at an individual level. Linguistic discrimination is thus not about systematic oppression but about how individuals do not work hard to deal with their own language use.

The discrimination against pathologised speech (including deaf speech) is very institutionalised – pathologised speech is believed to be naturally impaired. Kids who speak pathologised speech may be sent to speech therapists to correct the ways they speak. The institutionalisation of discrimination against pathologised speech rationalises people's negative attitudes toward the pathologised speech in the name of science and philanthropy. To my knowledge, in Taiwanese education system, kids speaking non-standardised varieties which are not pathologised are not sent to special programs to correct

their language use.

A perspective from disability studies fundamentally challenges the disabling nature of linguistic oppression. Especially in neoliberalised societies, linguistic oppression operates along the logic that linguistic abilities are purely individual. Individuals are agents who can rely on various educational/medical resources on the free market to develop their linguistic abilities (Park, 2016). Language learners are believed to be ‘fossilised’ when they perform ‘failed learning’ varieties different from certain imagined target varieties (see a critique by McGarry, 2008). Linguistically disabled people’s language performances are pathologised when they perform varieties different from abled people. The disabling regime firstly frames linguistic acquisition (of either L1 or L2) as a linear process with a universal path to a fixed goal (see Larsen-Freeman, 1997), after that defines some people as not having any agency and being reluctantly stuck in where they are in this acquisition path, and then creates expertises who can **enable** these people to move forwards on the acquisition path. It is however contradictory that individuals are framed as not having agency in their language use, thus being fixed to somewhere on the acquisition path, and at the same time they are considered having agency in seeking professional assistances to release their potential of language acquisition. This contradiction is resolved within mind-body dualism. Language acquisition is framed as a mechanical process located in the brain and is not not subject to any agentive control. Then, professionals (educators and therapists) are here to help you release the potential of your brain (in the name of ‘cultivating human capital’ (Park, 2016)), and the potential releasing process is also highly mechanistic. However, the starting point of the whole disabling logic is already problematic. People have agency in their language use; they are not completely subject to some mechanical phenomenon which fixes them to where they are on some acquisition path, if any.

I believed we need to block this disabling logic, and then the systematic oppression upon different social groups can no longer hide itself beneath

discourses which justify the link between individual abilities to freely use language and linguistic oppression. I may be wrong in holding this belief, but it was where this thesis departed from. This thesis demonstrates speaker agency among D/HH speakers who are usually considered subject to a mechanical process where deafness leads to ‘impaired’ language use.

I am a hearing person. I am always aware of potential issues with hearing researchers representing the voices of D/HH communities. I try to understand the experiences with spoken Mandarin among D/HH people from my personal experiences with spoken English and other kinds of oppression along social axes such as ethnicity and sexuality. However, I am conscious that our experiences exist along different lines of oppression and are not able to be compared. I try not to impose any presupposed perspective on disability when analysing the data. Yet, I personally hold the perspective that disability has a major component of systematic oppression, which makes me find it relatively difficult to agree with the discourse of disability as a pure biological condition. I need to point out that I tend to be critical of disability discourses which downplay systematic oppression of abled people. This is something which is hard to be ‘neutralised’ in the tone of my writing in some of the chapters.

Nevertheless, I need to emphasise that some of my participants downplay the systematic oppression of hearing people in the interview because they talked to me. I benefited from a reply from a Twitter exchange with Dr Jon Henner that performative hearingness ([Henner & Robinson, 2021a](#)) is at work when I find my participants do not tend to engage with a social model of disability in the interview. They are pressured to align themselves with hearing people. Actually, it is tricky to describe my role as a hearing researcher among D/HH people. Many participants seem to expect me to engage with a medical discourse to analyse their ‘mispronunciation’. When recruiting participants for this thesis, to prevent people from mistaking me for working on speech-language pathology or audiology, in the recruitment text (Appendix 7), I specified that I have no attempt to judge whether my

participants' pronunciation is "correct" or not, and that the purpose of this project is to describe the D/HH accent as what it is in reality.

Despite such clarification, most of the participants were still confused about what I was interested in. Some of the participants had experience taking part in clinical experiments, so they seem to think of hearing people interested in deafness as clinical scientists. More than one person told me that they knew there are hearing people working on hearing technologies, and there are hearing people working on speech-language pathology, but they had no idea what I was doing. They also happened to know no sociologist or anthropologist working with (oral) D/HH people in Taiwan. In other words, for the participants, when they engaged with me as a hearing researcher, they were engaging with the medical discourse of disability. It is important. While some of the participants may distance themselves from a medical perspective of deaf speech, the majority of them see me as a person who has the privilege to be knowledgeable about speech sciences.

Some of the participants were keen to know whether their speech sounded standard after participating in the reading tasks, even if I said I had no attempt to do so. Some also asked whether I could evaluate how different they sounded when turning off their assistive devices (Chapter 4), as they had participated in some clinical experiments before, but there was no way for them to know the results of those experiments. While it's contradicting my own belief, I think it is a way to appreciate their participation in my project (in addition to payments to participants), so I sent these participants short reports where vowel plots and written explanation were offered. If requested to offer them feedback, in the written explanation offered to the participants, I avoided using language that may reproduce the standard language ideology.

To better represent voices of D/HH communities, I presented all the three studies included in this dissertation to Taiwanese audiences in three different conferences or workshops, where I could receive feedback from deaf signers as well as oral D/HH people. I also published a research note which

has a similar argument to Chapter 4 in Mandarin (Wan, 2021c) and sent this research note to Squirrel, one of my participants, who is accustomed to reading academic articles to see whether he thinks my analyses are deviant from his understandings of D/HH communities. I also talked to some of the other participants about my research and arguments.

I also noticed that some participants were willing to participate in my study because of my education background. Some of them, after the interview, kept in touch with me because they wanted to know more about my experience studying abroad as well as educational achievement. The fact that I can research D/HH people's experiences in an English-speaking country has sufficiently shown how much privilege I have. In other words, I am not just a hearing person; I am a hearing person who can perform a prestigious kind of hearingness – cosmopolitan flexible citizenship (Ong, 1999; Kang, 2012). It is difficult for D/HH people educated in Taiwan to study abroad for a PhD degree and write about their own experiences in English⁶. Most of my participants struggled with English, and some of them even pursued cochlear implantation because they want to speak English. I would like to highlight my privilege here to indicate a possibility that my participants may generally tend to agree with me more than they do when working with other hearing researchers affiliated with local institutions.

This thesis puts more focus on how the D/HH participants differ in how they invoke linguistic resources from each other. It should be acknowledged that even in non-interactional reading tasks, the participants actually “performed” speech in the presence of me. There is always a component of accommodating themselves to, or resisting, the **gaze** (Loja et al., 2013) of a hearing person who has privileged educational background. Therefore, how my presence affects my participants' linguistic practices is taken

⁶For example, Grace, one of my participants, mentioned her negative experience attending a standardised English proficiency test: for the section of English listening comprehension, she requested to have it face-to-face rather than listening to audio clips; yet, the person who read aloud the text covered their mouth to prevent Grace from lip-reading, because they believed it would be ‘unfair’ to hearing people who listened to audio clips without having access to visual information.

into consideration where possible.

1.5 Participant Recruitment

This PhD project recruited D/HH adults who were educated in ordinary schools (hearing schools) and speak Mandarin as the dominant language. A total of 32 participants were recruited. Most of them were recruited through the Facebook group “公「聽」並觀，「障」義執言—聽障者權益論壇 Deaf and HOH forum Taiwan”; some were recruited through word of mouth. All the participants recruited for the thesis were based in Greater Taipei. No participant identified as indigenous people or second generation of Southeast Asian immigrants. That is, all participants and I are Han Taiwanese (see Chapter 2).

There were two stages of participant recruitment. The first stage happened between December 2018 and February 2019, during which 14 participants were recruited. The second stage was between January 2020 and August 2020, during which 21 participants were recruited, three of whom also took part in the first stage. The first study (Chapter 3) and third study (Chapter 5) analyse data collected during the first stage. The second study (Chapter 4) analyses data collected during the second stage. All participants were paid, to appreciate their participation in the project. I also offered them Scottish shortbread and British tea as souvenirs. Some of them declined to be paid but accepted the souvenirs, in order to enable me to recruit more participants. The funding was from the research support grant of School of Philosophy, Psychology & Language Sciences at the University of Edinburgh. Ethical approval for the study was obtained from Linguistics and English Language Research Ethics Committee at the University of Edinburgh.

The participants were mainly recruited from the Facebook group “Deaf and HoH Forum Taiwan” and by snowball sampling. I did not collaborate with any association or medical institution to recruit participants. This is to prevent from selection bias. Recordings were all done in quiet spaces in Taipei. The

primary recorder was Zoom H5. No data collected by a back-up recorder (the researcher's phone) were used.

1.6 Summary of studies included in this thesis

1.6.1 Study 1

Three studies are included in this thesis. In the first study (Chapter 3), D/HH speakers of pathologised speech are invited to participate in reading tasks to familiarise hearing people with D/HH accents. In the recruitment text, it is explicitly specified that this project has no attempt to evaluate the “correctness” of their pronunciation. I explore how the speakers, when given the opportunity to counter audism, style themselves through manipulating their linguistic performance in the reading tasks. I found that, the four speakers who have experiences of speech-language therapy all believe D/HH people should speak like hearing people do. Yet, only two of the four participants actually do such “performative hearingness” in the minimal pair reading.

By examining their metalinguistic comments on this project, I observed that the two speakers who do not style hearingness through linguistic resources in fact **background** individual agency when they talk about the relationship between D/HH individuals and the hearing-dominated society: they do not believe individuals have power to make a change in society. This finding gives fresh insight into the social nature of stylistic variability across different reading tasks. It is not always the case that linguistically disabled speakers converge towards the standardised abled variety when they are highly conscious of their own speech (c.f. [Ball, 1992](#)). It is also not the case that people always exploit linguistic resources to perform their orientation to a certain topic; we need to consider the individual difference in modelling one's relationship with society. This study has been published as a research note in the *Journal of Sociolinguistics* ([Wan, 2021b](#)).

1.6.2 Study 2

In the second study (Chapter 4), I employ sociophonetic methods to respond to the current debates over hearing assistive devices. Disability studies have extensively discussed how assistive devices can be a politically biased tool developed by hearing people to dominate D/HH people (e.g., [Campbell, 2009](#)). Yet, few have directly examined how the accent change “made available” by assistive devices can actually be partly understood as stylistic practice.

By acoustic methods, I look at the position of the three corner vowels produced **before** and **during** auditory deprivation (i.e., turning off hearing assistive devices). Through interview, I also categorise the participants into two groups: one group who experience negative affect, and the other group who claim experiencing nothing psychologically negative during auditory deprivation. For the participants who experience negative affect, their linguistic performance under auditory deprivation is different from those who display affectively neutrality. With the results, I argue that we should not consider changes in D/HH speech completely powered by the mechanical effects of assistive devices; instead, such phonetic changes are also powered by the agentive nature of style shifting. This article is accepted by *Language in Society* ([Wan et al., accepted](#)).

1.6.3 Study 3

In the third study (Chapter 5), I study the effect of topic, which has been considered to affect style shifting in robust ways. I examine the linguistic variable of the retroflex fricative in Taiwan Mandarin. I look at how D/HH people engage with this variable under a topic relevant to D/HH communities by inviting them to read aloud a story metaphorically portraying the relationship between hearing people and signing D/HH people.

I found that the participants take different stances toward the topic. Some of them distance themselves from the topic; some others instead show

involvement with the topic. The former group shift to the variant which indexes hearingness under the topic. The latter, in contrast, diverge away from the variant indexing hearingness when reading the story. This study demonstrates how topic-based style shifting can be motivated by stance-taking processes. It is also suggested that D/HH people differ in how they perform their relationship with a topic addressing audism to a hearing researcher. This article is accepted by *Asia-Pacific Language Variation* (Wan, accepted).

1.7 Format of this thesis

This thesis is presented as a thesis by publication. That is, this thesis consists of three published or yet-to-be-published journal articles. As a whole, they all act to create a picture of how (oral) D/HH speakers of Taiwan Mandarin make use of spoken language variation to negotiate with audism.

While the three studies are written as stand-alone articles, the context of Taiwan Mandarin and D/HH communities in Taiwan is moved to Chapter 2 in order to prevent overlapped text in each chapter. Thereby, if readers compare the published version of an article and its counterpart in this thesis, you may find differences between them.

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Chapter 2

Empirical Context

In this chapter, I firstly introduce the linguistic context in Taiwan in relation to its history. This is to situate the language use among D/HH people in the historical context. This is also to introduce how certain varieties of Mandarin are deemed more prestigious than the others in contemporary Taiwanese society, so that we have a basis for discussion on style-shifting where standard accent is involved.

2.1 Languages in Taiwan and Taiwan Mandarin

In contemporary Taiwanese identity politics, there are four main identities – Hoklo, Hakka, *Wàishěngrén*, and indigenous people. The first three groups belong to Han people. Before the arrival of Han people, Taiwan was home to indigenous (Austronesian) people. While indigenous people are considered one of the four main peoples in Taiwan, ‘indigenous people’ is actually a collective term for more than sixteen different Austronesian ethnicities. In some of the major indigenous Austronesian languages (e.g., Paiwan, Rukai,

Puyuma, Amis), Han people are called *Payrang*¹.

Taiwan saw the first waves of *Payrang* immigration from continental Asia in the 17th century across three periods: the Dutch people governed parts of western Taiwan (1624–1662 C.E.), Koxinga established his Kingdom of Tungning in southern Taiwan (1662–1683 C.E.), and the Manchurian regime of Qing China took over Taiwan (1683–1895 C.E.). The *Payrang* immigrants were mainly Hoklo people from Fujian. The minority of the immigration were Hakka people from Guangdong (a.k.a., Canton). Hoklo people spoke different regional varieties of Hokkien which then underwent a process of koineisation and led to a contact variety which is now addressed as *Tai-gi*, or Taiwanese (Tsao, 2013).

In the First Sino-Japanese War (1894–1895), Qing China was defeated, and Taiwan was ceded to the Empire of Japan in 1895. In the 1910s, Japanese people introduced deaf education to Taiwan, establishing two schools for the deaf in Tainan and Taipei. The Tainan school mainly employed teachers from Osaka, and the Taipei school employed Tokyo teachers, leading to a dialectal difference between the signed languages used in the two regions (Smith, 2005). Since the 1930s, the Kōminka movement was initiated to Japanise Taiwanese people, in order to mobilise Taiwanese people to be loyal to the Empire of Japan during the World War II. A part of the movement was to promote Japanese as the new lingua franca in Taiwan. During that period, if not before, deaf schools also taught students how to read and write Japanese (Liu et al., 2014).

After Japan surrendered in the World War II in 1945, the government of Republic of China led by *Kuomintang* (Chinese Nationalist Party, KMT) took control over Taiwan. To de-Japanise and re-Sinicise Taiwan, a Mandarin-only policy was implemented to replace Japanese with Mandarin as the new lingua

¹For Han Taiwanese, the term '*Payrang*' is believed to stem from the Hokkien word '*pháinn-lâng*' ('bad guy'). In contemporary usage, indigenous people have used it as a neutral term to call Han people in Taiwan. In this thesis, I use the term *Payrang* to refer to Taiwanese people whose ancestors migrated to Taiwan from 長山 (Hokkien: *Tîng-suann*; Hakka: *cong¹¹ san²⁴*), or continental China. This is to capture the historical fact that the majority of Taiwanese population were settlers, and most parts of the Taiwan island were the lands of Austronesian peoples until the late 17th century.

franca in Taiwan (Hsiau, 1997; Scott & Tiun, 2007).

The Republic of China government retreated to Taiwan in 1949, after KMT was defeated by the Chinese Communist Party (CCP) during the Chinese Civil War. Around one million refugees and soldiers came to Taiwan together with KMT (Yap, 2021). It was the second major wave of *Payrang* immigration. Most of them were not Hokkien or Hakka speakers, migrating from a variety of Chinese provinces. They were addressed by the government as *Wàishěngrén*, which literally means ‘people from provinces outside (Taiwan)’. In contrast, people who had lived in Taiwan before the Republic of China took over Taiwan were referred to as *Běnsěngrén*, which literally means ‘people from this province (Taiwan)’. This wave of *Payrang* immigration also brought in different varieties of Chinese Sign Language which further had contact with the varieties of Japan Sign Language used in Taiwan (Smith, 2005). Taiwan Sign Language was born in this process of language contact.

Wàishěngrén became the dominant group in Taiwan, and in contrast, *Běnsěngrén* occupied inferior social positions (Scott & Tiun, 2007). Hoklo people are still the majority of Taiwanese population. When Mandarin became the second language of Taiwanese speakers, a variety with phonological transfer from Taiwanese formed. It was referred to as *Taiwan Guoyu*, or Taiwanese Mandarin, which literally means the Taiwanese version of the national language. Yet, such a variety was in no way a prestigious variety, compared to the prestigious *Wàishěngrén* accent. Instead, since then, *Taiwan Guoyu* has been associated with “less educated rural residents” and therefore “congeniality and backwardness” (Su, 2018a, p.33). Even though nowadays most of the younger speakers are not speakers of either *Wàishěngrén* Mandarin or *Taiwan Guoyu*, the former is still evaluated as the most prestigious and professional Mandarin variety, whereas the latter is evaluated as the least prestigious and professional, amongst the five varieties (*Wàishěngrén* Mandarin, *Taiwan Guoyu*, Taiwan Mandarin, Northern Mandarin in China, and Southern Mandarin in China) examined in a verbal-guise study (Khoo,

2019).

With dialect-levelling taking place amongst the different Mandarin varieties spoken in Taiwan (Hsu & Tse, 2009; Her, 2010), a contact-induced variety resulted, which is usually known as **Taiwan Mandarin** (Kuo, 2005; Su, 2018b). Early sociolinguistics work on Taiwan Mandarin compared Taiwan Mandarin with the Standard Mandarin spoken in People's Republic of China, or *Putonghua*, in order to identify distinct features of Taiwan Mandarin (e.g., Cheng, 1985). In recent sociolinguistics work, regional variation within Taiwan Mandarin (Hsu, 2004; Liao, 2008; Fon et al., 2011; Su, 2012; Chuang et al., 2019; Khoo, 2020) has been explored. Other social factors which may motivate sound change within Taiwan Mandarin have also been investigated — gender (e.g., Su, 2012), education (Tseng, 2016), age (Kuo, 2018), student group (Baran, 2014), etc.

In 2018, “National Languages Development Act” was passed. By legal definition, all languages conventionally used by the local ethnic groups (including *Payrang* and indigenous Taiwanese) in Taiwan became national languages. Taiwan Sign Language is one of them. Yet, (Taiwan) Mandarin is still the *de facto* official language and the most widely-used language.

Below, I introduce some distinct features of Taiwan Mandarin which this thesis examines – vowel shift and alveolar-retroflex neutralisation. As this thesis does not examine lexical tones as linguistic variables, the tonetic shift in Taiwan Mandarin is not covered in the following section.

2.1.1 Vowel shift

Taiwan Mandarin has five vowels in its phonemic inventory (Wan & Jaeger, 2003; Fon, 2020) (Figure 2.1). Compared to *Putonghua* spoken in People's Republic of China, in Taiwan Mandarin, the high front vowels /i/ and /y/ are backed; the low vowel /a/ is raised (Chang, 1999a; Sanders & Uehara, 2007). For the back vowel /u/, the findings are inconsistent. It is found Taiwan Mandarin may have a /u/ that is more fronted than the /u/ in *Putonghua*

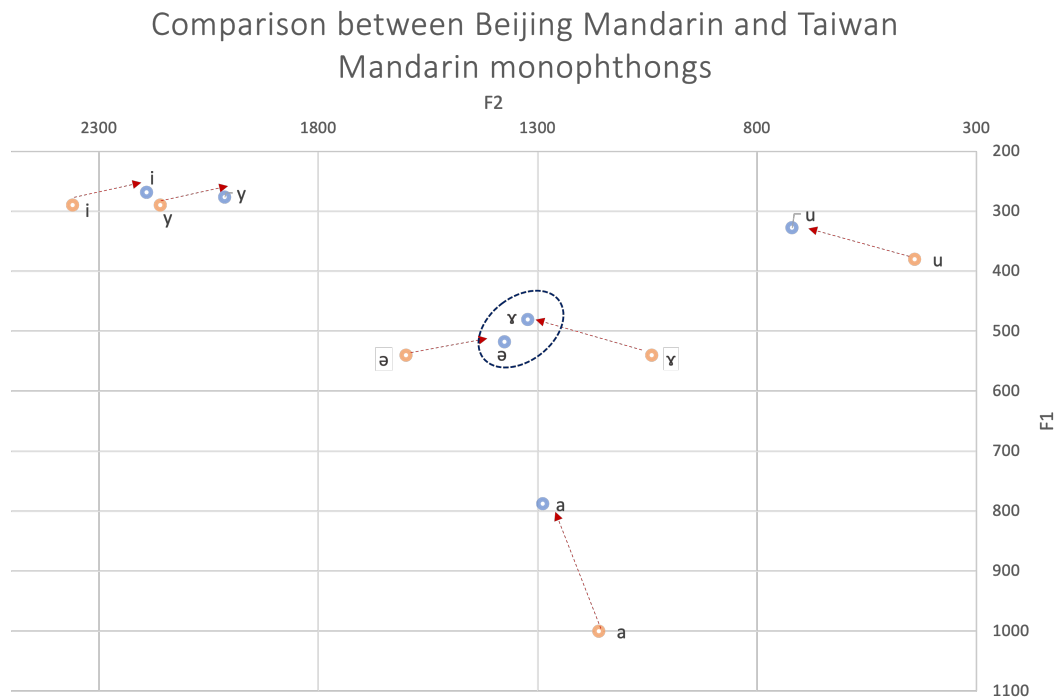


Figure 2.1: Monophthong comparison between Beijing Mandarin (*Putonghua*) (yellow) (Lee & Zee, 2003) and Taiwan Mandarin (blue) (based on Chang, 1999b)

(Chang, 1999a). Yet, Sanders and Uehara (2007) reported that a fronted /u/ was observed among men, whereas a backed /u/ was found among women. These differences have not become the objects of metalinguistic commentaries among non-linguists.

Sociolinguists have paid attention to phonological changes within Taiwan Mandarin, such as /ə/–/ɤ/ merger (Chang, 1999a; Sanders & Uehara, 2007; Fon, 2020) and /y/-delabialisation (Tseng, 2016). In contrast, the other vowel changes that do not alter the phonemic distribution have received little attention from sociolinguists.

2.1.2 Alveolar-retroflex neutralisation

Putonghua has a clear phonemic distinction between dentoalveolars /s/, /ts/, /ts^h/, and their post-alveolar retroflex counterparts /ʂ/, /tʂ/, /tʂ^h/. In Taiwan Mandarin, this phonemic contrast has been reported undergoing a process of

neutralisation, in the direction of dentoalveolars (Chung, 2006; Chang, 2012; Chang & Shih, 2015; Chang, 2017; Tso, 2017; Chiu et al., 2020). Although it was believed such neutralisation stemmed from the lack of alveolar-retroflex contrast in Taiwanese (i.e., *Tai-gi*), Taiwanese proficiency is found to have little effect on the production of this phonemic contrast (Fon, 2018).

Empirically, the alveolar-retroflex contrast has been a robust sociolinguistic variable in Taiwan (e.g., Chung, 2006; Baran, 2014; Tso, 2017; Kuo, 2018). For example, in conversational speech, a consistent realisation of full retroflexion is evaluated negatively, considered pretentious, unnatural and non-Taiwanese-like (Brubaker, 2012), and stereotypically associated with Mandarin speakers from People's Republic of China (Chen, 2018a). In elementary education, teachers put much emphasis on differentiating retroflexes from their dentoalveolar counterparts, as they are denoted by different phonetic symbols, i.e., *zhuyin fuhao*.

In terms of perception, such neutralisation has made the perceptual boundary between alveolar and retroflex sibilants shift to a higher frication frequency (Chang, 2012), which makes the distinction sometimes difficult to perceive (Jeng, 2009). The unmarked variant of this alveolar-retroflex contrast is therefore a near-merger, rather than a complete merger or a clear distinction (Brubaker, 2012).

By means of a matched-guise technique, Tso (2017) found that Taiwanese listeners tend to more easily perceive the alveolar-retroflex contrast if the visual stimuli is simplified Chinese characters, which index *Putonghua* speakers. Tso's study reveals that a clear alveolar-retroflex distinction is not typically associated with Taiwan Mandarin speakers. From the perspective of sound production, a small and systemic acoustic difference between alveolar and retroflex sibilants can be observed in read speech (Tiede et al., 2019; Lee-Kim & Lu, 2020). Chung (2006) also reports that speakers may hypercorrect dentoalveolars as their retroflex counterparts in read speech. In other words, an alveolar-retroflex distinction is still considered a standard speech style. In

contrast, a complete alveolar-retroflex merger is not socially favoured, as it indexes *Taiwan Guoyu* speakers, a non-prestigious speakerhood.

Recent third-wave variationist work has found that variants of the alveolar-retroflex contrast have been appropriated as semiotic resources at a vocational high school in a working-class area of New Taipei City (Baran, 2014). A full retroflex realisation is used by ‘office administration’ students to set themselves apart from the local working-class values and also project themselves as people who have plans to pursue higher education. In contrast, ‘electronics’ students adopt the neutralised variant to perform a non-academic persona.

2.2 Deaf and Hard-of-Hearing People in Taiwan

2.2.1 Social context

Since the 1980s, “inclusive education” has become the mainstreamed education policy for disabled children in Taiwan (Wu, 2007). For example, the number of disabled students studying at ordinary schools has increased by 14.8% between 2008 and 2017, whereas at schools of special education (including deaf schools), the number of students has decreased by 13.4% (Ministry of Education, 2018). The shift of pedagogy brings a number of parents of D/HH children to send their children to ordinary schools where they learn together with hearing children. Against this backdrop, all of my participants went to hearing schools. In contrast, 啟聰學校 *qǐcōng xuéxiào* (i.e., schools for the deaf) have received less and less students. For 2016, the only deaf school in the Taipei Metropolitan Area had 141 students, less than 15% of the total of number of D/HH students in the area (N = 1,014; Executive Yuan, 2016). In addition, as Taipei is the largest metropolitan in Taiwan, D/HH people in Taipei have greater access to medical resources including speech-language therapy and assistive technologies like cochlear implantation. Thus, they are more likely to be orally educated than those in other parts of Taiwan.

While Taiwan Sign Language (TSL) has become one of the *de jure* national languages, the oralist ideology is still predominant, considering acquiring spoken language as a priority. The dominance of English as a lingua franca in the world is another factor promoting the superiority of spoken language to signed language (Chen, 2018b). As spoken language and signed language are frequently constructed as mutually exclusive in early-intervention discourse, choosing spoken language over signed language is more than choosing Mandarin over TSL; it is concerned with the contrast between ‘Mandarin + English’ and TSL. For many hearing people, TSL is not a cultural or identity marker of D/HH people (Liu et al., 2014). Instead, TSL is frequently regarded as an alternative way of communication to spoken language.

The oralism that predominates society is also found within deaf schools. In Yuan’s (2008) self-study, he talks about how hearing teachers at the deaf school where he served his internship teaching were not all proficient in TSL and thereby often failed to communicate with TSL-signing teachers and students. Many of them used 手勢中文 *Shǒushì Zhōngwén* ‘Signed Chinese’, rather than TSL. Signed Chinese is invented by hearing people in Taiwan and is a way of signing that transliterates spoken Mandarin word-by-word to TSL lexical items. Hearing people call Signed Chinese 文法手語 *Wénfǎ Shǒuyǔ* ‘Grammatical Sign Language’, inherently carrying an ideology that TSL is less grammatical than Signed Chinese. As the latter is completely built upon Mandarin syntax, the naming practice of Signed Chinese reproduces the audist ideology that Mandarin is superior to TSL. In fact, most of the administrative and teaching staff of deaf schools are hearing people, and the dominant ideology among them is oralism: they seemed to believe that deaf children should be given opportunities to learn spoken language first, and if they fail to speak, Signed Chinese should be prioritised over TSL (Liu et al., 2014). By prioritising Signed Chinese over TSL, the way of signing that approximates the spoken language is framed as the more prestigious way of signing than the way of signing (i.e., TSL) which has its own structure and history of development. When teachers, the role model of students, are not required to be proficient in

TSL, it is not surprising to find that some D/HH students at the deaf school find oral D/HH people as a more desirable identity (Ann, 2003).

The way how D/HH students learn Mandarin at deaf schools is also under the influence of oralism. Most of the Chinese characters are logographs. That is, it is possible that one learns how to recognise a character and its lexical meaning with zero knowledge of its pronunciation. Due to phonocentrism, it seems not acceptable for hearing people that Mandarin users can only communicate in written Mandarin but not in spoken Mandarin. Mandarin languages have been equalised to Mandarin speakers. Deaf schools still put much emphasis on teaching students how to sign *zhuyin* finger alphabet so as to learn how to pronounce, read, and write Chinese characters (Liu et al., 2014), as if Mandarin users would not be able to language if they do not have knowledge of the spoken Mandarin phonology (cf., Chiu & Wu, 2016).

In fact, the word 啟聰 *qǐcōng xuéxiào*(3) literally means ‘schools for enlightening hearing’.

(1)	啟	聰	學校
	<i>qǐ</i>	<i>cōng</i>	<i>xuéxiào</i>
	enlighten	hearing	school

‘deaf school’

The Chinese character 聰 *cōng* contains the grapheme 耳 *ěr* (‘ear’) and has the meaning of ‘hearing’. 聰 *cōng* is also the morpheme which is seen in the word 聰明 *cōngmíng* ‘smart; clever’. The word derives from the phrase 耳聰目明 *ěrcōng mù míng*, which means ‘good hearing and sight’. That is, the morphology of the Mandarin word for being smart/clever inherits an ableist thinking in which being deaf and being blind are inferior. Naming schools for the deaf as ‘school for enlightening hearing’ is therefore about enlightening not only “hearing” but also “hearingness”. Hearingness is again the preferred

and more desirable way of living. When performing hearingness, one is also deemed more clever. Such naming practice is itself audist (Niu, 2014).

2.2.2 Identity labels

In Taiwan Mandarin, there are several terms competing for addressing deaf people, including 聾人 *lóng rén* ('deaf people'), 聽障者 *tīngzhàngzhě* ('people who have hearing impairment'), 聽損者 *tīngsǔnzhě* ('people who have hearing loss'), 重聽 *zhòngtīng* ('being hard of hearing'), 靜聽者 *jìngtīngzhě* ('people who have silent hearing'), and 聽友 *tīngyǒu* ('hearing (impaired) fellow'). Except for the first term, all the other ones emphasise one's non-normative audiological status.

First, 聾人 *lóng rén* usually refers to deaf people whose dominant language is signed language. The morpheme 聾 (*lóng*) means deafness. In Taiwan Sign Language (TSL) (Figure 2.2), the word *lóng rén* is also expressed as 'persons who can neither hear nor speak'. In actual use, 聾人 *lóng rén* can be roughly equivalent to the English term 'Deaf people' which highlights "Deafhood" (Ladd, 2003).



Figure 2.2: TSL expressions (from left to right): people who cannot hear nor speak; people who cannot hear but can speak; people who can hear and speak (Sign Tube 手語天地, 2017)

In spoken English, the term /def/ can be inclusive and refer to both deaf people and Deaf people. In contrast, in the writing system of Mandarin, there is no orthographic issue of capitalisation in relation to identity politics. To emphasise audiological experiences or Deafhood experiences, completely different terms need to be used. The former therefore preserves much of the medical model of deafness in the terminology.

While there are many different terms as mentioned above, 聽障者 *tīngzhàngzhě* and 聽損者 *tīngsǔnzhě* are the mainstream terms, referring to deaf people by highlighting non-normative hearing status.

- (2) 聽 障 者
tīng zhàng zhě
hearing disabled/impaired people

‘people with hearing disability/impairment’

- (3) 聽 損 者
tīng sǔn zhě
hearing loss people

‘people with hearing loss’

Recently, the latter term 聽損者 *tīngsǔnzhě* has been gaining popularity among oral D/HH communities because it does not directly link deafness to disability and is considered more of a neutral representation of a medical situation (Lin, 2019). Yet, usually, D/HH signers do not tend to refer to themselves as 聽障者 *tīngzhàngzhě* or 聽損者 *tīngsǔnzhě*. They instead prefer the term 聾人 *lóng rén*. According to Niu (2014), the previous chairperson of the National Association of the Deaf in Taiwan, generally Taiwanese D/HH people prefer to be addressed as 聽障者 *tīngzhàngzhě* or 聽損者 *tīngsǔnzhě*, which is very different from the context in Western countries like the United States and the United Kingdom. Niu points out that these medicalised identity labels are mainly promoted by major institutes of early-intervention for the deaf.

During the first stage of fieldwork of this thesis, I asked participants how they prefer to be addressed in terms of deafness. While there are different reasons underlying different preferences, most of the preferences are built upon

avoiding a negative connotation of a particular identity label. For example, XiaoFan, an undergraduate student, points out that she prefers to be addressed as 聽障者 *tīngzhàngzhě* ('person with hearing disability'). For her, the term 聾人 *lóng rén* ('deaf people') has nothing to do with a collective cultural identity, and it sounds "too blunt" (「太直接了」) by directly highlighting deafness. In contrast, 聽障 ('hearing disability') sounds like a jargon, so it sounds more formal. Huei, also an undergraduate student, instead prefers 聽損者 *tīngsǔnzhě* ('person with hearing loss') over 聽障者 *tīngzhàngzhě* ('person with hearing disability'). She used to be accustomed to being addressed as a person with hearing disability, but since she started learning TSL, she has reflected on the implications of the different identity labels. She aspires for being 聾人 *lóng rén* ('deaf people'). She also thinks 'hearing loss' is a medical term that neutrally represents her hearing status without implying 'hearing loss' is an obstacle, but 'hearing disability' implies how hearing loss seems to be necessarily an obstacle.

Kusters and colleagues (2017) suggest using the term 'deaf' to encompass different kinds of deaf persons, as the d/Deaf distinction creates a division within deaf communities, and the politics of capitalisation does not work in many other languages. Unlike 'deaf' in English, it is actually hard to represent all the different self-identifications among D/HH communities in Taiwan by one single word in English writing. As most of the participants were recruited through the public Facebook group “公「聽」並觀，「障」義執言－聽障者權益論壇 Deaf and HOH forum Taiwan”, I follow the suggested English translation offered in the group's name, and use both 'deaf' and 'hard of hearing' to address my participants. In this thesis, I thus adopt the English term **deaf or hard-of-hearing (D/HH) people** to simultaneously address people who do and do not define their identity by highlighting non-normative hearing status.

2.3 Mandarin promotion, ‘Read aloud’, and D/HH people

As part of the Mandarin-only movement propagated by Republic of China government, the government held nation-wide ‘National Language Competition’ since 1946. The ‘national language’ here referred to only Mandarin. The Competition included a speech competition at the beginning, and then added different items including read-aloud competition, composition competition, orthography competition, etc.

The speech competition and read-aloud competition are directly relevant to spoken language. The competitions are not only concerned with the message being communicated, and the speaker’s proficiency in Mandarin, but also about the speaker’s *accent*.

To win the competitions, participants are required to speak with a standard accent. The standard accent used in such competitions has been enregistered as 演說腔 *yǎnshuō qiāng* (‘accent for delivering a speech’) or 朗讀腔 *lǎngdú qiāng* (‘read-aloud accent’). Such an accent is oriented to Beijing accent and is hardly used by Taiwanese people in everyday life.

Since 1979, there has been a separate national language competition for D/HH people every two years. The ‘national language’ here can refer to Taiwan Sign Language or Mandarin. Oral D/HH students compete to win a prize in Mandarin competitions including speech and read-aloud competitions. Since the 2000s, probably due to the increasing popularity of early intervention and speech-language therapy, the emphasis has been not only about how the D/HH students can talk in Mandarin but also on how the D/HH students can talk like how hearing people talk. For instance, in 2000, United Daily News² reported that some students spoke very clearly and “almost showed no difference from”

²Tsai, Huei-Ping [蔡惠萍] 2000/04/16 Hearing disabled students’ Mandarin Competition: They really can do read-aloud [聽障生國語文競賽朗誦「不是蓋的」]. 聯合報第 18 版。

hearing people; ten years later, another report³ indicated that a student was ridiculed by her peers, saying she “talks with an braised egg in the mouth” [idiom, meaning ‘speak unclearly’], and this student thus purchased her first hearing aids and worked hard to speak with standard, then winning the first prize in the Mandarin speech competition. By these news reports, it can be seen that the standard accent used in Mandarin competition usually refers to the hearing accent.

As more and more D/HH children are involved in medicalisation prelingually, the expectation of how they speak has become more demanding. In 2016, United Daily News⁴ reported that an 8-year-old boy Kuo, who received a cochlear implant when he was 2 years old, was invited by the hospital where he received his CI to perform reading aloud in their CI support group. Such a performance was not simply introduced by the hospital to embody the effectiveness of CI; it also frames a way of speaking as an embodied practice of abled-bodiedness. Kuo’s mother told the journalist that when her son was 7 years old, his elementary school teacher found he had “a talented for” reading aloud. That is, reading aloud needs to be performed in a particular way rather than just reading something out loud in whatever ways. Kuo’s talent of reading aloud was then proved by being successfully trained to speak with *jīngpiànzi* [‘standard Beijing accent’], as how hearing people do a read-aloud accent. Kuo then won the first prize in the nation-wide D/HH people’s Mandarin competition.

Kuo’s case indicates that the speech standard of read-aloud amongst D/HH students has gradually converged toward the standard amongst hearing students (Figure 2.3). When reading aloud, D/HH students are expected to not only talk hearing-like but also speak with a particular read-aloud accent (i.e., Beijing accent). When journalists interviewed Kuo’s mother, Kuo interrupted

³Chi, Wen-Li [紀文禮] 2012/12/13 Ya-Chen Chuo won the first prize in National Speech Competition for the Hearing Disabled [全國聽障演講卓亞蓁摘冠]. 聯合報

⁴Hsu, Bai-Ying [徐白櫻] 2016/08/22. The 8-year-old “Blue Baby” speak standard Beijing accent [8歲「藍寶寶」一口標準京片子] <https://health.udn.com/health/story/5969/1910278> [accessed on 1 November, 2021]

the interview and told the journalist that “I hope all the parents should be like my mom. Don’t give up! There is always hope”(希望其他家長跟我媽媽一樣，不要輕易放棄希望！) Having an ability to speak with a Beijing accent becomes a prestige that D/HH people should positively evaluate and treasure, because it indicates that D/HH people and hearing people can set the same standard for performing prestige during reading something aloud.

The prestige attached to a Beijing accent is based upon a perception among D/HH people that Taiwanese hearing people speak with Beijing accent as their standard accent. Although hearing people do not speak with the read-aloud accent in conversational speech, speech-language therapists or schoolteachers teach D/HH students to speak in this way as it is the imagined standard speech. Even if D/HH people are not taught to speak in this way in conversational speech, they are fully aware of the “register demand” (Silverstein, 2003; Hall-Lew et al., 2021a) of reading aloud among hearing people –speaking with standard accent. To embody abled-bodiedness, D/HH people are not just expected to be intelligible (for hearing listeners); they are also expected to prove that they can do what hearing people can do in response to the register demand of reading aloud.

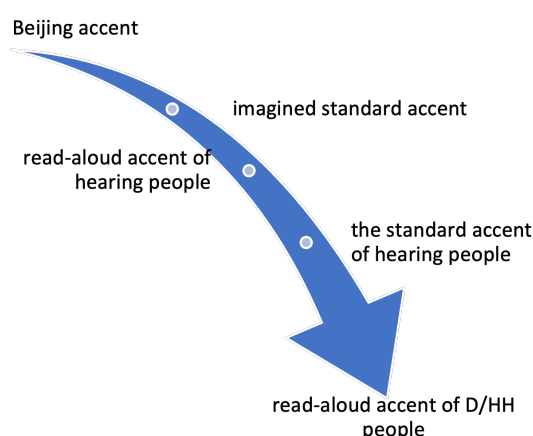


Figure 2.3: The development of indexical meanings of a Beijing accent

The boundary between hearing people’s accent and hearing people’s read-aloud accent is surely not so clearly cut for every D/HH person. For

instance, a participant of the current study, Canny, was fully aware that Taiwanese hearing people do not have retroflexion that is as full as the retroflexion demonstrated by hearing people from People's Republic of China. She was aware that a fuller retroflexion is perceived to be more standard. Yet, she had no idea that Taiwanese hearing people are merging the retroflex consonants into the alveolar ones. It is hard to say Canny perceived standardness from retroflexion because she thought hearing people in Taiwan did it, or because hearing people perceived it to be standard. In contrast, another participant – Kai – was highly aware that hearing people in Taiwan are merging the two phonemes; in this case, Kai's perception of the more retroflexed variant to be a marked variant has more to do with its standardness perceived by hearing people.

Although not every D/HH person has the experience of attending a Mandarin competition, they have become aware of the figure of personhood linked to reading aloud with a hearing people's accent (or hearing people's read-aloud accent). That is, reading something out loud in a standard accent is considered as a resource to embody one's abled-bodiedness and a social persona of being a successful disabled person who 'overcomes' disability.

Against this backdrop, the speech style that is used in read speech should be what is considered standard in one's stylistic repertoire by the speaker. With very different experiences with medicalisation, D/HH people do not share a single variety which indexes standardness. The linguistic feature that can index standardness can be different from person to person, dependent on one's biographical experience (see [Hall-Lew et al., 2021a](#)). Generally, for D/HH people who are highly involved in medicalisation of their speech, they are more aligned with the field of indexicalities developed by hearing people. For instance, Kuo knows what specific phonetic variants are considered prestigious by hearing people in the context of reading aloud, after training. In contrast, others who engage less in speech-language therapy or speech training have the idea that they are expected to shift to a speech style which can

perform hearingness when reading aloud, but they might not be familiar with how hearing people actually perform prestige through speech variation when reading aloud. Thereby, the linguistic features which these speakers exploit to perform hearingness may be very different from those exploited by people who are more oriented to the hearing norm. Only through foregrounding heterogeneity within D/HH community can we carry out a valid sociolinguistic analysis of D/HH speech.

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Chapter 3

To Speak with Standard or not: Minimal Pair Reading

*A shortened version of this chapter has been published
in Journal of Sociolinguistics (2021)*

Abstract

Speakers of pathologised speech have not received much attention from sociolinguists. This article explores the stylistic practices of deaf and hard-of-hearing (D/HH) people who demonstrate pathologised variants. This article adopts minimal pair reading and story reading to elicit various stylistic practices, as part of a larger project that aims to describe and empower D/HH speech. Results show that D/HH speakers who have experiences of medicalisation are also the ones who consider learning the speech of hearing people necessary. A portion of these speakers embody their ideological stance –converging towards hearing speech – in the minimal pair reading.

Keywords— Sociological consciousness, agency, minimal pair reading, deaf accent

3.1 Introduction

Since Labov's (1966) work on "linguistic insecurity", how languages of non-prestigious varieties perceive their own language use has become one of the popular topics in sociolinguistics. Silverstein (2003, p.219) notices that for standard-variety informed speakers, the hegemony of prestigious variety "differentially sweeps up people of different groups and categories into an anxiety before standard". For different stigmatised languages, the social stigma associated with their non-standard language use is also different. For D/HH people, a pathologised speakerhood is not simply non-prestigious. A pathologised speakerhood implies that they are considered illegitimate and abnormal speakers who do not own spoken language.

In a broader sense, my doctoral project aims to de-marginalise D/HH identity and the associated D/HH speech. This can be counter-intuitive to D/HH speakers. Most of them have been immersed in the ideological aura where conforming to the hearing speech is seen as the only way to normalise their speakerhood and to claim ownership over spoken language. On the other hand, like Swinbourne's (2012) article cited earlier, some D/HH people may take a positive stance toward D/HH speech. That is, the idea of being normal can be practiced differently.

Marginalised communities have various strategies to surmount the social stigma carried by non-normative identities. Especially, an invisible stigma can be managed by either revealing or concealing it (Goffman, 1963). For example, Levon (2009) categorises his interviewees from lesbian and gay activist associations in Israel into the "mainstream cluster" and "radical cluster". The former takes an integrationist approach to identity politics, promoting the idea that "gays and lesbians are just like everybody else"; the latter rejects such an approach and instead attempts to radically transform the social values of Israeli society (2009, p.39). Levon further (2020) calls attention to the heterogeneous linguistic practices within marginalised communities — the ways that speakers incorporate their identities into the

mainstream or radically challenge the ideologies that abnormalise particular identities. Levon emphasises that,

“all of these strategies, whether more ‘radical’ or more ‘mainstream’ in orientation, are ways for individuals to negotiate insecurity and to attempt to forge a position for themselves within a society from which they are normatively excluded” (2020, p.113).

A style-shifting that is more mainstream-oriented can be understood in Rampton’s (2006, p.229) viewpoint that style-shifting is a way to liberate language users from their established social positions. Speakers and signers, for example, may invoke styles associated with higher social class to resist a given inferior social position by performing social prestige through style-shifting.

For D/HH speakers, some believe they should accommodate to the hearing speech to prove that they can perform abled-bodiedness. That is, D/HH speaker’s convergence towards the hearing speech can be understood as linguistic practices where D/HH speakers exerting power in traveling between socially advantaged and disadvantaged positions. Less D/HH speakers may instead acknowledge the importance of maintaining a distinct D/HH speech to resist the medical discourse and redefine the meaning of normalcy, which is more ‘radical’. In other words, they may normalise D/HH identity through normalising deafness.

Although this project makes it clear that no predefined standard will be imposed upon one’s speech production, the majority of the participants still believe that D/HH people can only counter audism by showing that they can speak like hearing people. From Rampton’s perspective of style-shifting, D/HH speakers liberate themselves from the social inferiority imposed by hearing people upon them through speaking like hearing.

Nevertheless, there is actually little space for them to not speak like the hearing, as being hearing-like occupies an extremely huge “symbolic power”

(Bourdieu, 1991) in the ableist society. Coupland highlights the necessity to recognise the violent nature of symbolic capital associated with standard speech and argues that non-prestigious speakers style-shift because they are “threatened by the ideological predator” (2007, p.39):

“Labov’s style-shifting speakers suggest a shoal of swimming fish, grouped together in a social bundle, who suddenly veer away together in a single new direction when they recognise the presence of a predator. If the shoal of fish is an aggregation of working-class speakers, their style-shifting might be a culturally predictable veering towards “safer waters”, when threatened by the ideological predator – the establishment’s demand that public speech should be ‘more correct’ ”.

In a neoliberalised ableist society, medical interventions including speech-language therapy have been framed as tools that disabled persons can rely on to ‘overcome’ disabilities (Mitchell & Snyder, 2015) (see also Jones, 1997). Disability becomes purely a medical situation, rather than a social situation about oppression. The responsibility for not living a negatively disabled life is individualised. It is not unexpected that D/HH people have little agency in not attending speech-language therapy and pursuing the goal of “sounding hearing-like”. Only when we recognise the symbolic violence of sounding hearing-like can we understand a convergence towards hearing speech is not simply an individual choice to embody a certain abled identity.

3.1.1 Read speech and stigmatised speakers

Before applying reading tasks to stigmatised speakers, researchers need to recognise how *reading* as a social activity is practiced in the *habitus* of the community they work with (Bourdieu, 1977). A prediction is that stigmatised speakers may converge toward the more prestigious speech style in their stylistic repertoire to resist the social inferiority. This is the case found among Israeli Hebrew speakers with *Mizrahi* (Middle East) descent, who are

marginalised in Israeli society (Gaftner, 2016). They are observed avoiding using the stigmatised linguistic variants that may index their ethnicity in interview. However, in a wordlist reading task, they shift to a higher rate of the stigmatised variants, for reading is a ritualised activity that is deeply rooted within their cultural tradition (Gaftner, 2016).

Identifying what a reading task means for the community researchers work with is therefore essential. For the D/HH speakers in the current research who have received speech-language therapy, reading aloud is a highly medicalised activity. The D/HH speakers are conscious of the expectation that they converge towards (standard) hearing speech. They are also aware that if they produce non-hearing variants, they may receive negative and ableist evaluations from hearing listeners (Cowie & Douglas-Cowie, 1992; Freeman, 2018).

The study recruited participants living in Taipei between December 2018 and January 2019. All speak Mandarin as their dominant language and have never studied at deaf schools. The five participants (Table 3.1) discussed in this article produce multiple pathologised phonetic variants during the reading tasks. Among the five participants, four have experiences of speech-language therapy. They all believe that D/HH people should converge towards hearing speech.

Peiyu, Zuo-Zuo, and A-Wei do not have positive experiences concerning reading. Zuo-Zuo states that he received private speech-language therapy for six years. He is the only participant who reports growing up in an upper-middle-class family and being able to afford expensive private therapy. Statistics show that in Taiwan, children whose parents have a university degree or higher tend to send their children to medical intervention programs significantly earlier than others (Chen & Lim, 2021). That is, it seems that social class and hearingness are intersected. A higher social-economic status leads to a stronger orientation to seeking medical approaches to enacting hearingness. However, reading seems a stressful activity for him. During the interview, Zuo-

Zuo sighed frequently and appeared uninterested in the reading tasks.

Peiyu states that her speech-language therapist was unsuccessful in teaching her hearing speech, so she finds it really effortful to produce a hearing-like speech (what she describes as 認真說話 *rènzhēn shuōhuà* ‘serious speech’). Instead, if the conveyed information is not important, Peiyu uses what she describes as 隨便說話 *suíbiàn shuōhuà* ‘careless speech’.

A-Wei states that he was nervous about participating in this study because significant time had elapsed since he had performed a reading task.

In contrast, Xiao-Lu appeared comfortable with reading tasks. She was accompanied to the interview by her mother, who is a speech-language therapist. When Xiao-Lu did the reading tasks, her mother laughed. Xiao-Lu then paused and also laughed. Their laughter seems to embody their intimate relationship, instead of really making fun of Xiao-Lu’s speech.

Table 3.1: Participants discussed in this article

Participants	Self-reported social background		
	Gender	Year of Birth	Social class
Peiyu	Woman	2000	Middle
Zuo-Zuo	Man	1982	Upper-middle
Hua	Woman	1994	Lower-middle
Xiao-Lu	Woman	1987	Middle
A-Wei	Man	1989	Middle

3.2 Methodology

3.2.1 Minimal pair reading

In minimal pair reading (MPR), speakers are required to pronounce word pairs, in which the two words in the pair differ by only one phoneme. Labov (1972, p.103) indicates that the phonemic distinction observed in MPR can be “fanciful, archaic, or mythical”. MPR does not always elicit a socially prescribed

standard speech from speakers. How speakers respond to MPR can be a site where sociolinguists can observe the agentive nature of linguistic practices.

The current study invites participants to read aloud ten minimal pairs (see Appendix 2). Five of them are fillers. This article analyses stylistic shifts in the other five minimal pairs (Table 3.2). This study only considers consonant substitution, deletion, or addition as pathologised variants. All words are monosyllabic. The main orthographic system is *zhuyin* (Appendix 1), the phonetic symbol for Mandarin used in Taiwan. Chinese characters are in parentheses. Here, *zhuyin* serves the purpose of eliciting the highest awareness of one's own pronunciation. As the main tool of phonics teaching in elementary education, *zhuyin* carries the prescriptivist ideology of standard language. In speech-language therapy, therapists rely heavily on *zhuyin* to teach their clients how to produce prescriptive sounds. Reading *zhuyin* aloud for D/HH communities is a social practice in which learners engage with both the prescriptive ideology and the experience of medicalisation.

The consonants selected for analysis are affricates /ts^h/, /ts/, /tɕ/ and /tɕ^h/ and sibilant fricatives /ʃ/ and /s/, which speech-language therapists report as more difficult for D/HH speakers to realise in hearing ways. The hearing variants of these consonants are located in the higher sound frequency range; thereby for D/HH speakers, it is not easy to perceive the acoustic differences among these phones. The articulatory differences among these sounds are also not as visually identifiable as those among others, for example bilabial plosives, and labiodental fricatives. Analysing how D/HH speakers pronounce these difficult consonants tells us how they respond to the idea of converging towards hearing speech when it is arduous in nature.

The first set of minimal pairs includes socially meaningful minimal pairs (SMMPs), where speakers read aloud a retroflex first and then its alveolar counterpart (i.e., the retroflex-alveolar phonemic contrast). The socially meaningful retroflex-alveolar phonemic contrast is involved. The vowels included are the low vowel /a/ and the diphthong /au/.

Table 3.2: Minimal pairs examined in this article

Set	Minimal pair	first sound	second sound
1	a	/ʃa/	/sa/
	b	/tʃ ^h au/	/ts ^h au/
	c	/tʃau/	/tsau/
2	a	/ʃɿ/	/tʃɿ/
	b	/sɿ/	/ts ^h ɿ/

SLP research has also indicated that alveolar/retroflex fricatives and affricates are unfriendly for D/HH Mandarin speakers to acquire (Peng et al., 2004). It is also difficult for D/HH speakers to acquire the alveolar-retroflex contrast. Speech-language therapists therefore devote more time to these sounds with their clients. According to the participants in the current research, most were still unable to perceive the acoustic difference in the alveolar-retroflex contrast, but they knew that they needed to realise the contrast in certain ways.

The second set includes ordinary minimal pairs (OMPs). Speakers read aloud a fricative first and then an affricate. For hearing people, a fricative and its homorganic affricate counterpart (e.g., [s] and [ts]; [ʃ] and [tʃ]) are two phonemes that are not in complementary distribution, and the contrast lacks any known macrosocial meaning in hearing society. Although this contrast is not socially meaningful, their difference is difficult for D/HH speakers to perceive, thereby often being merged by D/HH speakers (e.g., [s] may undergo affrication and become [ts] or [ts^h]).

With the contrast between SMMPs and OMPs, how D/HH speakers may respond differently to difficult phonemes with and without macrosocial indexicalities can be illustrated.

3.2.2 Story reading

In this study, story reading (SR) serves as a technique by which variants of phonemes in a given speaker's repertoire are collected. To reduce the speaker's

attention paid to speech (Labov, 1973), the story is not accompanied by the phonetic symbol.

As Chinese characters are not phonograms, speech production in the SR can be considered less self-conscious than that elicited in the MPR. During the data inspection, the dominant variants of the investigated variables are found to vary based on the phonological environment in the SR (Table 3.3). Thus, this article only looks at syllables where the target variables preceding the same phonemes in SR as they do in MPR. The retroflex variant and its alveolar counterpart are not distinguished here, for it does not influence the analysis of MPR results.

Lin (2018) found that when reading difficult passages, Southern Chinese students studying in Beijing diverge from Beijing Mandarin and shift to their native accent. Lin (2018, p.195) suggests this stylistic shift occurs because their cognitive resources are divided by their intense focus on the content of the passages (Sharma, 2018). In the current study, this effect works in conjunction with the absence of phonetic symbols to elicit phonetic variants used in a speaker's less self-conscious speech style. The participants are asked to read aloud an ancient Chinese story about royalty (Appendix 3). It is confirmed that none of the speakers have heard this story, so speaker familiarity with the story is controlled. The speakers are then required to confirm that they know all Chinese characters included in the story before reading it aloud.

Table 3.3: Number of syllables with target variables in the story reading

Variable	Phonological environment	Number of syllables
/ʃ/ or /s/	__/a/	5
	__/ɿ/ or /ɪ/	18
/tʃ/ or /ts/	__/a/	9
	__/ɿ/ or /ɪ/	8
/ts ^h / or /ts ^h /	__/a/	3
	__/ɿ/ or /ɪ/	3

3.2.3 Defining styles

Considering the high inter-speaker variability among D/HH speakers, this paper does not examine the social meaning of every single variant. Instead, it focuses on how speakers make more, less, or similar clinically-defined effort in minimal pair reading, compared to their linguistic practice in story reading. By comparing the variants shown in a speaker's minimal pair and story reading practices, the different types of stylistic shifts can be identified.

A lack of stylistic shift between the two reading tasks is categorised as “no stylistic shift”. For stylistic shifts, I categorised them by borrowing terms from the “hyper and hypo-articulation theory” (Lindblom, 1990). The first category – “hyperarticulation” – means speakers make a sound more distinct by applying greater attention to pronounce it (Lindblom, 1990). Hyperarticulation can serve various social purposes, such as demonstrating a higher level of involvement in interacting with their interlocutors by signalling stances (Freeman, 2014). The consonants that are more difficult for D/HH speakers to acquire are considered to require more effort to produce (Peng et al., 2004)(A > B means A is easier than B):

1. Among homorganic consonants, stops (e.g. [t]) > affricates (e.g. [ts]) > (e.g. [s]);
2. Using the same manner of articulation, alveolar consonants (e.g. [t], [t^h]) > (e.g. [k], [k^h]);
3. Unaspirated consonants (e.g. [t]) > their aspirated counterparts (e.g. [t^h])

The other category is “hypoarticulation”, in which speakers adopt sounds that are easier for D/HH speakers to realise.

3.3 Results

The variants shown in minimal pair reading are compared to the dominant variants shown in story reading. Three steps are involved in identifying a

stylistic shift in MPR: first, observing which variant is adopted by the speaker to realise the phoneme in minimal pair reading; second, compared the MPR variant to the dominant variant for the phoneme in the same phonological environment in the story reading. Third, if a minimal pair reading variant is more difficult than the dominant story reading variant, it is categorised as hyperarticulation; if it is the other way, it is considered hypoarticulation.

Taking the participant Xiao-Lu for example, Figure 3.1 demonstrates how stylistic shifts in minimal pair reading are identified. The pie charts present dominant variants in SR for retroflex or alveolar fricatives that are followed by /a/. The dominant variants are the alveolar stop [t] for /ɕ/ or /s/ and [t^h] for /tɕ^h/ or /ts^h/. Xiao-Lu realises /ɕ/ in the first word as [t], which means there is no stylistic shift involved; she instead realises /s/ as a homorganic affricate counterpart, which compared to [t] is a more difficult sound for D/HH speakers to produce, so this is categorised as hyperarticulation. For the other minimal pair, she realises both words using the dominant SR variant [t^h], meaning there is not stylistic shift involved.

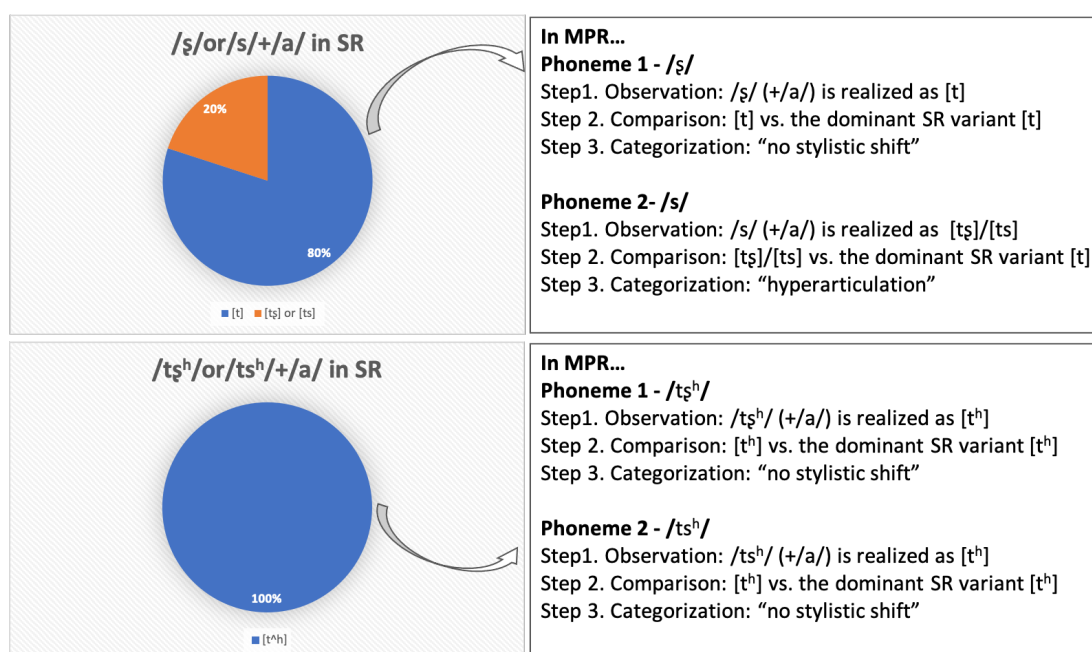


Figure 3.1: Demonstration of identifying a stylistic shift (MPR = minimal pair reading; SR = story reading)

Figure 3.2 is a visual illustration of the overall results. Only A-Wei

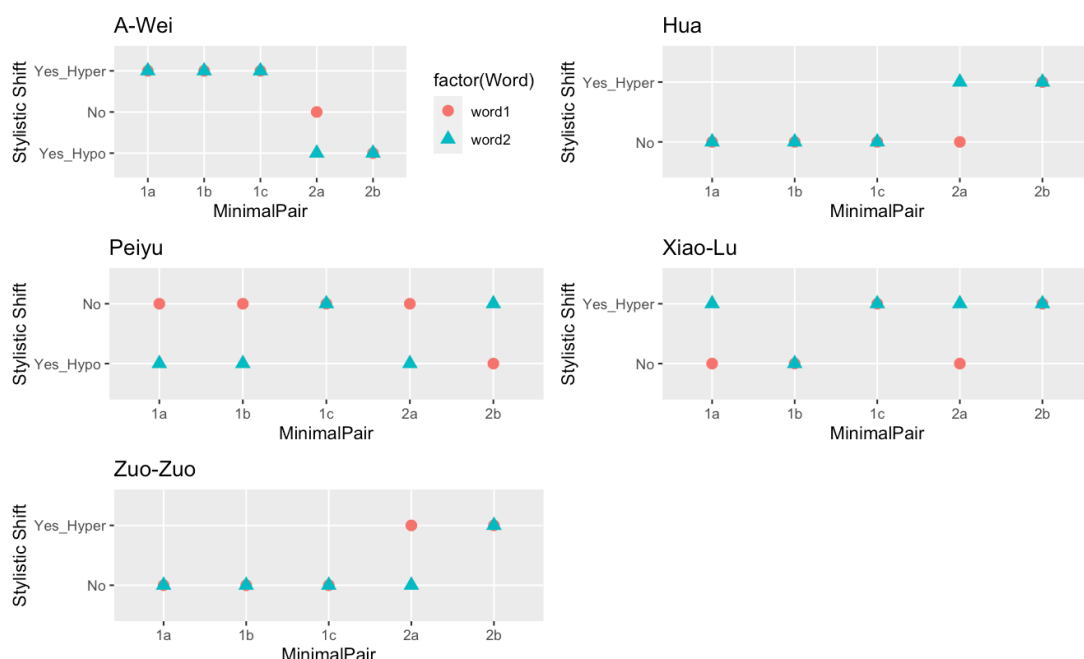


Figure 3.2: Visualizing the each speaker's realization in the MPR

invokes both hyperarticulation and hypoarticulation in minimal pair reading. The other participants only invoke either hyperarticulation or hypoarticulation, if there is a stylistic shift involved. Hua and Zuo-Zuo show a similar pattern of stylistic shift in which SMMPs do not receive stylistic shifts, but ordinary minimal pairs (OMPs) receive hyperarticulation. A-Wei and Xiao-Lu both show hyperarticulation for socially meaningful minimal pairs (SMMPs), but they adopt different styles for OMPs. In contrast, Peiyu adopts hypoarticulation in four out of the five minimal pairs.

3.3.1 Peiyu

Table 3.4 presents Peiyu's realisations of the investigated phonemes, in specific phonological environments, in both story reading and minimal pair reading. The column of dominant variant in story reading shows the variant that accounts for the most story reading syllables with the investigated variable. The column of variant used in minimal pair reading, in contrast, shows the variant that the speaker adopts to realise the variable in minimal pair reading. The stylistic shift identified by contrasting the story reading variant and minimal

pair reading variant is presented in the last column.

Peiyu adheres to “serious speech” in her story reading, in which the dominant variants are all hearing variants. In contrast, she switches to the style of “careless speech” (her term) in the minimal pair reading. The only stylistic shift invoked is hypoarticulation.

Table 3.4: Peiyu’s stylistic shift

	Phonemes	Dominant SR variant	MPR variant	Stylistic shift in MPR
MP1a	/ʃ/	[ʃ] or [s]	[ʃ] or [s]	No
	/s/		[tʃ] or [ts]	Hypoarticulation
MP1b	/tʃ ^h /	[tʃ ^h] or [ts ^h]	[tʃ ^h] or [ts ^h]	No
	/ts ^h /		[p ^h]	Hypoarticulation
MP1c	/tʃ/	[tʃ] or [ts]	[tʃ] or [ts]	No
	/ts/		[tʃ] or [ts]	No
MP2a	/ʃ/	[ʃ] or [s]	[ʃ]	No
	/tʃ/		dropped	Hypoarticulation
MP2b	/s/	[ʃ] or [s]	dropped	Hypoarticulation
	/ts ^h /		[tʃ ^h] or [ts ^h]	No

3.3.2 Zuo-Zuo

For SMMPs (Table 3.5), Zuo-Zuo does not invoke any stylistic shift. However, for OMPs, he invokes hyperarticulation for three phonemes. That is, a stylistic shift occurs when macrosocial meaning is absent in the phonemic contrasts. One may expect that as the only participant self-reporting growing up in an upper-middle class family that can afford private speech-language therapy for years, Zuo-Zuo would converge towards hearing speech for socially meaningful pairs. Yet, Zuo-Zuo’s stylistic practice here seems contracting such expectation.

Table 3.5: Zuo-Zuo's stylistic shift across tasks

	Phonemes	Dominant SR variant	MPR variant	Stylistic shift in MPR
MP1a	/ʃ/	[t]	[t]	No
	/s/		[t]	No
MP1b	/tʃ ^h /	[t ^h]	[t ^h]	No
	/ts ^h /		[t ^h]	No
MP1c	/tʃ/	[t]	[t]	No
	/ts/		[t]	No
MP2a	/ʃ/	[k]	[tʃ]	Hyperarticulation
	/tʃ/	[tʃ] or [ts]	[tʃ] or [ts]	No
MP2b	/s/	[k]	[tʃ] or [ts]	Hyperarticulation
	/ts ^h /	[k]	[s]	Hyperarticulation

However, for the ordinary contrasts, he articulates both the phonemic contrasts by hyperarticulating phonemes that do not undergo stylistic shift in the first set. That is, stylistic shift takes place when Zuo-Zuo does not find macrosocial meaning from the phonemic contrasts.

3.3.3 Xiao-Lu

Xiao-Lu does not invoke any hypoarticulative token in the MPR (Table 3.6). She frequently adopts hyperarticulated variants that she rarely uses in SR. That is, she clearly shifts to a hyperarticulative style. In particular, Xiao-Lu employs variants that apparently converge towards the hearing variants for SMMPs.

Although Xiao-Lu and her mother laughed at her pronunciation at the beginning of the reading, it seems that the laughing does not lead Xiao-Lu to not take the reading task seriously. Instead, the laughing might result in a serious stance toward the reading task. First, Xiao-Lu could be even more self-conscious of her own pronunciation than she would have been. Second, given

that Xiao-Lu’s mother is a speech therapist, her mother’s laughter may serve to evoke standard language ideology. With a high awareness of own’s speech, she shifts to hyperarticulated variants.

Table 3.6: Xiao-Lu’s stylistic shift across tasks

	Phonemes	Dominant SR variant	MPR variant	Stylistic shift in MPR
MP1a	/ʃ/	[t]	[t]	No
	/s/		[tʃ] or [ts]	Hyperarticulation
MP1b	/tʃ ^h /	[t ^h]	[t ^h]	No
	/ts ^h /		[t ^h]	No
MP1c	/tʃ/	[t]	[tʃ] or [ts]	Hyperarticulation
	/ts/		[tʃ] or [ts]	Hyperarticulation
MP2a	/ʃ/	[h], [t]	[h]	No
	/tʃ/	[h], dropped	[ʃ] or [s]	Hyperarticulation
MP2b	/s/	[h]	[ʃ] or [s]	Hyperarticulation
	/ts ^h /	[h]	[z]	Hyperarticulation

3.3.4 A-Wei

For SMMPs, A-Wei shifts to hyperarticulation (Table 3.7). Compared to the dominant variants in A-Wei’s repertoire, the variants used in the SMMPs are not only hyperarticulated but are also apparently convergent towards the hearing variants. Yet, for OMPs, A-Wei shifts to hypoarticulation. We see a clear contrast in terms of style-shifting between the two sets of minimal pairs.

3.3.5 Hua

In the SMMPs (Table 3.8), Hua does not invoke a stylistic shift involving different consonants. For OMPs, Hua invokes hyperarticulation. In MP2a, Hua replaces the approximant in the second word as a high back vowel to

Table 3.7: A-Wei’s stylistic shift across tasks

	Phonemes	Dominant SR Variant	MPR Variant	Stylistic shift in MPR
MP1a	/ʃ/	[k]	[tʃ] or [ts]	Hyperarticulation
	/s/		[tʃ] or [ts]	Hyperarticulation
MP1b	/tʃ ^h /	[k]	[t ^h]	Hyperarticulation
	/ts ^h /		[tʃ ^h] or [ts ^h]	Hyperarticulation
MP1c	/tʃ/	[k]	[tʃ] or [ts]	Hyperarticulation
	/ts/		[tʃ] or [ts]	Hyperarticulation
MP2a	/ʃ/	[ʃ] or [s], [k]	[ʃ] or [s]	No
	/tʃ/	[tʃ] or [ts]	dropped	Hypoarticulation
MP2b	/s/	[ʃ] or [s], [k]	dropped	Hypoarticulation
	/ts ^h /	[k]	dropped	Hypoarticulation

dissimilate the second sound. The phonemic contrast between the two words is then presented. In MP2b, both sounds are hyperarticulated.

3.4 Discussion

Through the research design, the SR offers an overall picture of a speaker’s stylistic repertoire, while the MPR elicits the speakers’ high level of attention to their linguistic production. All participants, except Hua, received speech-language therapy, of which reading aloud was a part.

For Hua, due to a lack of medicalised experience, she assumes a completely different stance regarding the prescriptivism imposed on D/HH speech. She does not think D/HH people should conform to hearing speech. Commenting on discrimination against D/HH speech, she expresses her extreme anger towards people who adhere to the audist ideology¹:

¹All Mandarin-English translation in this thesis was done by the author.

Table 3.8: Hua’s stylistic shift across tasks

	Phonemes	Dominant SR variant	MPR variant	Stylistic shift in MPR
MP1a	/ʃ/	[tʃ] or [ts]	[tʃ]	No
	/s/		[ts]	No
MP1b	/tʃ ^h /	[t ^h]	[t ^h]	No
	/ts ^h /		[t ^h]	No
MP1c	/tʃ/	[tʃ]~[ts]	[tʃ] or [ts]	No
	/ts/		[tʃ] or [ts]	No
MP2a	/ʃ/	[tʃ] or [ts]	[tʃ] or [ts]	No
	/tʃ/	[tʃ] or [ts]	[tʃ(u)]	Hyperarticulation
MP2b	/s/	[tʃ] or [ts]	[tʃ ^h] or [ts ^h]	Hyperarticulation
	/ts ^h /	[tʃ ^h] or [ts ^h]	[ʃ] or [s]	Hyperarticulation

“I just don’t understand why my voice can be made fun of. Because I really don’t know what the point is. [...] every single person has their own accent. [...] I don’t understand why a person’s voice can be funny. Because they are not telling a joke. ” [我就不懂為什麼我的聲音要被人家笑欸，因為我真的不懂那個點在哪裡 [...] 我覺得每個人聲音都是獨一無二的 [...] 不明白一個人的聲音到底哪裡好笑，因為他講的不是笑話。]

Hua emphasises the linguistic fact that every speaker, regardless of their audiological status, has an accent. Therefore, her deafness should not be highlighted as what leads to her accent. For Hua, any attempt to abnormalise D/HH speech by hearing people is undermined. For minimal pairs whose macrosocial meanings are salient, it is likely that Hua invokes no stylistic shift to embody her reluctance to cater to the gaze of hearing people – sounding hearing-like.

The other participants adhered to the ideology that D/HH people should

speak like the hearing. They were also aware that this project aims to enable hearing people to become familiar with the voices of D/HH speakers. It may be expected that they would converge towards hearing speech in MPR. This is true for A-Wei and Xiao-Lu. Xiao-Lu invokes hyperarticulation for both sets of minimal pairs. A-Wei only does so for the SMMP, which is understandable, as linguistic practices at the local level usually appropriate linguistic resources associated with social meanings at the macrosocial level (Eckert, 2012).

However, in the cases of Peiyu and Zuo-Zuo, the language ideology and stylistic practice are mismatched. Peiyu hypoarticulates both SMMPs and OMPs. Zuo-Zuo only applies hyperarticulation to the OMPs, but he does not do so for SMMPs, indicating that the lack of stylistic shift for SMMPs can be socially meaningful. By examining the metalinguistic comments of Peiyu and Zuo-Zuo, it is observed that although the two speakers perceive the necessity for D/HH people to speak in hearing ways, they do not seem to believe that what D/HH speakers do really matters in terms of promoting a change in society. At an ideological level, Peiyu argues that D/HH speech will never be recognised by hearing people:

“They [the hearing] do not understand [D/HH speech], and they do not want to understand [D/HH speech] [...] no matter how diligently they [the D/HH] are practicing [their speech], they are not accepted by the public. [...] Do D/HH people need to correct their pronunciation? I think it is inevitable. [...] Before the social mentality changes, you need to change first. Yes, and struggle to (*laughter*) announce to the world [that we can speak the language].” [就是不理解、不想理解 [...] 就導致這群人他們不管多努力在練習，還是沒有辦法被大眾接納 [...] 聽障者要不要矯正自己的發音？我覺得是難以避免的一件事情。就是在這個社會整體心態還沒有改變之前，自己先改變。對，然後努力地 [笑] 向世人宣達（我們會說話）]

Peiyu strongly emphasises how the social structure matters. D/HH

people are passive regarding changes that occur to the “societal mentality” of the hearing society. Although she emphasises the importance of converging toward hearing speech, Peiyu also negates the existence of the agency that D/HH speakers demonstrate in practicing spoken language. Her view implies that a speaker does not neglect to accommodate the expectation of their audience because they are consciously withholding an attempt to be themselves. Rather, they do not respond to the expectation of their audience because they think their audience does not care what they do. Likewise, Zuo-Zuo argues that:

“Why do they [the Hearing] know the accent of the indigenous people, the Japanese accent or the Korean accent but they do not recognise [the accent of] we D/HH people? It’s simply because for you [the Hearing] they [D/HH people] cannot hear!” [為什麼他們大家都是原住民或是日本話或是韓國腔調都認識。我們聾人（他們就）沒辦法認同。你是因為他們的耳朵聽不到而已啦！]

For Zuo-Zuo, the underlying reason for not recognising D/HH speech is not hearing people’s lack of familiarity with D/HH voices. Instead, hearing people do not recognise D/HH speech because they discriminate against a non-normative audiological status. In both Peiyu’s and Zuo-Zuo’s comments, the individual agency to resist the hegemony of audism is backgrounded.

In contrast, A-Wei, and Xiao-Lu both emphasised the role of the individual in negotiating with audism. Xiao-Lu believes that if D/HH people remain determined in their attempts to communicate in spoken language with the hearing, the discrimination will eventually disappear. For A-Wei, although he believes that D/HH speech must be intelligible for the hearing, he argues that D/HH people do not need to waste too much time on it:

“[you] only need to make most of the people understand you. If it is required to speak as fluently as the ordinary people, it’s weird, and it’s impossible. [...] If the D/HH are required to speak like the majority, it’s unnecessary. Because it takes too much time [...] You [the D/HH]

should spend time doing things you want to do. It's less a waste of time.” [讓對方大多數的人聽得懂就可以了。如果要完全的話像一般人講到可以很流利，我覺得很奇怪，是不可能。如果要做到很像到那個像這樣像大多數講話的聲音是不需要，因為要花太多的時間。要去花時間去做你想要的事情，比較不會浪費時間]

Notably, A-Wei's view contrasts to that of Peiyu, who perceives that the style-shifting of D/HH speakers is ignored by the hearing society. For A-Wei, D/HH individuals can ignore the expectations imposed on them by the hearing society.

I suggest that we understand the differences among these speakers concerning how individual agency is presented at ideological level through the concept of “sociological consciousness”, which represents “the ability to conceive of connections between personal experiences and social structures and processes” (Dodsworth, 2008, p.46). Dodsworth found that speakers who tend to downplay individual agency in their discourse do not tend to style their identity through associated linguistic resources.

Zuo-Zuo and Peiyu do not perceive individual social practices as powerful acts that can contribute to societal changes. By Peiyu's term, she only uses “careless speech” when she finds it unnecessary for her to produce “serious speech”. Peiyu further explicitly points out that what D/HH speakers do does not matter, for hearing people do not care about what D/HH people do. Thus, in the highly self-conscious MPR, producing “serious speech” in response to a project that aims to resist audism by familiarising hearing people with D/HH accents becomes unnecessary. It is likely that mediated by such sociological consciousness in their habitus, the two speakers do not embody their ideology that D/HH speakers should conform to hearing speech through their linguistic practices in MPR.

In contrast, for speakers who foreground individual agency in their discourse, they tend to embody their identity through associated linguistic practices “more zealously” and take “greater advantage” of their symbolic

power in linguistic practices (Dodsworth, 2008, p.52). Xiao-Lu and A-Wei both highlight how D/HH speakers have power or rights to make an impact (or not to make one) on the hearing-dominated society. Mediated by such agency-foregrounding sociological consciousness, A-Wei embodies his proposition that D/HH speakers should converge towards hearing speech through hyperarticulation in SMMPs, and Xiao-Lu also does so for OMPs.

3.5 Concluding remarks

This paper highlights the need to situate pathologized speech communities within the scholarship of variationist sociolinguistics and demonstrates how sociolinguists can investigate speakers of pathologized speech as social agents who show stylistic variability across reading tasks. This paper finds that the different strategies of style-shifting adopted by D/HH speakers might be mediated by how they internally model the relationship between individuals and a society that is dominated by the hegemonic ideology of audism.

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Chapter 4

Vowel Quality and Assistive Hearing Devices in Embodying Affects

A revised version of this chapter is accepted as a research article by Language in Society, co-authored with Lauren Hall-Lew and Claire Cowie

Abstract

Previous research has proposed that phonetic variation may index affect prior to indexing social meaning. This study explores whether the affective indexicality of vowels identified in previous studies can also be observed among deaf or hard-of-hearing speakers, in this case speakers of Taiwan Mandarin. The results suggest that /i/ backing is invoked to signal negative affect. This study also demonstrates how assistive devices like hearing aids and cochlear implants can also be considered semiotic resources. For deaf or hard-of-hearing speakers, assistive hearing devices enter into a process of bricolage with linguistic and other symbolic resources, generating new potentials for the embodiment of affect.

Keywords— affect, iconicity, Taiwan Mandarin, embodied sociolinguistics, deafness

4.1 Introduction

In the recent affective turn in the humanities, **affect** has been conceptualised as psychological and sensational experiences that are situationally emergent, informed by discourse, and mediated by sociocultural contexts (Wetherell, 2015). Affect is not an isolated individual experience but always a relational product of one's interaction with the society. For instance, Pratt (2019, p.334) portrays how students of technical theatre at a San Franciscan high school are perceived to be “secretive, sketchy, and deviant” by other students, and how this is part of the persona they achieve in part through affective displays. Affect is an inherently interactive quality rather than an internal state.

The performative aspect of affect can mobilise the deployment of linguistic resources. Pratt (2019, p.334) found that these “tech” students embody “affective toughness” through a greater constriction of the tongue body for the LOT-vowel in English (Hall-Lew, 2013) and word-initial /l/. Pratt argues that the articulatory setting of lingual constriction may be iconic of bodily containment, rendering it available to vocalise the affect of toughness (Pratt, 2018). These findings not only show that certain linguistic features have the semiotic potential to signal affect, but that speakers' affective experiences are a key aspect of how speakers navigate social-semiotic landscapes (Eckert, 2019a).

The current study looks at how the affect of (not) feeling disabled is embodied through a semiotic combination of assistive hearing devices and vowel qualities among (oral) deaf or hard-of-hearing (D/HH) speakers of Taiwan Mandarin. This study researches how D/HH speakers invoke linguistic resources to embody affect toward an emergent image of the self under the condition where they take off assistive hearing devices. In previous studies on D/HH speech, mostly not sociolinguistic in focus, researchers usually see linguistic performances with and without assistive hearing devices as purely mechanistic products of presence and absence of auditory feedback (see Section 4.4). The underlying logic is that D/HH persons do not exhibit agency with respect to the spoken language, but only passively respond to the body as

a mechanistic system. In this paper we argue that D/HH speakers, like all speakers, use spoken language agentively.

This study invited D/HH persons to participate in a device-on/off experiment where they were required to read a list of sentences with and without the full use of their assistive devices (auditory enhancement and auditory deprivation, respectively). This article argues that there are changes in vowel qualities under auditory deprivation which can be explained through the lens of affect and indexicality. We argue that the changes in vowel quality under auditory deprivation should be seen as a semiotic resource in a process of “bricolage” (Hebdige, 1979; Eckert, 2008) where linguistic resources work together with the physical body to display affect.

This paper begins by introducing the competing models of disability that have been applied to the relationship between D/HH persons and assistive hearing devices. We introduce a study design where a familiar device-on/off experiment from clinical linguistics is re-theorised, specifically with respect to the D/HH communities in Taiwan. The discussion illuminates an epistemological gap for variationist sociolinguists to contribute to the discussion of assistive hearing devices. The research is thus in the broader theoretical context of affect and sociolinguistics, and responds to the intellectual project of embodied sociolinguistics (Bucholtz & Hall, 2016).

4.2 Assistive hearing devices and disability studies

In the discourse of medical professionals, disability is considered an individual problem that can be tackled by medical interventions (Ladd, 2003). In contrast, the discourse of social activism views disability as a social situation where people with non-normative bodies are oppressed by people with normative bodies (Silvers, 2010).

Assistive hearing devices have been developed to assist D/HH persons in hearing environmental and speech sounds. They can be seen as the medical

response to deafness. There are two major types of assistive hearing devices – hearing aids (HAs) and cochlear implants (CIs). For D/HH persons whose deafness is evaluated by clinicians as too severe to be assisted by HAs, they may be offered CIs. Following the CI surgery is a rehabilitation process which usually includes speech-language therapy, especially for children. Unlike HAs which amplify sounds, CIs replace the ear's own capacity to hear and directly stimulate the auditory nerve. CIs have been discursively framed as a technology that restores hearing and thus 'cures' deafness (Mauldin, 2016; Lin, 2019). Consequently CIs are also regarded as an assistive technology that can better foster speech development in children with profound deafness (mild hearingness) (see Bouchard et al., 2009).

In contrast, CIs are considered by some d/Deaf theorists as a politically problematic technology developed by hearing people to colonise deaf bodies (Valente, 2011). For them, CIs are a technology that perpetuates the oppression of D/HH communities. Emphasising how CIs foster speech development, in either popular or academic discourse, is seen an ideological strategy to promote the oralist ideology that spoken language is superior to signed language (Campbell, 2009; Valente, 2011).

Criticisms of the social activist model of disability argue that it elides the subjective experiences of impairment and presupposes a dichotomy between impairment as biological and disability as social, which ignores potential identity politics, individual resistance, and a dialogic relation between impairment and disability (Meekosha & Shuttleworth, 2017). Just as experiences of biological sex do not exist in a social vacuum, neither do experiences of physical impairment (Shakespeare 2006). For instance, Ghosh (2010) describes how disabled women in Bengal experienced the markedness of impaired bodies more and more as they grew up and learned that they were not considered ideal women in the gendered society because of the "inability" to reproduce and engage in household work.

Relatedly, a social model approach to assistive technologies like CIs has

failed to engage with the ways in which D/HH persons relate to their assistive devices. Assistive devices either violently dominate D/HH people (as suggested by the social model) or kindly save D/HH people from disability (as suggested by the medical model) by their overwhelming material power. The material effects of assistive devices are taken as physiologically given, and thus can be physiologically determined and measured. Few have emphasised the subjective experiences of dealing with the material object of assistive devices as having semiotic potential.

We take the perspective that the body is not a mechanistic system, independent from the mind (Toombs, 1988; Bucholtz & Hall, 2016), of which linguistic outputs are simply passive products of auditory inputs. Users do not passively respond to the material effect of assistive devices. As Bucholtz and Hall (2016, p.188) suggest, technology “changes not just the way we interact but also our sense of self”. The body is a semiotic assemblage consisting of linguistic resources and material assistive devices and works as a stylistic whole, actively producing images of the self. Material reality can be independent; yet, when human beings engage with material reality, such engagement cannot be objective. The material reality mutates in our perception when interacting with us (Pennycook, 2018).

In this article, we suggest that linguistic variation correlated with the presence or absence of assistive technologies may reflect speech adjustments made in response to mechanistic changes, but might equally reflect stylisations made in response to different experiences of the body.

4.3 Theoretical context

Recent disability studies have pointed out that disabled people do not **feel disabled** because of non-normative bodies per se. The non-normative body is socially constructed as disabled and therefore undesirable (Ghosh, 2010; Goodley et al., 2018). In this paper, we demonstrate how D/HH persons

experience auditory deprivation as a transformation of the body. This then is the embodiment of disability, the affect of disability. Phonetic variation associated with auditory deprivation indexes the affect, not the deprivation.

4.3.1 Affect

This study focuses on the affective display towards the act of losing full access to auditory enhancement. When people display affect toward something, they are positioning themselves as the persons who typically display that kind of affect toward that particular thing (Du Bois & Kärkkäinen, 2012; Ochs, 1992). In this research, when D/HH participants display negative affect toward the auditorily deprived body and its associated self-image, for hearing people (including the researcher), such affective display further indexes a particular discourse of disability in which disabled people who demonstrate negative attitudes toward the disabled body (Lane, 1988). In contrast, if participants display neutral affect toward auditory deprivation, the affective neutrality may be construed by a hearing audience as aligning with a discourse of disability in which disabled people ‘overcome’ disability and have inspirational stories (e.g., Chrisman, 2011). Either way, affective displays are constrained by these two opposing narratives of audiological disability.

In the current research, the D/HH participants take part in a device-on/off reading experiment in the presence of a hearing researcher, and comparisons are drawn between the read speech styles in each condition. Specifically, the participants also take stances toward the hearing researcher (i.e., me). The affective display does not happen in a social vacuum, but should be considered an affective performance in relation to the hearing audience. For instance, participants displaying neutral affect toward auditory deprivation are performing an image of personhood in which they are not miserable disabled people as portrayed in media representation. Abled people’s perception of disabled people as living miserable lives can be an act which disempowers disabled people and deprives them of agency. In contrast, participants who

display negative affect toward auditory deprivation are catering to the ableist gaze that deafness is a medical situation which can be fixed by hearing technologies developed by hearing people (Campbell, 2009).

Although sociophonetic work on affect has typically analysed spontaneous speech (e.g., Eckert, 2010, 2011; Pratt, 2019), read speech is equally available for meaning making (Silverstein, 2003; Gafter, 2016; Hall-Lew et al., 2021a). The ‘self-conscious’ nature of read speech enables the researcher to see how participants actively embody affect through linguistic resources (see Schilling-Estes, 1998; Coupland, 2007). Embodiment can be broadly understood as the process in which speakers materialise (here, i.e., vocalise) a non-material aspect of the self (here, i.e., affect). We argue that phonetic differences between the ‘device-on’ and ‘device-off’ read speech contexts are mobilised by affective display. Specifically, linguistic practices align with the affective persona that the speaker associates with the auditorily deprived body.

4.3.2 Vowel and affective qualities

Iconicity represents a natural similarity between a signifier and the signified. Affective iconicity has been documented for various linguistic features, both segmental (e.g., Eckert, 2010, 2011; Calder, 2019) and suprasegmental (e.g., Starr et al., 2020; Esposito & Gratton, 2020). The current study focuses on vowel quality. For instance, compared to a back vowel, a front vowel may be iconic of smallness. Some have argued that the iconicity of a linguistic feature may be an evolutionary legacy; for instance, large threatening animals have a lower-pitched sound, so lower sound frequencies (e.g., a back vowel) are iconic of largeness, and thereby powerfulness (Ohala, 1983). Sociolinguists tend to see the iconicity of a linguistic feature as a product of ideologisation (Eckert, 2019b). Recent sociolinguistic work has proposed that iconicity may stem from how we use the body (Podesva, 2016; Pratt, 2019). That is, certain linguistic features can embody affective qualities because the linguistic features semiotically acquired the affective indexicalities by being contingencies of the

articulatory settings expressing those affective qualities. This theory has been evidenced by several empirical studies: vowels front when the facial expression of smile is made by US English speakers (Podesva, 2016) and Mandarin speakers in China (Tang et al., 2017); vowels back and raise when Cantonese speakers show the facial expression of disgust (Chong et al., 2018).

A growing body of sociophonetic work has demonstrated the relationship between vowel movements and affective qualities among English speakers, especially in the United States: generally, vowel back and raise when a negative affect is expressed, and vowel front and lower when a positive affect is expressed (Eckert, 2010, 2011; Wong, 2014; Podesva, 2016; Pratt, 2019). In experimental linguistics work on Mandarin (Erickson et al., 2016), it was found that variation in vowel anteriority is more strongly associated with emotions across speakers: vowel fronts for happy speech, and vowel backs for sad speech. Notably, variation in vowel quality only provides semiotic potential for these affective qualities (Bucholtz & Hall, 2016); local sociocultural contexts can override such potential. This might be especially likely in contexts where the variants index local social meanings that take precedence over any potential affective qualities (Hall-Lew et al., 2021a).

4.4 Methodology: Device-on/off experiment

4.4.1 Laboratory-informed

In the paradigm of the “device-on/off” experiment developed by audiologists and speech-language pathologists, speakers are asked to read material with and without auditory feedback, by turning on and off their assistive devices. The “device-on/off” experiment is adopted to see how auditory feedback modifies speech production (Perkell et al., 2000). It is found that when D/HH speakers are deprived of auditory feedback, they can instead rely on existing kinaesthetic memory to produce speech (Perkell et al., 2000). Researchers have found both hyperarticulation and hypoarticulation with respect to vowel production under

auditory deprivation ([Poissant et al., 2006](#)).

Most clinical research attributes variation in assistive hearing devices to patterns of articulatory variation, rather than considering non-physiological factors. For example, hypoarticulation during auditory deprivation may be argued to stem from the disruption of the speaker's "sense of appropriate tongue placement" ([Higgins et al., 2001](#), p.38); however, a lack of changes in speech production during auditory deprivation is also considered due to the "extensive use of the CI" which allowed the speakers to build robust kinaesthetic memory ([Turgeon et al., 2017](#), p.94). These analyses betray an ideology: in each case, the assistive device is framed as beneficial, and D/HH people as owners of the assistive device play no role in the demonstrated stylistic practices during auditory deprivation.

4.4.1.1 Ethnography-informed

Previous sociolinguistic work has emphasised the importance of ethnographically investigating how oral language is normalised as a dominant modality ([Holmström et al., 2015](#); [Montiegel, 2021](#)). The current study also argues that the 'device-on/off' experiment paradigm, in relation to language production, must be understood as situated in a particular sociocultural context.

The first author's earlier work with middle-aged and elder D/HH persons in the Taipei community ([Wan, 2021a](#)) included the case study of a cochlear implant (CI) user and advocate, Xiao-Kun, a volunteer of a CI support group at a local hospital. Compared to her positive attitudes towards her CI, Xiao-Kun explicitly described hearing aids (HAs) as "shameful," and she did not like wearing them before receiving the CI. Xiao-Kun presented two distinct images of the self with and without turning on her CI. When using the CI, Xiao-Kun appeared very confident and continually claimed the floor in the conversation where her two friends who were HA-only users were present. When she relied only on her HA, she became a drastically less confident person who refused to interact with her interlocutors. Xiao-Kun's

two distinct presentations of self suggest that D/HH persons experiencing an auditory deprivation may experience a robust contrast between two embodied experiences. Such a contrast is not simply about the mechanistic consequences of the presence or absence of auditory feedback; it is also socially construed.

Without prompting from the researcher, Xiao-Kun spontaneously performed speech differences between her use of only-HA and her use of the CI, by reading aloud the consent form twice. She shifted to a higher pitch departure of the high-falling lexical tone after turning on the CI, indicating a more ‘standard’ pronunciation. She pointed out this difference as evidence to prove how useful the CI is, compared to the HA.

Speaking different linguistic varieties “produces different bodies” (Bucholtz & Hall, 2016). This is not just a metaphor. The way we categorise a body in social space is based on both visual and aural information. Speaking ‘with a deaf accent’ may be interpreted by hearing people as ‘speaking from a disabled body’. When it is believed that the use of a hearing assistive device results in a hearing-like accent, the link between a medical device and a linguistic variety is naturalised. Thus, medical devices become iconic of abled-bodiedness. In fact, the speech variety used with an assistive device is one which the user is only eventually able to produce due to the speech training that accompanies rehabilitation.

The contrast between auditory modes also indexes the contrast between life experiences associated with those modes. Different auditory modes accrue different affective experiences (Christie & Bloustien, 2010) through what the user experiences under each auditory mode. In the example above, Xiao-Kun displays negative affect toward disability and hearing aids. She used to refuse to put on hearing aids, because she thought they were shameful and not useful, while she sees the useful CI as part of an abled life she finds satisfying. She embodied a negatively disabled life by a process of bricolage: the material existence of HA, the conversational strategy of preventing interaction, and the lower onset pitch of the high-falling tone. Xiao-Kun’s variable production of the

falling tone indexes those two bodies and their associated affective qualities. This observation motivated the current study, where we argue that linguistic variation should be considered part of a semiotic assemblage within which D/HH persons make sense of themselves in the broader social context of ableism.

4.5 Study design

4.5.1 Linguistic variables and hypotheses

This study examines the positions of the three corner vowels in Taiwan Mandarin –/a/, /i/, and /u/. These vowels are consistently examined in clinical assessments of the relationship between assistive hearing device and speech variability.

Mandarin has undergone indigenisation in Taiwan since the 1940s. Indigenisation was driven by contact with various local languages. Compared to the Standard Mandarin used in China, Taiwan Mandarin shows raised /a/, backed /i/, and fronted /u/ ([Chang, 1999a](#); [Sanders & Uehara, 2007](#)), resulting in a more compressed vowel space. This regional variation is not subject to metalinguistic commentary, but the variants indexing speakers from China are anecdotally perceived by Taiwanese listeners to be more standard and clearly-pronounced. Building on cross-linguistic and Mandarin-specific studies of vowel quality and affect, we may expect to see vowel fronting/lowering indexing positive affect, and vowel backing/raising indexing negative affect. Combining the evidence, we therefore posit that the indexical field ([Eckert, 2008](#)) of fronted /u/ in Taiwan Mandarin consists of non-standardness and positive affect, whereas the indexical fields of backed /i/ and raised /a/ consist of non-standardness and negative affect.

Recent linguistics work ([Hung et al., 2017](#)) reports that the inter-speaker variation among hearing people in Taiwan Mandarin /u/ is not clearly patterned; in contrast, /i/ is acoustically variable along the dimension of

anteriority, and /a/ is variable along the dimension of verticality. It is found that /i/ is the most acoustically variable among the three corner vowels across both D/HH speakers and hearing speakers (Figure 4.1). This work also suggested that variability of /i/ does not seem to be a physiological product of deafness; instead, they proposed it may be due to the difference in signal conduction methods, in that people who rely on bone rather than air to conduct sounds may hear distorted /i/ sounds which are located at lower frequencies (Hung et al., 2017). Considering the style axiom, intra-speaker variation usually derives from and echoes the variation which exists between speakers (Bell, 1984). The anteriority of /i/ is theoretically the variable which has the most potential for signalling affective qualities which are social.

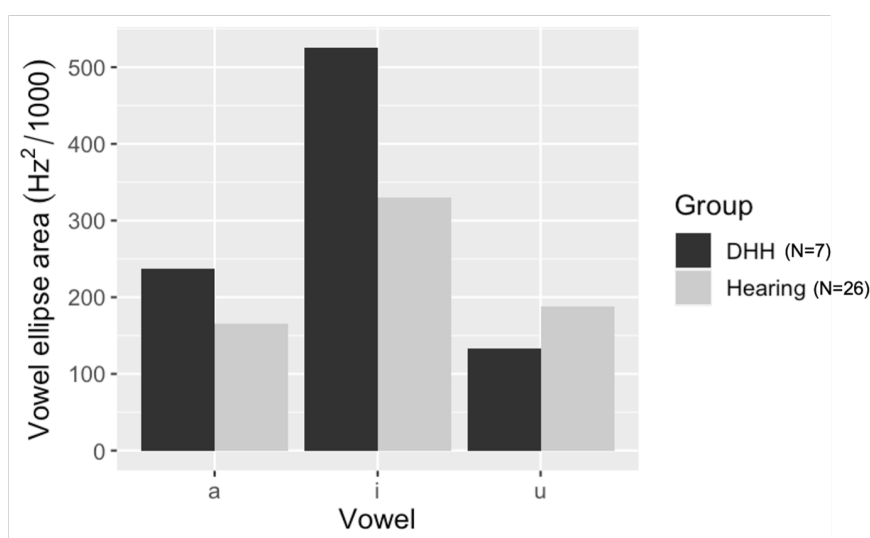


Figure 4.1: Interspeaker variability for the three corner vowels; /i/ is the most variable vowel among D/HH speakers, and D/HH speakers have a much more variable production of /i/ than do hearing speakers (plotted based on the data from Hung, Lee, and Tsai (2017, p.8))

This article foregrounds the subjectivity of D/HH speakers, in addition to the material effects of assistive devices, to illustrate that our understanding about what happens to linguistic production under auditory deprivation can benefit from a sociolinguistic perspective. Based on the above literature, we propose three hypotheses:

1. Hypothesis 1: During the auditory deprivation, D/HH speakers may realise

the linguistic variable differently, compared to their realisations with auditory feedback.

2. Hypothesis 2: For any linguistic variable that is realised differently, the interspeaker variability can be accounted for by the affective display during the auditory deprivation.
3. Hypothesis 3: For any interspeaker variability that is statistically predicted by the affective display, vowel backing is correlated with negative affect, and vowel fronting is correlated with positive affect.

The results support all three hypotheses with respect to the most variable of the three corner vowels, /i/.

4.5.2 Methods

The current research adopts the experimental design of short-term auditory deprivation, where the participants firstly read aloud the sentence-list in the ‘device-on’ condition and then read the sentences again immediately after entering the ‘device-off’ condition. Adopting this method allows the speakers to experience the contrast between a body with technological assistance and a body without it, and in a way that they are familiar with from their experience in clinical settings. Participants knew from the recruitment text that they would be asked to read material with and without access to full assistive devices.

‘Full assistive devices’ refers to the default auditory mode with which participants rely on in daily life. Here, this default auditory mode is referred to as ‘device-on’, and the auditory mode used while in the auditory deprivation condition is referred to as ‘device-off’. For many participants (N=6), the ‘device-off’ condition includes a secondary audio device that is still on, such as a hearing aid.

4.5.2.1 Satisfaction survey

To transform the device-on/off experiment into a site where individual agency can be investigated, we did a satisfaction survey (Likert scale with 6 points) on the participants' assistive devices prior to completing the reading task, to encourage the participants to reflexively consider their relationship with the assistive device (Appendix 5). The survey is adapted from Cox and Alexander's (1999) version and consists of four major categories of statements with random order: whether the device improves the user's speaking (Statements 6, 13; hereafter as 'Speaking Satisfaction'); whether the device improves the user's understanding of others' speech (Statements 1, 5; hereafter as 'Listening Satisfaction'); whether the user finds the device carries negative social meanings (Statements 8, 12, 14; hereafter as 'Social Satisfaction'); whether the user finds the device is effective in general (Statements 2, 3, 7, 10, 11; hereafter as 'Effectiveness Satisfaction'). Their coded responses to statements which belong to the same topic were summed and operationalised as continuous variables in statistical modelling.

4.5.2.2 Reading materials

Some of the previous short-term auditory deprivation research tested isolated vowels (Turgeon et al., 2017); others used carrier sentences (e.g., "Say ... please" or "It's a ... please") in which different vowels were repeated ten (Svirsky et al., 1992) to fifteen times (Lane et al., 2007). The current study does not adopt carrier sentences. Target words in carrier sentences receive prosodic emphasis because they are under focus and located in the same word position; thus, we take focus and word position into consideration, instead of adopting carrier sentences. Therefore, this study instead uses more naturalistic sentences, taking focus and word position into consideration in their design.

The reading task consisted of a list of 14 unrelated sentences written in traditional Chinese orthography containing the three monophthongs /a/, /i/, and /u/ in focused and unfocused words. /i/ and /u/ are in open syllables;

/a/ is in either open syllables or closed syllables with the coda /n/ (Table 4.1)¹. The sentence-initial words are the topics of the sentences, and they are put in quotation marks to encourage focus (hereafter, focused words). With this design, word position and focus are the same thing. All the sentences are declarative statements (Appendix 6). For example, 「地球」是太陽系中的第三顆行星 “‘The earth’ is the third planet in the solar system’. The use of sentences with controlled prosody helps avoid any effects of listing prosody that might arise with isolated word lists.

Table 4.1: Number of syllables with target segmental features (content words, both focused and non-focused) in the read sentences

	Focused syllables	Other syllables	Total
/a/	3	6	9
/i/	5	6	11
/u/	5	9	14

Before the recording, participants were asked to practice reading the sentence list to make sure there was no Chinese character that they did not know how to pronounce. While reading practice may encourage a less-spontaneous speech style, it gives the speaker the opportunity to agentively produce an intended read speech style, and that is the target of this study. After the reading task, the participants engaged in a metalinguistic interview. They were invited to share what differences they felt between the two auditory modes, and then were asked more generally about how deafness impacts their life.

Statements made during the metalinguistic interview indicate two different ways in which participants orient to deafness and embodied disability. We first describe that interspeaker difference and then demonstrate how it informs a model of variation in vowel production.

¹Mandarin only permits nasals ([n], [ŋ]) as the coda. [u] is always followed by a schwa before a nasal. D/HH speakers show a high variability in realising nasal finals (Xue et al., 2018); [an] is relatively more stable among Taiwanese D/HH speakers (Liu, 1986).

Table 4.2: Participants and information on their default assistive device, their self-described gender, hometown, and their affective display after device was switched off; all names are pseudonyms

Participant	Assistive device	Gender	Age	From Taipei	Affect
Grace	Single-sided CI	woman	21	Yes	Negative
Hung	Single-sided CI	man	18	Yes	Negative
William	Single-sided CI	man	28	No	Neutral
Wei	Single-sided CI	woman	33	No	Negative
Ling	Single-sided CI	woman	25	Yes	Neutral
Eda	Single-sided CI	woman	23	No	Neutral
Maggie	Single-sided CI	man	27	Yes	Neutral
Yao	Two HAs	man	32	No	Neutral
Annie	Two HAs	woman	25	No	Neutral
Belle	Two HAs	woman	33	Yes	Negative
Minjia	Two HAs	woman	27	Yes	Neutral
Sandy	Two HAs	woman	26	Yes	Neutral
Anxin	Two HAs	man	28	Yes	Neutral
Squirrel	CI & HA	man	23	Yes	Negative
Zheng	CI & HA	man	19	Yes	Negative
Chenyu	CI & HA	man	24	No	Negative
Pan	CI & HA	man	27	Yes	Negative
Rain	CI & HA	man	19	Yes	Neutral
XiaoFan	CI & HA	woman	21	Yes	Negative

4.6 Speaker groups in this study

A total of 19 participants were recruited through social media and word of mouth between January and August 2020 (Table 4.2). The average age of the participants at the time of recording was 25.2 (max=33, min=18). There were 10 women, and 9 men. They were all residents of Taipei, and varied in their type of assistive hearing device: CI for CI users, HA for non-CI users. The interviewer (the first author) is a hearing person (27 years old, cis man) from Taipei. Interviews were conducted one-on-one in a quiet room in a public space. Recordings were made on a Zoom H5 (primary; at a 44.1 kHz sampling frequency) and the interviewer’s Google Pixel phone (backup), using built-in microphones. Although data recording occurred during the Covid-19 pandemic, rates in Taipei were very low at that time, and none of the

participants nor the interviewer was wearing a facemask or face shield at the time of data collection.

In this section, we describe how affective displays during the ‘device off’ condition indicate experiences of living as disabled persons. We find that participants broadly align with one of two affective displays: Negative or Neutral. This coding is purely based on their response to the question immediately after the reading tasks: “did you feel any physiological or psychological difference between the two auditory modes during the reading tasks?”. If the participants (N = 9) mention anything psychologically negative, they are categorised as displaying negative affect (hereafter, ‘Negative’ speakers); otherwise, they are categorised as displaying neutral affect (N = 10) (hereafter, ‘Neutral’ speakers). None of the 19 participants mentioned positive psychological feelings. Note that this analysis does not indicate that the ‘Neutral’ participants experienced nothing psychologically negative internally; instead, this categorisation emphasises the performative aspect of affect – the participants did not display negative affect in front of the hearing researcher.

In addition, some of the participants (N = 7) did the reading task in the presence of not only me but also their friends or family. Grace came to the interview with her mom, who is a speech therapist. Hung was with his dad, who obtained age-related hearing loss and was using a hearing aid Hung has not been using. William was with his partner, Annie; yet, Annie participated in the reading task alone, and William took part in the reading task in the presence of Annie. Ling and Eda were roommates, and they came to the interview together. Maggie and Yao were partners, coming to the interview together. Surely, their friends or families add another layer of audience effect to the affective display observed in this study. They did not only display affect toward auditory deprivation to me; they also displayed affect when their important others were there. The affective display and whether the participants did the reading task alone are statistically independent ($\chi^2[1, N = 19] = 1.57, p = .21$). As there is no way to analyse the audience effect from people other than the

interviewer on the affective display toward auditory deprivation, we do not go deep into the details of this layer of audience effect.

Affective display is statistically independent from the default assistive devices the participants rely on (CI vs. non-CI; Table 2) ($\chi^2[1, N = 19] = 3.315$, $p = .068$). We also checked whether the two affective categories differ in their assessments of their assistive devices measured by the survey. Independent t -tests were applied. The two speaker groups do not differ in their responses of any of the four sections. That is, the affective display ('Neutral' vs. 'Negative') is not about the participants' assessments of their dominant assistive devices. That is, affective display is orthogonal to the default device and any of the four satisfaction indicators.

Based on the case of Xiao-Kun described earlier, we know that D/HH people's responses toward different assistive devices are not only about the devices in a medical sense. When using a particular device, they also think of the life experiences associated with that device, and these inform ideologies towards both the device and disability.

In the following paragraphs, we use the participants' personal narratives of how deafness influences daily life to make sense of the displayed affect in relation to their life experiences. These narratives are not responses to the question as to what they think about the reading tasks. We use the narratives to demonstrate how their affective displays are as performative as are their meta-linguistic narratives of disability.

4.6.1 Speakers signalling neutral affect

'Neutral' participants are those who did not mention anything psychologically negative when being asked to comment on the difference between the two auditory modes. Note that demonstrating affective neutrality is an affective display, too (cf. Pratt, 2019). It does not mean there is no affect involved; rather, given the prevalent discourses of stigma toward disability, the avoidance of negative affect is potentially highly agential. While they might internally

experience a negative self-image indexed by auditory deprivation, these ‘Neutral’ participants did not display any such affect to the researcher.

The personal narratives of ‘Neutral’ participants did not highlight deafness as impacting their life and instead argued that disability is only one axis of identity. They also tend to explicitly reject negative ideological framings of disability. For example, Eda said:

“I was born deaf, so I just deal with it peacefully. Actually, **I don’t think it’s anything shameful.** [...] I’m lucky because I grew up in an environment that **doesn’t make me feel pessimistic.** Yes, my friends and others [...] they don’t treat me as special just because I’m in this situation.” (我天生就是這樣，那我就是和平的跟它共處這樣子。因為其實我真的覺得沒有什麼好丟臉的啦。[...] 我算運氣好因為我生長的環境並沒有讓我覺得很悲觀，對，因為我身邊的朋友什麼的啊 [...] 他們也不會覺得說，你是這樣的狀況，然後就特別對你怎麼樣)[emphasis our own]

Eda clearly constructed herself as a person who does not feel negative about deafness. Another example is Anxin:

“I’m **not an emotional person** [...] **I don’t easily have too many negative emotions** [...] I know that some D/HH children, under this inclusive education paradigm, the schools do not always have the resources they need, so they have poor academic performances [...] it is always the case that they are excluded by their peers [...] or being bullied (4 secs) but **I didn’t have this kind of experience.** [...] I read some papers saying that, in Taiwan, if your academic performance is great, no one would mess with you.” (我脾氣滿平穩的 [...] 我滿不容易有太多負面情緒 [...] 我是有大概有知道就是一些聽障小朋友在這種回歸主流教育的狀況，學校其實不一定真的可以給他需要的資源，然後他成績會落後 [...] 被排擠是一定會有 [...] 或被霸凌 (4 秒) 但我是沒有碰到這樣的狀況 [...] 我好像有看到一些論文是寫說，台灣的狀況是如果你成績夠好，基本上沒有人會去鬧你)

[emphasis our own]

In this quote, Anxin first rejects the identity of being an emotional person, itself an explicit display of neutral affect. He then contrasted his experiences with those of the other D/HH persons. He also highlighted that in the Taiwanese context, disability is secondary to academic experience, which backgrounds the role of disability in his life.

Some ‘Neutral’ participants stated that they experienced an inability to monitor their pronunciation under auditory deprivation, but that they did not perceive their unmonitored speech negatively. For instance, Annie said that she was not worried about her speech under auditory deprivation, since for her, “that’s also one of my voices”. Others even stated that they did not feel any difference in auditory feedback between the two auditory modes. Rain is an example. He also mentioned that he was seldom treated differently by hearing people, and that disability never bothered him.

Neutral affect was displayed by these participants to explicitly counter the negative affective qualities (e.g., not emotional, not pessimistic) present in the wider social discourse. That is, they demonstrate the affect of ‘not feeling disabled’. Such affective neutrality is what Bucholtz (1999, p.211) describes as “negative identity practice” that individuals adopt to “distance themselves from a rejected identity”. Here, what is rejected by the ‘Neutral’ participants is a negative stereotype of D/HH people (Lane, 1988).

4.6.2 Speakers signalling negative affect

‘Negative’ participants were those who, in presence of the researcher, displayed negative affect toward the self-image indexed by the auditory deprivation. Such negative affect is verbally anchored as feeling “insecure”, “unsteady”, “empty”, “unconfident”, “anxious”, “powerless”, and “frustrated”. For example, Wei said that she felt “insecure” under auditory deprivation because she had been criticised by hearing people for being too noisy when not using her CI.

By examining their narratives, we found that ‘Negative’ participants orient to a self-image that is composed of negative experiences concerning disability. They tended to emphasise how deafness negatively affected their life, in general. Some pointed out that they used to be at a low point of their life and gradually became more positive due to particular life events.

For some, disability heightened anxiety around academic performance. Grace expressed anxiety over whether her academic performance was actually on par with other students at her university or if she had been admitted due to lower entrance requirements for students with disabilities. Grace also cared about how hearing (“normal”) people view her:

“I often think about why I’m trying so hard to make myself looking like a normal person. [...] OK, I’m conflicted. On one hand, when I hear people saying I don’t look like D/HH, or I speak clearly [...] I feel happy. On the other hand, I’m angry. Why should I adapt to you and talk like you” (我自己還是會覺得我為什麼要那麼努力讓自己像個正常人 [...] 好吧，這也是很矛盾，一方面當我聽到別人稱讚我說，就我很不像聽障，或者是我講話很清楚 [...] 我覺得很開心，一方面我就很憤世嫉俗的會覺得說，我為什麼要適應你們 [...] 然後講話要像你們一樣)

Grace pointed out that she felt “unsteady” and “empty” during the auditory deprivation. In this case, her expressions of negative affect against her auditorily deprived body were in response more to the image of a negatively disabled self, indexed by auditory deprivation, than to an immediate lack of auditory feedback.

This pattern was especially noticeable among participants who divided their life into a negative part and a positive part, with the dividing line being their receipt of the CI. For example, in Chenyu’s first year during undergraduate study he experienced low self-esteem and developed a timid personality. He considered the CI implantation as a chance to start a new stage of his life and to adjust his personality. This narrative of “a new life” is frequently reported in previous studies on CI users’ experiences (e.g., [Finlay & Molano-Fisher, 2008](#)):

“The cochlear implantation was more like a turning point for me to change my mindset. It’s like when I used to use HA, I was less courageous. But after I got my CI, I thought I couldn’t give up or waste this opportunity to change myself [...] back to the CI, objectively speaking, it doesn’t really improve my hearing much” (開電子耳代表在心態上有一個時間點去轉變自己的心態。就是以前可能裝助聽器的時候，我本身個性是比較退縮的。不過開完電子耳後，就會想說，不能放棄或是浪費改變自己的機會 [...] 不過回到電子耳本身，它在客觀上可能並不是增加了很多的聽力這樣子)

Notably, Chenyu stated that the auditory improvement from receiving CI was actually very limited. Yet, with CI, he said he managed to become a “braver” and “more positive” person who treasured each opportunity given in his career. Describing how he felt during the auditory deprivation, he said:

“When I turn off my CI, or sometimes it’s out of battery, and I don’t have the battery with me, I only have HA. [...] I kind of psychologically feel disabled. [...] Probably I’m afraid that people think I cannot hear or so.” (平常關掉電子耳或是沒電，但是一時還沒有辦法換電池的時候，我就只有助聽器 [...] 這個時候心理上就覺得有一種失能的感覺吧 [...] 就可能這時候就很害怕別人覺得自己聽不到什麼吧)

The description corresponds to how he adjusted his personality after receiving his CI. Chenyu’s case crystallises how affective negativity is performed toward an auditorily deprived body in this group, and is consistent with their emphasis on the negative aspects of deafness in their personal narratives. That is, a momentary affect during auditory deprivation reflects a more general **habitus** (Bourdieu, 1977, 1991).

4.7 Acoustic analysis

Previous research on vowel production between the ‘device-on’ and ‘device-off’ conditions comes from a clinical perspective. Here, we follow classic practice

in both clinical work and sociolinguistics, operationalising variation in vowel quality based on single-point vowel measures.

4.7.1 Analytical technique

All occurrences of /i/, /a/, and /u/ in both focused and unfocused words (see Table 4.1) were manually segmented in Praat (Boersma & Weenink, 2019). Only content words were included. F1 and F2 values were automatically extracted from the midpoints of labelled intervals. Formant values of vowels were Nearey-normalised using the *vowels* package (Thomas & Kendall, 2017) in R (R Core Team, 2019). Vowel plots were made through the *phonR* package (McCloy, 2016), and the data were analysed with linear mixed-effects modelling using the *lme4* package (Bates et al., 2015). All models included by-speaker and by-word intercepts as random effects. By-speaker random slopes were included where possible.

Each maximal model included the following independent variables: affect (negative/neutral), auditory mode (AM) (device-on/device-off), default assistive device (CI/no-CI), gender (men/women), hometown (i.e., whether one was raised in Great Taipei Metropolitan) (yes/no), the four satisfaction indicators (continuous), duration (continuous and log-transformed (see, e.g., Kondaurova et al., 2012)), nasal coda (yes/no), word focus (focused/non-focused), and lexical tone height (low/high). Independent continuous variables are mean-centred. Model comparison proceeded as a forward, ‘add-one’ process. Interaction terms were theoretically-driven, including two-way interactions between AM and every social factor (i.e., affect, device, gender, hometown, and satisfaction indicators). We also considered a three-way interaction among AM, gender, and affect. An interaction term was only included if it improved the model fit, and the optimal model was chosen when no further independent factor improved the model fit.

4.7.2 Results

Figure 4.2 shows the vowel plots by affective displays. Based on the qualitative vowel visualisations, during auditory deprivation, the vowel /i/ appears to be backed by both groups, but ‘Negative’ speakers show greater /i/-backing. There also seems a raising process in the vowel /a/ between auditory modes. Neither group shows much variation in the vowel /u/ between conditions. Statistical analysis later supports these observations. Based on the model results, no fixed effect of auditory mode or its interaction with affect was significant for predicting /a/-anteriority, /i/-height, or either dimension of /u/, and these dimensions of variation will not be discussed further.

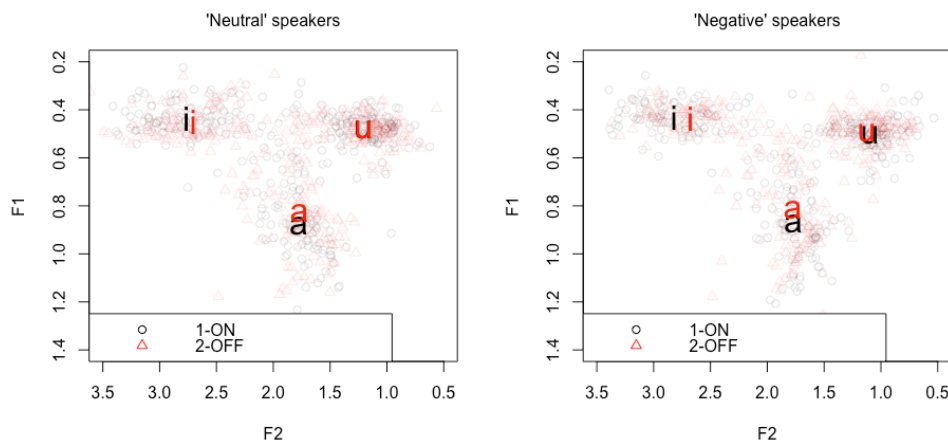


Figure 4.2: Vowel plot by affective display under ‘device-on’ and ‘device-off’ conditions

4.7.2.1 /a/ height

The best-fitting model for the F1 of /a/ is as follows: $F1 \sim Duration + NasalCoda + AM + Gender + AM * Gender + (1|Word) + (1 + Duration + NasalCoda + AM|Speaker)$ (Table 4.3).

Vowel duration is a main effect, but contrary to phonetic predictions (Toivonen et al., 2015), longer durations correlate with a higher /a/ vowel. A longer duration is likely a compensation to a raised /a/. More in line with phonetic expectations is a main effect of coda type, with a nasal coda raising

/a/ relative to a zero coda. Neither device nor affect was retained in the final model; that is, no evidence shows that CI users and non-CI users, nor ‘Neutral’ and ‘Negative’ participants, produce /a/ height differently.

Table 4.3: Results of a linear mixed-effects regression modelling the height of /a/

	Estimate	Std.Error	t value	Pr(> t)
(Intercept)	0.927	0.065	14.26	<0.001 ***
Duration	-0.060	0.029	-2.025	0.046 *
Nasal coda = yes	-0.179	0.033	-5.389	<0.001 ***
Auditory mode (AM) = off	-0.084	0.020	-4.050	<0.001 ***
Gender = men	-0.147	0.045	-3.223	0.005 **
Gender = men x AM = off	0.067	0.030	2.241	0.030 *

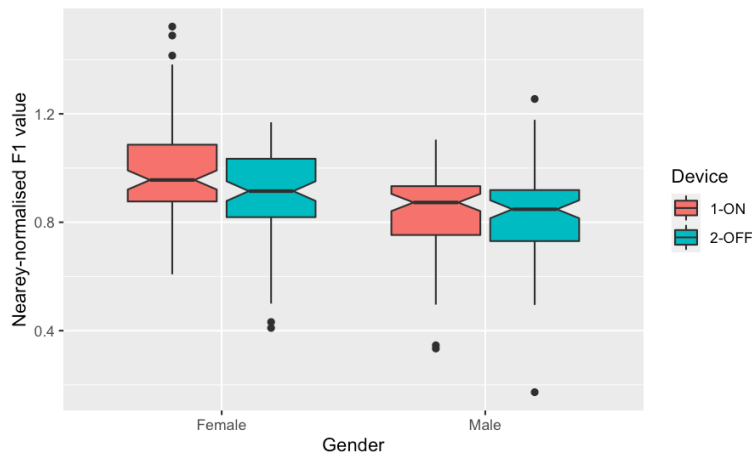


Figure 4.3: Normalised F1 values of /a/ by gender and auditory mode

Auditory mode and gender are both significant, and so is their interaction. Women produce /a/ higher under the ‘device-off’ condition, while men’s /a/ barely shifts (Figure 4.3).

4.7.2.2 /i/ anteriority

The best-fitting model for the F2 of /i/ is as follows: $F2 \sim \text{Word position} + AM^* (\text{Affect} + \text{Gender} + \text{Speaking Satisfaction} + \text{Listening Satisfaction}) + (1 | \text{Word}) + (1 + \text{Word position} + AM | \text{Speaker})$ (Table 4.4).

As shown in Table 4.4, word position is a significant predictor for /i/,

Table 4.4: Results of a linear mixed-effects regression modelling the anteriority of /i/

	Estimate	Std.Error	t value	Pr(> t)
(Intercept)	2.913	0.129	22.547	<0.001 ***
Word position = unfocused	-0.065	0.024	-2.651	0.014 *
Auditory mode (AM) = off	-0.230	0.035	-6.423	<0.001 ***
Affect = neutral x AM = off	0.124	0.039	3.152	<0.001 ***
Gender = men x AM = off	0.140	0.039	3.584	<0.001 ***
AM = off x Speaking Satisfaction	-0.022	0.008	-2.481	0.013 *
AM = off x Listening Satisfaction	0.050	0.010	4.746	<0.001 ***

showing, unsurprisingly, that non-focused syllables are more centralised than focused syllables (Gu et al., 2003). Again, there is no evidence that CI users and non-CI users engage with the AM effect differently, so neither does the effect of gender nor affect observed here directly come from which assistive device is turned off. In fact, among the 9 ‘Negative’ speakers, 8 are CI users; clinical research (Turgeon et al., 2017) suggests that CI users should have developed stable motor control in articulating the vowels because of use of CI. Yet, it is not what we are seeing here. In addition, the material effects of device use have been considered in the satisfaction factors. That is, the affective effect here theoretically does not result from any possible collinearity between device use and affect.

The best-fitting model finds a significant AM-by-affect interaction, and a significant AM-by-gender interaction, but no significant three-way interaction. While speakers across the dataset generally produce relatively backed /i/ during auditory deprivation, this effect is significantly reduced among ‘Neutral’ speakers, on the one hand, and men, on the other. Note that affect and gender do not co-vary ($\chi^2[1, N=19] = 0.46, p = 0.498$). These results (Figure 4.4), show that the only group not showing /i/ backing in the ‘device-off’ mode are the ‘Neutral’ men speakers. However, the model encourages us to consider an indexical analysis that keeps gender and affect separate at some level.

Two indicators from the satisfaction survey have significant interaction

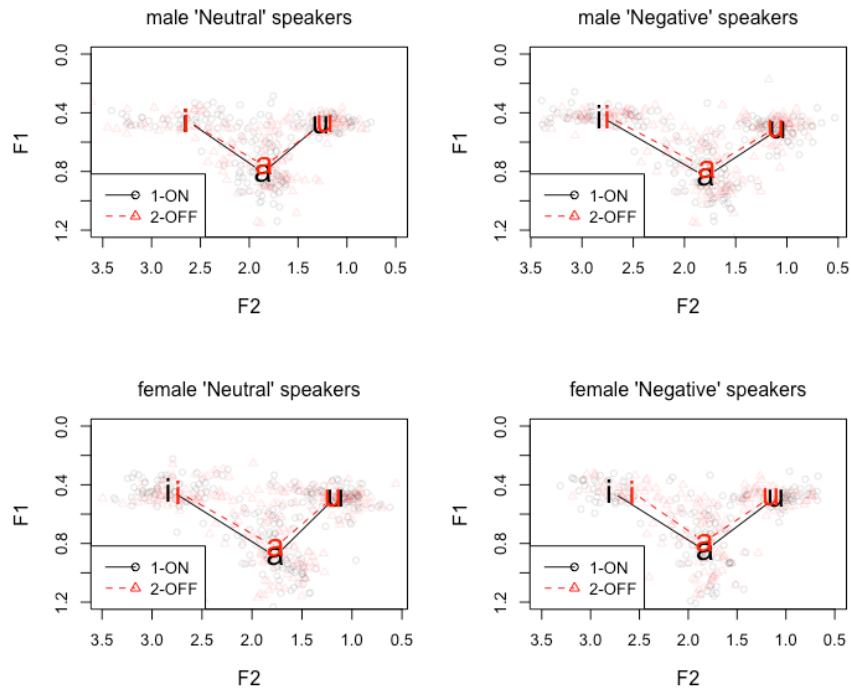


Figure 4.4: Vowel positions by gender and affect category

with the effect of AM. ‘Speaking satisfaction’ and ‘listening satisfaction’ among the participants are not correlated here ($r(17) = .34$, $p = .24$). This is likely because a speaker may have a relatively stable control of their own speech regardless of auditory input, due to various factors (e.g., age of early intervention). In this case, they may not experience a noticeable shift in their pronunciation during auditory deprivation, even if they lose access to auditory feedback.

The results for listening satisfaction show that the more a speaker reports they auditorily benefit from a device, the less they back /i/. This is consistent with the clinical perspective that when users benefit from auditory enhancement, they may develop a strong motor control in their speech, leading to a relatively stable speech during short-term auditory deprivation (Turgeon et al., 2017).

If the user self-reports speaking ‘better’ (more ‘intelligible’ to hearing people and more ‘standard’) under auditory enhancement, they tend to back

/i/ more during auditory deprivation. For participants whose ‘speaking satisfaction’ with the default device is high, they seem to be aware of the shift in their accents during deprivation. Note that this effect is orthogonal to any effect of affect, and it has no interaction with the effect of affect. That is, ‘Negative’ speakers do not self-report speaking satisfaction with the default device higher than ‘Neutral’ speakers do. When a person finds themselves speaking in a less standard way without auditory enhancement, they do not necessarily find it a negative thing. For example, as mentioned earlier, Annie explicitly mentioned that she was aware of her lack of control of own pronunciation when the device was off, but she completely accepted it as just another one of her voices.

The two significant interactions of satisfaction indicators represent the mechanical aspect of how the machine can have an impact on one’s speech production, based on the user’s own experience. In addition to the mechanical effect, we still see the significant effect of affective display.

4.8 Discussion

Table 4.5: Summary of acoustic analysis

Variable	Findings for the device-off condition
/a/	Raising, especially by women
/i/	Backing, especially by women and ‘Negative’ speakers

The results of the acoustic analysis are summarised in Table 4.5. Among the three corner vowels, only the data from /u/ does not support Hypothesis 1: that speakers realise the linguistic variable differently between auditory modes. The vowel height of /a/ and the vowel anteriority of /i/ support Hypothesis 1, and only the variation in /i/ supports Hypothesis 2 that the variation can be explained by affective display.

The significant effect of negative affect on /i/-backing is consistent with previous work done in English-speaking communities that vowel backing

indexes negative affect (e.g., [Eckert, 2010](#)). This group-level effect is also consistent with previous experimental work on emotional vowels in Mandarin that the horizontal vowel position is a more robust indicator of emotion, e.g., that vowel backing is observed across speakers for a sad speech ([Erickson et al., 2016](#)). The current affect effect is not gendered, nor is it influenced by default assistive devices. As we have also controlled for satisfaction indicators which represent how the participants find their default assistive devices useful in terms of ‘improving’ speech production and perception, the mechanical impact on the position of /i/ has also been considered. That is, we can say the effect of negative affect on /i/-backing is a robust effect.

For ‘Negative’ speakers, the removal of the technological assistance indexes a self-image in which they experienced frustration with deafness. They embody their negative affect toward such an image of the self by drawing on various resources, including /i/-backing. Here, we see how physical body and phonetic variation work together as a stylising unit. In contrast, ‘Neutral’ speakers did not invoke social practices that treat a body without technological assistance as a different body from their auditorily enhanced body. The change in physiology is performed as having no influence on the psychology.

While we do not propose a mechanism by which vowel qualities are associated with affective qualities, the results of this research may provide some insights. The D/HH participants in this study have limited access to variation in sound, especially in the range of sound frequencies occupied by the F2 of /i/ ([Liu & Kewley-Port, 2007](#)). Thus, it is less likely that they perceive iconicity in vowel backing via the acoustic signal (e.g., [Ohala, 1983](#)). Rather, the correlation between negative affect and phonetic variation here seems to support the theory that affective qualities are linked to vowel qualities somatically because of the way we use the body.

The other major finding of this paper is the gender effect on both /a/-raising and /i/-fronting. Although gender is not the primary focus of this paper, its significance is further evidence that changes in speech production due to

auditory deprivation are not purely mechanistic. We spend the rest of this section accounting for the observed gender effect in these data.

Recall that Taiwan Mandarin undergoes /a/-raising, /i/-backing, and /u/-fronting relative to Standard Mandarin in China. As mentioned, /u/ is relatively stable across speakers, so it is not surprising that it is not exploited in intra-speaker variation. For /a/, we not only observed a gender effect but also saw a lack of a significant interaction between auditory mode and any satisfaction indicator. That is, the /a/-raising under auditory deprivation may have little to do with a direct, mechanical result of a change in auditory feedback. There has been no research on the social indexicality of /a/ on its own in Taiwan Mandarin, and the /a/-raising undergone by Taiwan Mandarin was not reported to be gendered (Sanders & Uehara, 2007). Thereby, we suggest looking at it together with /i/-backing as a joint stylistic practice.

Gender contributes to /i/-backing roughly to the same extent as affect does. Speaker gender contributes to /a/-raising, but affect does not. The two variants also index a non-standard style, and sounding standard is an important component of sounding hearing-like or abled-bodied. The two variants work together to index disabled-bodiedness, regardless of whether one considers a disabled body negative or not.

The gender effect on both /a/-raising and /i/-backing adds to the stylistic variation within auditory deprivation. Disabled women in general are more sensitive to the shift in embodied experiences of being disabled because they are more requested to perform abled-bodiedness (here, “performative hearingness” (Henner & Robinson, 2021a) than disabled men, and it is a phenomenon which has been documented in feminist disability studies, cross-culturally (e.g., Ghosh, 2010; Kuo, 2016).

However, the effect of gender is not found to interact with the effect of affect. There is no evidence to argue that D/HH women invoke /i/-backing to embody negative affect more than D/HH men do. And, disabled women being more sensitive to the shift in embodied disabled experiences does not

mean they are more likely consider disability negative than disabled men. A disabled body can receive a neutral or positive ontology for some of the women participants: for example, Ling mentioned how she was often mistaken as a Southeast Asian migrant worker (a stigmatised social status in Taiwan) because of her deaf accent, but she did not find it an unpleasant experience –instead, she disclosed her deafness and also seized the opportunity to educate hearing people not to look down upon Southeast Asian migrant workers.

4.9 Conclusion

This paper demonstrates how assistive hearing devices enter into a process of bricolage with linguistic and other symbolic resources, generating new potentials for the embodiment of affect. Here, we focus on inter-speaker differences in affective display as one potential interpretation of inter-speaker differences in vowel production. When a speaker's assistive hearing device is turned off, the removal of the technological assistance and the linguistic resource collaboratively produce a body which is the extension of one of the speaker's selves, one developed through past experiences. When a physical body with technological assistance is contrasted with a physical body without such assistance, the self-images associated with them are also contrasted, and speakers orient to those images in different ways.

This paper is not suggesting that there is no mechanistic contribution from the auditory deprivation to the linguistic performance. Instead, it is suggested that the assistive hearing devices, other than their mechanical effects, also have semiotic potential. An embodied sociolinguistic approach works well to uncover the social nature of (not) feeling disabled within the relationship between D/HH persons and assistive hearing devices.

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Chapter 5

Topic-based Variation as both Cognitive and Agentive

*A revised version of this chapter has been accepted by
Asia-Pacific Language Variation as a research article.*

Abstract

Topic-based variation refers to changes in linguistic style that accompany changes in the topic at hand (Walker, 2019). Most of the research on topic effects in read speech have not taken stance-taking into consideration. This study argues that stance-taking needs to be included in the analysis of topic effects, for reading something aloud is a practice where speakers also engage with the message communicated in any reading passage. This study looks at the socially salient variable of /s/ in Taiwan Mandarin, and how D/HH speakers exploit this variable to embody their stances taken toward a passage concerned with the relationship between hearing people and D/HH signers.

Keywords— deafhood; stance-taking; exemplar theory; story reading; identity politics

5.1 Introduction

The current research works with oral deaf or hard-of-hearing (D/HH) people in Taipei, Taiwan. I explore how D/HH people shift their speech styles when reading a passage concerned with the dominance over D/HH signers by hearing people. Macrosocially, the topic itself is not indexed to any linguistic resources of spoken language, due to little metalinguistic awareness of D/HH speech amongst hearing people and high inter-speaker variability in speech amongst D/HH speakers. It is only indexed to D/HH speakers' individual non-standard speech styles, if we suppose there is a link between a deaf topic and linguistic variants indexing non-hearingness or deafness. However, the D/HH participants demonstrate different patterns of style-shifting between one another when they shift from a deaf-irrelevant topic to a deaf topic. This paper highlights the heterogeneity within the D/HH community, and analyses it in terms of whether a participant aligns themselves with a topic on the ableism. Theoretically, this paper explores how stance-taking can mobilise topic-based linguistic variation in read speech.

Stance-taking is usually approached as a process taking place between individuals in conversation. In Du Bois' (2007) "stance triangle", individuals may take a stance to objects, which further contributes to the alignment or misalignment between interlocutors. The effect of stance-taking on style-shifting in conversational speech has been well documented in variationist sociolinguistics (Kiesling, 2009). Stance-taking can also happen in read speech, given that usually speakers read a certain document for particular audiences, even if they are imagined (Bell, 1984). For instance, in a word-list reading task, Glaswegian adolescents were seen to shift to vernacular speech styles, for they thought of word-list reading with the presence of a researcher as something "unusual to do" (Stuart-Smith et al., 2013, p.513).

Topic-based linguistic variation is concerned with the phenomenon that individuals shift linguistic styles when they shift topics. It has been mostly researched for conversational/interview speech (e.g., Rickford & McNair-Knox,

1994; Becker, 2009; Hay & Foulkes, 2016; Grieser, 2019; Hall-Lew et al., 2021a). For example, two Chinese American women were observed producing backer realisations of the BOAT vowel in English, indexing Asian ethnicity, when talking about Chinese ethnicity, compared to other topics (Hall-Lew et al., 2021a). Kiesling (2011) hypothesises that topic-based linguistic variation should be considered a product of stance-taking in which speakers take a stance toward a topic as a performance which best embodies the social relationship between the interlocutors. For instance, in Lee and Idemaru's (2021) study on North Korean refugees in South Korea, they report that the topic (North Korea vs. South Korea) is not a significant factor predicting the change in stop production which can index North/South Korean identity. They found that when the North Korean speakers talk about the negative aspects of life in North Korea, they demonstrate a significant shift in their stop production toward the South Korean variant; in contrast, when they talk about positive aspects of life in South Korea, the degree of this phonetic shift is considerably less.

Some studies on topic-based linguistic variation have been concerned with read speech (Love & Walker, 2013; Hashimoto, 2019). However, stance-taking was not considered a factor which has sufficient explanatory power, for it was argued that the topic effect on style-shifting in read speech may simply result from the cognitive activation of the topic: linguistic resources which are cognitively stored together with a topic are activated when the topic is activated (Love & Walker, 2013; Drager & Kirtley, 2016). For instance, in Hashimoto's (2019) research on Pākehā (white) New Zealand English speakers, when Pākehā speakers read a passage on Māori culture, there is a significant trend to realize Māori loanwords with the Māori-imported variant [ɾ]; when reading a non-Māori topic, they tend to realise the loanwords with the adapted variant [ɹ]. Hashimoto reports no interaction between the topic effect and a speaker's attitude toward Māori language and culture. That is, the topic effect seems unaffected by agentive factors such as language attitude, which means cognitive activation alone is sufficient to mobilise a topic effect. Yet, it is not clear whether the distribution of language attitudes toward Māori among

Hashimoto's participants is skewed. If Hashimoto's participants are generally positive to Māori language, it may be the reason why we don't see a significant interaction between language attitude and topic effect. Walker (2019) found that more exposure to a variant (a variety) does not lead to a greater degree of topic-based shifting toward that variant; instead, as long as the variety exists in a speaker's repertoire, topic-based shifting toward that variety can take place. Likewise, it is likely that the interaction between an agentive effect like attitude or stance and the amount of topic-based shifting is not significant when the agentive factor is modelled as a continuous variable. Stance is usually considered a categorical variable (e.g., Nycz (2018) among others), and there has not been a claim on whether it's the case that when someone has a 'stronger' stance (which is hard to operationalise), they might demonstrate stronger topic effect.

In previous research on topic-based linguistic variation in read speech, we did not see speakers being invited to share what they think about the passage(s) they were asked to read. Passages are not neutral materials. For instance, promotional materials of places were used in Lin's (2018) study, and descriptions of Māori culture was used in Hashimoto's (2019) study. In these texts, there was also stance taken toward the places or peoples being described, and supposedly, the stances are usually positive. The authors of passages take stances on what's communicated. That is, reading a passage aloud is not simply reading written text aloud without engaging with the message being communicated.

In addition, as topic-based linguistic variation only happens when people have exposure to not only linguistic information but also social information, in the setting of reading tasks, researchers must adopt texts with topics familiar to participants. When participants are familiar with the topics, it is inevitable that they may be habitualized to take stances on them.

I argue that stance-taking needs to be included in the analysis of topic effect by exploring speakers' stance-taking toward the stance taken by the

authors of the passages adopted in reading tasks. Just like what has been mentioned, self-conscious read speech is also highly performative. It is unlikely that when people read something aloud, they are only passive when the topic activates relevant linguistic resources by cognition. By the topic-based style-shifting observed among D/HH speakers, I propose a revised model on how we can balance an agentive account and a cognitive account when analysing topic effect in read speech.

This is a phenomenon-first article. I present empirical data, and then move on to how, with this data, we can envision a revised model concerning topic-based linguistic variation in read speech. This article is structured as follows: first, I provide a short description of how the participants of this study were recruited and what task they were invited to participate in. Then, I focus on the linguistic variable used in this study. This is followed by a commentary on the methods to collect the data. I then present my findings based on linear mixed effects models. Finally, I review how the cognitive model on topic-based linguistic variation highlighting the link between macrosocial information and linguistic resources fails to explain the empirical phenomenon we have in this study, and I propose a way to revise the way we adopt cognitive model for topic-based linguistic variation by incorporating stance-taking toward a certain topic as embedded in a speaker's cognitive schema as part of their habitus (Bourdieu, 1977).

5.2 Participants and research design

The researcher is a hearing male from New Taipei, aged 25 at the time of interview. A total of 14 D/HH participants were recruited from Taipei and New Taipei through social media between December 2018 and January 2019. All identified as deaf or hard of hearing. The average chronological age is 25.9 (max=44; min=18). All the participants use Mandarin as their dominant language and never attended a deaf school. Some of them are heritage signers, or second-language signers of Taiwan Sign Language (regardless of

proficiency), which will be discussed individually in the section of data analysis. The participants are the same ones recruited for the project in Wan (2021b).

All the data used were from the recording by Zoom H5 (sampling rate = 44.1 kHz), with built-in microphone (to prevent any discomfort caused by a headphone with mic to ears with assistive devices). This study looks at topic-based variation in passage reading tasks. Two passages were prepared. The first passage is on a royal story in Qing dynasty of China, having a total of 26 characters (syllables) with the target linguistic variable (see Section 4). The other one is relevant to D/HH people, having a total of 21 tokens with the target variable. The two stories are made comparable in terms of affective valence; both stories are unhappy stories.

The first passage (henceforth, non-DEAF passage) is concerned with how an empress broke up with the emperor by cutting her own hair to put a curse on the emperor, a taboo in Manchurian culture. This story is only anecdotal, not recorded in official history. This is also not that kind of history which is relevant to dynasty politics, which is usually included in history textbooks. Thus, no participant knew this story before the reading task. This story was chosen because for the participants it is an unfamiliar story and also distant in space and time, in contrast to the second passage, which is close to the participants' life experiences.

The second passage (henceforth, DEAF passage) is a fictional story about a kingdom called "A-Pa", where "Wei people" and "Bi people" were the two dominant ethnic groups (see Appendix). Wei people was the dominant group and royalty, forcing Bi people to abandon the signed language. All the D/HH participants were aware of the allegorical nature of this story, pointing to the relationship between hearing people and D/HH signers in real life. This passage is based on a story written by Hsin-yi Lu (2012), a deaf artist. After the reading tasks, the participants were invited to comment on the DEAF passage. Their comments are used to operationalise speaker stance.

This study does not focus on any topic effect of the non-DEAF passage.

As the non-DEAF passage is the first passage to be read, we expect to see the topic effect of the DEAF passage elicit style-shifting from speakers. The second passage is also the passage which the participants find more familiar with and engaging; thus, theoretically we can see linguistic resources being utilised to embody participants' stances towards the DEAF passage. If the results show there no variation in the target linguistic variable between the two passages, we will take it to mean there is no topic effect from the DEAF topic (cf. Hashimoto, 2019).

The participants were recruited to the project because of their D/HH identity. Before the reading tasks, the researcher interviewed them about their comments on signed language, how they identify themselves, and how they understand the relationship between signed language and themselves as oral D/HH people. I compare the interview speech to the read speech in order to know how each participant performs standardness in response to the register demand of reading aloud. In addition, their D/HH identity has been primed since the beginning of the interview. This research design is also to prompt them to come up with a stance towards what they were going to read in the DEAF passage, and how to engage with the DEAF passage in front of a hearing researcher.

All participants were required to familiarise themselves with the reading materials. After the reading task, the participants were invited to comment on the DEAF passage.

5.3 Linguistic variable: /ʃ/, to retroflex or not

5.3.1 Hearing people and /ʃ/

This study looks at the most socially salient variable – retroflexion – in Taiwan Mandarin. A body of work points out that the alveolar-retroflex contrast (including the /s/-/ʃ/, /ts/-/tʃ/, and /ts^h/-/tʃ^h/ contrast) is undergoing a process of neutralisation, in the direction of the alveolar (Kubler, 1985; Tso,

2017). This is a robust sociolinguistic variable which has been considered a “stereotype” (Labov, 1973) that can differentiate Mandarin speakers from People’s Republic of China (PRC) and Mandarin speakers from Taiwan (Chen, 2018a), in that Mandarin speakers from PRC are perceived by Taiwanese people to produce full retroflexion.

The current study only examines the retroflexion of /ʂ/ because acoustically sibilants are difficult for D/HH speakers to acquire, which leads D/HH speakers to pay attention to them. The retroflexion of /ʂ/ is achieved by a bunched tongue; Taiwan Mandarin speakers who demonstrate a clear alveolar-retroflex distinction produce /ʂ/ by elevating the tongue tip and blade (Chiu et al., 2020). This tongue posture difference is acoustically reflected in the measurement of the centre of gravity (CoG), which is negatively correlated with retroflexion. Beside from CoG, /ʂ/ tends to receive shorter frication duration than /s/ does (Chang & Shih, 2015). The frication duration is a secondary phonetic cue rather than being phonemic.

As there is a general trend of de-retroflexion amongst hearing speakers of Taiwan Mandarin, the full retroflexion of /ʂ/ is ideologically loaded. In spontaneous speech, realising a full retroflexion is considered not only un-Taiwanese-like but also pretentious (Brubaker, 2012), and de-retroflexion is not considered prestigious. The low prestige associated with de-retroflexion is appropriated locally by male students to reject an academic persona in speech production (Baran, 2014); de-retroflexion is also perceived to index lack of ‘refined’ femininity (Su, 2008, 2018a).

In contrast, in read speech, it is relatively acceptable, or actually expected, to demonstrate full retroflexion. Starr (2010) found a Taiwanese woman working as a Mandarin teacher in the United States retroflexed 100% of the target tokens when she read aloud textbook. This teacher also retroflexed significantly more in teaching events than she did in non-teaching events. It was argued that retroflex initials were employed by the teacher to construct an instructor persona (Starr, 2010). Acoustically, Tso (2017) reported that there

was a decline of 200 to 300 Hz in the CoG of /ʃ/, when hearing speakers shifted to the read speech from spontaneous speech. Fon (2018) found that the shift to retroflexion in read speech is only observed amongst women; men as a group do not demonstrate such style-shifting.

5.3.2 D/HH people and /ʃ/

Again, as fricative sibilants are acoustically difficult for D/HH speakers to acquire, D/HH speakers of Taiwan Mandarin do not all sociolinguistically engage with this variable in the same way as hearing speakers do, even if they are aware of the fact that this variable is ideologically loaded in hearing society. Empirically, a fricative sibilant with lower CoG is more perceptible than one with higher CoG for D/HH speakers (Maniwa et al., 2008). That is, if D/HH speakers would like to clearly hear themselves pronounce /ʃ/, they should produce retroflexion to a larger degree. From the perception of hearing people, the more retroflexed /ʃ/ is, the more standard it sounds. However, for D/HH people, when a pronunciation becomes more auditorily accessible, ideologically it becomes less hearing-like. Specifically, performing hearingness is not only about becoming hearing-like but also concerned with becoming less deaf-like, as hearingness and deafness are ideologically opposite conceptions. McCrispy¹, one of the participants in the current study, commented on the linguistic difference between D/HH speakers and hearing speakers.

Extract 1

1. McCrispy: I think compared to hearing people's voice, my voice is more *zhuó* (濁)('turbid', 'muddy'). It's like I use my throat muscles more than hearing people do.
2. Researcher: But how do you know whether I use my throat muscles in the same way as you do?
3. McCrispy: HAHAHA. When I was at junior high school, my special

¹The participants offered their preferred pseudonyms.

education teacher was also deaf. I could hear them use their throat muscles so much that I couldn't understand them.

4. Researcher: So, you feel you use your throat muscles in a different way from hearing people, because you found other deaf people doing this?
5. McCrispy: No, it's really different. How should I phrase it ... Right, I think when I voice, words are not cut off, because the throat muscle force is always there, but hearing people's words are apart from each other.

McCrispy uses the term *zhuó* to represent the “throaty voice” that D/HH people have but hearing people do not have, and this speech style is not favoured (see O'Connell (2016) for an auto-ethnography on how D/HH people's throaty voice is also stigmatised in the Irish context). The use of “throaty voice”, or “laryngeal quality”, comes from D/HH speakers' articulatory strategy of using “tactile impression” instead of “auditory input” to locate how a sound should be produced (Lenden & Flipsen, 2007). A “throaty voice” stems from a backed constriction. It is likely that a constriction taking place in the lower/backer part of the vocal tract results in the **feeling** of a more deaf-like speech to D/HH people. The articulatory gesture of de-retroflexion may therefore be considered less deaf-like. In McCrispy's discourse, “using throat muscles” (line 3) is believed to contribute to the low intelligibility of D/HH speech. Importantly, the throaty voice is devalued because hearing people do not use it. Likewise, when retroflexion makes /ʂ/ audible for D/HH people, they may perceive it as becoming less hearing-like. As an ability to perceive higher sound frequencies is frequently cited by D/HH people to be an index of hearingness, de-retroflexion (higher CoG) may therefore be rhematised as the icon of hearingness (Irvine & Gal, 2000).

Among the fourteen participants, four of them demonstrate variants of /ʂ/ which may be considered indexing speech impairment by speech-language pathologists: fricative-stopping, fricative-affrication, fricative-dropping, or glottalisation. These speakers were excluded from the present analysis. The other ten participants who did not demonstrate a pathologised speech have

quite different life experiences concerning speech medicalisation. These differences will be considered in analysing their patterns of fricative production.

I extracted each non-pathologised participant's tokens of /ʃ/ from their interview speech in which they responded to my first interview questions – including “which identity label do you identify as?”, “how do you see your relationship with Taiwan Sign Language?”, and “could you tell me about your medical history of deafness?”. The midpoint CoG value of the frication interval of each /ʃ/ was automatically extracted by a script in Praat (Boersma & Weenink, 2019), using a 25 ms Gaussian window (Reetz, 2020). CoG has been one of the most reliable indicators of the retroflexion of /ʃ/ in Mandarin (Chang & Shih, 2015; Chiu et al., 2020; Luo, 2020). For the CoG measurement, a high-pass filter was set at 1000 Hz to eliminate low frequency noise and co-articulatory voicing from the surrounding segments (Chang & Shih, 2015). Tokens whose duration was less than 30 ms were excluded. The CoG of /ʃ/ tokens in read speech (i.e., passage reading) was obtained by the same method.

I compared the 10 participants' realisations of /ʃ/ in interview speech and read speech (both passages) to see which variant (the retroflexed, or the de-retroflexed) they use to meet the register demand of reading aloud. The variant being employed to do the ‘read-aloud accent’ is then considered the variant which indexes standardness in their personal stylistic repertoires.

The CoG of /ʃ/ tokens in read speech (N = 456) and that in spontaneous speech (N = 1,422) are compared through a linear mixed effect model by the *lme4* package (Bates et al., 2015) in R (R Core Team, 2019). The model is: *CoG ~ Register + Vowel height + Sibilant duration + Vowel roundedness + (1+Register|Speaker)*. Vowel roundedness (yes / no), and vowel height (high / mid / low) are categorical variables. Sibilant duration is log-transformed, a continuous variable. With the *coef* function in the *stats* R package, the coefficient of by-speaker random slope of register was extracted (see Drager & Hay, 2012; Hall-Lew, 2013). By the signed random coefficient, we can identify whether a speaker exploits retroflexion (lowered CoG) or de-retroflexion

(raised CoG) to cater to the register demand of reading aloud.

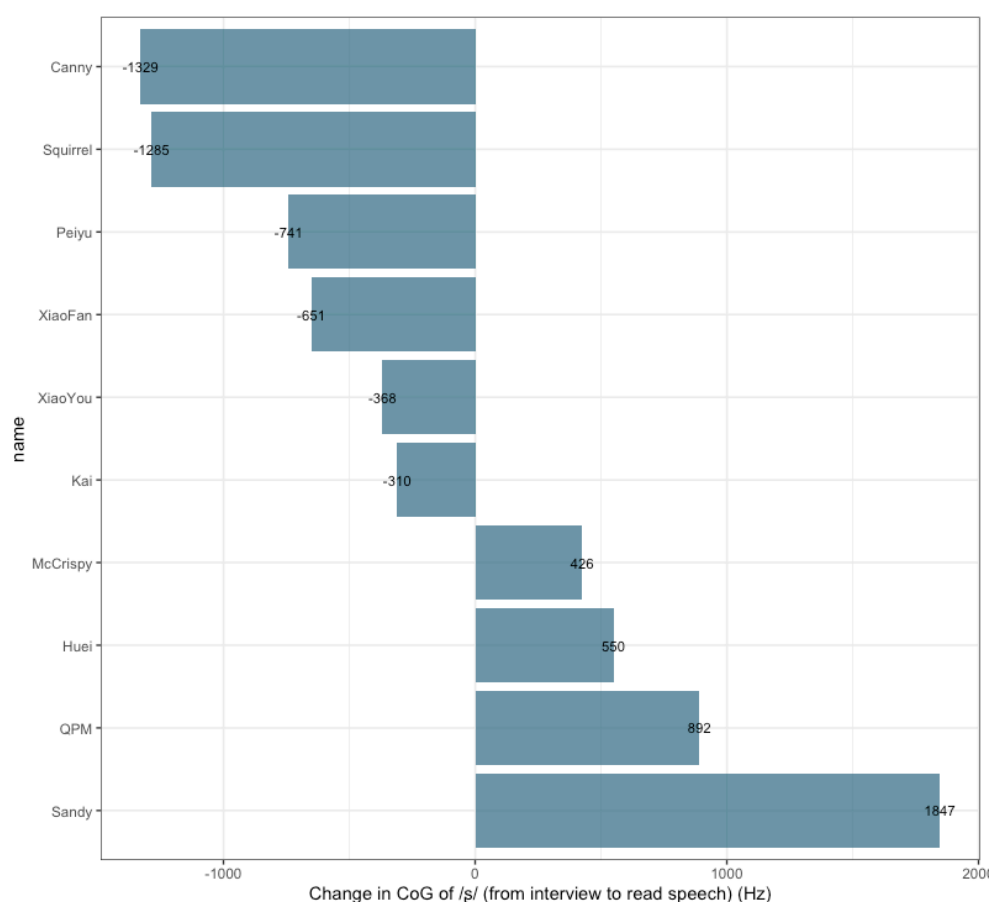


Figure 5.1: Each speaker's shift in the CoG of /ʃ/ from interview speech to read speech (both passages)

In Figure 5.1, we see four participants treat de-retroflexion as a strategy to perform standardness for a 'read-aloud' accent. Three of these four participants were never involved in speech-language therapy. For these speakers, it seems that retroflexion articulatorily and/or acoustically embodies deafness.

In contrast, for the other six 'retroflexing' speakers, medicalisation may have lead them to produce to a hearing-like way of doing 'read-aloud' accent. Amongst the six speakers, only Canny and Kai did not attend speech-language therapy, and these two speakers have a higher degree of metalinguistic awareness of how they pronounce the fricative sibilant than any of the four speakers who de-retroflex in read speech.

Canny studied for her masters degree in the United States, and therefore had exposure to Mandarin speakers from People's Republic of China. According to her, a Mandarin-speaking professor said that Taiwanese people and Chinese people pronounce the alveolar-retroflex contrast very differently, in that Chinese people invoke a higher degree of retroflexion. Canny then commented on the dialectal difference and argued that a high degree of retroflexion is the standard variant. It is also observed that in her interview speech, Canny hypercorrects alveolar fricatives to retroflex ones (Extract 2):

Extract 2

1. Researcher: How do you identify yourself? Among Deaf, hard-of-hearing, a person with hearing impairment, a person with hearing loss, and any other label, which one do you prefer? [聾人、重聽、聽障者、聽損者等等，有沒有偏好哪個名稱，通常來做自己的認同這樣？]
2. Canny: I've never th- th- thought (/s/ī- /s/ī- /s/īkǎo) about this

7,112 3,768 5,361

[喔這個問題我還真的沒有思- 思- 思考過]

The response in line 2 is a direct response to researcher's question, thereby usually receiving more attention from the speaker than narratives do (Labov, 2002). When there is more attention paid to speech, speakers invoke style-shifting to index social meanings. Canny pronounces the first syllable of the word *sīkǎo* /sɪk^hao/ 'think about' three times, where she adjusts the CoG of /s/ two times. The first /s/ token receives 7,112 Hz as its temporal-midpoint CoG, very much an alveolar fricative. Then, Canny seems to believe she should have it retroflexed, producing the /s/ token again, with a CoG of 3,768 Hz. The CoG decreases by more than 3,000 Hz, making the consonant sounding very retroflexed. After that, Canny adjusts the place of articulation again and produces the other /s/ token, with 5,361 Hz as its CoG, fronter than the previous token but still much more retroflexed than the first token.

There is another token of this same word produced by Canny when she

narrates her personal history of deafness. It's not produced as a direct response to any of the researcher's questions, thereby receiving less attention from the speaker than the tokens in line 2 did. That particular token receives a CoG of 6788.25 Hz, quite close to the first token seen in line 2. That is, the first token in line 2 is similar to a token in less self-conscious speech. The second and third tokens in line 2, where retroflexion is invoked, seem to be produced by Canny as self-corrections to index standardness. This is consistent with what Chung (2006) observed from hearing speakers of Taiwan Mandarin: alveolar consonants are often hypercorrected as the retroflex Beijing variants in read speech.

The other speaker, Kai, explicitly said that although he could not hear the difference between the different variants, the de-retroflexed variant is his unmarked variant because he knows hearing people also use the de-retroflexed variant in conversational speech (Extract 3):

Extract 3

1. Kai: Like *zh* /tʂ/ and *z* /ts/, this kind of similar sounds, I can't differentiate them. I pronounce them as the same because ordinary people seem to hear them as the same if they don't pay attention. So, no one would find it. My mom thinks I just don't intentionally make effort to pronounce it, but actually I can't. I don't know their difference. [...] [像是ㄓ跟ㄗ那種音很像的我都分不出來，我其實念的時候都會唸一樣的，因為好像一般人就是沒有刻意的去聽的時候，聽起來也是一樣的，所以就好像不會被發現，媽媽就會覺得我只是沒有刻意把它用力而已，其實沒有，我是真的不會，我分不出來這兩個]
2. Researcher: So, let's say *sh* /ʃ/ [4,141 Hz]. Which sound do you hear? [比如尸這個音，你聽到的是什麼？]
3. Kai: I always hear the non-retroflex one. [我都是聽成不捲舌的]

For Kai, it is clear that retroflexion is used for the marked variant. Although Kai believes he cannot produce the phonetic difference between the

more retroflexed and de-retroflexed variants, Kai does make use of retroflexion to do a ‘read-aloud accent’.

5.4 Stance-taking Analysis

After reading the two passages, all the D/HH participants were invited to comment on the DEAF passage. Notably, when they commented on the DEAF passage, they actually engaged in a conversation with the hearing researcher (me), and so it’s important to note that their comments on the passage are products of stance-taking between the interviewees and the interviewer (Jaffe, 2009; Morgan, 2017; Wan & Cowie, 2021). So, we should not consider the comments on the passage as neutrally reflecting how the participants internally perceive their relationship with the broader D/HH communities or how they usually identify as; instead, we should keep in mind that the comments on the passage, collected from the interview, are performative, in that they adopt discursive strategies to position themselves in relation to the hearing researcher.

I apply the framework of stance triangle (Du Bois, 2007) that interlocutors take stances towards a stance object, and the stances taken by interlocutors further contribute to the alignment between stance-takers. The stance object in this study is the DEAF passage. Among the 14 participants (including the 4 pathologised speakers and 10 non-pathologised speakers), two broad stances towards the DEAF passage can be identified –**a stance of solidarity** and **a distant stance**.

5.4.1 Stance of solidarity

Eight participants (Table 5.1) thought of their own experiences negotiating with hearing people after reading the DEAF passage. The comments are focused on one’s own negative experience of audism (Hua, QPM, McCrispy), one’s experience in signing communities (A-Wei, Zuo-Zuo, Xiao-Lu, Huei), or both

(Sandy).

Table 5.1: Participants who take a stance of solidarity

Participant	Hearing status	TSL proficiency	Speech-language therapy
Hua	Moderate deafness	Non-signer	No
A-Wei	Severe deafness	Signer	Yes
Zuo-Zuo	Severe deafness	Signer	Yes
Xiao-Lu	Severe deafness	Signer	Yes
Sandy	Moderate deafness	Signer	No
Huei	Severe deafness	Signer	Yes
QPM	Mild deafness	Non-signer	No
McCrispy	Mild deafness	Non-signer	No

People do not necessarily have the same definition of a situation (Wang, 2018). Some of the current participants frame the discussion of the DEAF passage as one of hearing people's oppression. For example, QPM talks about how hearing employers refuse to make reasonable adjustments for her in the workplace. QPM has a master's degree in special education; her master's thesis was also on the lived experiences of D/HH people. She was 11 years older than me and had been working in the public sector for many years. She told me that she completely understood how doing research is tough, and thus would be very happy to share her experience of audism with me. She was the first interviewee of my PhD project. With both her academic background and our age difference, she did not feel uncomfortable with talking about audism to me.

The other participants instead interpret the DEAF passage as one about what's going on within the signing community. For instance, Huei mentions Gallaudet University in the United States and expresses her desire for a unified signing community in Taiwan. While at face value the two types of comments are oriented to different topics, the 8 participants all take a positive stance towards the message communicated in the passage, demonstrating 'deaf solidarity'.

In terms of cognitive schema (Bourdieu, 1977; Dodsworth, 2008), there seems a shared socio-autobiographical background among these participants,

against which they are habitualised to take a positive stance towards the claim that hearing people are oppressing D/HH people. They do not perceive a social danger of explicitly criticising hearing people in the presence of a hearing researcher.

Half of the 8 participants did not attend speech therapy, and the other half did. Speech therapy is not only about working with D/HH people on how to be intelligible to hearing people; speech therapy, as an institutionalised medical practice, also imposes upon D/HH people the ableist ideologies that disabled ways of languaging are framed as inferior and less human-like (Henner & Robinson, 2021b; St. Pierre & St. Pierre, 2018). Medicalisation does not necessarily entail ableism; disabled people also engage with medicalisation to secure equal rights (Grue, 2015). I use the term ableist medicalisation to refer to medicalisation which involves institutionalised ableist ideologies. In fact, one of the most famous early intervention institutes in Taipei was founded under the audist/oralist belief that spoken language is more natural than signed language (Lin, 2019), and believes in the “auditory-verbal therapy” (see a critique by Friedner, 2022) which promotes mono-sensational communication (i.e., listening) and discourages disabled ways of languaging, including signed language and lip-reading.

The solidarity-demonstrating participants who attended speech therapy during childhood all decided to learn Taiwan Sign Language (TSL) from deaf signers when they became adults. With the language learning experiences, they were connected to D/HH signers, and developed an insider perspective about the relationship between hearing people and D/HH signers. Among the five TSL signers, only A-Wei and Huei also identified as *lónggrén*; nevertheless, all the five signers demonstrate a stance of solidarity. That is, compared to **identity, stance-taking** may be a better site where we can see how the difference lying in speaker agency can influence style-shifting here.

Sandy is the only participant who is a native TSL signer (yet she did not identify as *lónggrén*). While Sandy’s dominant language is spoken Mandarin,

her parents are both deaf signers. She communicates with her parents in TSL. When asked to comment on the DEAF passage, Sandy is very much aligned with the DEAF passage in that her family members and she experienced much discrimination against TSL from hearing people:

“When I was at junior high school, my cousin came to me with tears. She is hearing, but her parents are both signers. She told me she was bullied by her classmates because they found she communicates with her parents in signed language. I said, ‘what’s wrong with those people?’ I told her she should tell her teacher, but she said she didn’t dare [...] If some guy looks down upon signed language, they won’t want to date me. But I was told it’s actually a good criterion to know whether someone would be a good boyfriend. God is helping me weed out the bad guys.”

For Sandy, the message which is communicated in the DEAF passage is very familiar. The oralism and audism seen in the passage matches her own life experiences of being a member from a family where many are signers.

Huei is a TSL learner. When she talked to me, she simultaneously signed; according to her, it’s a way to practice TSL. After reading the DEAF passage, she expressed her desire for having a robust signing community as described in the passage:

“I’m quite jealous of the United States and Japan. They are more like having a group, a more collective group. [...] In Taiwan, I feel it’s more like single, unorganised units [...] so we are assimilated into them [hearing people], and with the assimilation, just like what’s said [in the passage], we’re getting unhappier, because it feels like we have nothing but a lot of obstacles [...] I hope Taiwan can have a more organised—because now we only have some organisations [...] but they don’t have any interaction. Maybe we can have something like a forum [...], so we can be more united.”

Based on the passage, she extends her discussion to the context in Taiwan, which demonstrates her familiarity with the reality of Taiwanese signing communities. It is also noticed that while Huei did not learn how to sign TSL until her undergraduate study (she was an undergraduate student when interviewed), Huei completely comments on the passage from the perspective of signing communities. That is, she performs deafness by showing solidarity with the message communicated in the passage. In addition, like QPM, Huei was a student majoring in special education as well, and she was quite critical of the ableist **gaze** she noticed among abled scholars. For example, she points out that in some courses relevant to “speech impairment”, some professors in her department highlighted phonetic features of D/HH people, which made her feel uncomfortable. Huei said, not every D/HH person speaks in those ways, and she also questioned why D/HH people should be studied **by** hearing people. This comment was intriguing, for Huei was participating in my project, and I am a hearing person. I asked her why she would participate in my study, since I had already disclosed the information that I am a hearing person in the recruitment text. She then replied, “ah right, why? ha ha ha”. It was important to recognise Huei’s subtle resistance here. In this interview setting, Huei could opt to lie to me about how my project might hold a perspective different from what she heard from her professors; yet, she did not. She opted to align herself with the point that my project is one of the examples that hearing people study D/HH people. Her response to my question indicates that her comment on the DEAF passage is one demonstrating resistance towards hearing people’s oppression.

The other three signers also make comments on how they find this passage authentic in that it allegorically portrays the reality. A-Wei, Zuo-Zuo and Xiao-Lu are TSL learners. After reading the passage, they focused much of their comments on their experiences with the signing community in Taiwan to argue that how the signing community in Taiwan are not united enough or too conservative to really empower D/HH communities to resist audism. For example, Zuo-Zuo criticised how the ideology of the native signer has stopped

new signers like him from participating in signing communities. Although at face value their comments look like criticisms against signing communities, the function of these comments is in fact to resist the hegemony of hearing people by offering substantial suggestions to signing communities.

Through taking an “insider” stance toward the passage, they perform deafness in ways that the researcher can perceive their intimate relationship with the topic. For some participants, they might also perform their D/HH identity when they commented on the passage. However, as seen in QPM’s case, the identification is a spectrum that not all the participants identify as members of signing community or members of broader D/HH communities. What matters to this paper is the fact that one does not need to identify as D/HH, but they can still perform deafness. In a broad sense, it is “performative deafness” that groups these participants into the same category.

5.4.2 Stance of distance

Six participants take a distant stance towards the DEAF passage (Table 5.2). In this group, comments are quite various. Broadly speaking, they might define the situation described in the passage as about negative experience with hearing people (Canny, Kai), or conflicts between hearing people and deaf signers (Squirrel, Peiyu, XiaoYou, XiaoFan).

Table 5.2: Participants who take a distant stance

Participant	Hearing status	TSL proficiency	Speech-language therapy
XiaoYou	Severe deafness	Non-signer	Yes
XiaoFan	Severe deafness	Non-signer	Yes
Peiyu	Moderate deafness	Non-signer	Yes
Kai	Mild deafness	Non-signer	No
Squirrel	Moderate deafness	Non-signer	Yes
Canny	Moderate deafness	Non-signer	Yes

When oriented her stance towards negative experience with hearing people, Canny frames the discussion of audism as an issue of individual

personality rather than a structural violence, as described in the passage. This is a stance divergent from the passage. Kai states that he is fluent in spoken language, and he does not sign, so he does not have relatable experience to what's described in the passage; here, he distances himself from not only hearing people's oppression but also deaf signers.

The other participants frame this passage as one about conflicts between hearing people and deaf signers. XiaoYou and XiaoFan explicitly point out that this passage is not about them. For instance, when invited to comment on the passage, XiaoYou immediately said "I personally think this piece is from the perspective of *lónggrén*", explicitly highlighting how she found this passage not relevant to her and simultaneously distancing herself from the epistemic stance taken by the author of the passage. She points out that this passage is biased:

"In real life, yes, there are people who don't like *lónggrén*, but we should not have a blanket statement, because there are people who are willing to accept these people. And, from my own experiences, I don't sign, but I've seen many people enjoy conversation by writing, no matter whether they are hearing or *lónggrén*. Especially now, by cell phone, conversation by writing has become very convenient and efficient, so I think we should trust hearing people again."

XiaoYou points out that there are also nice hearing people, and argues the perspective expressed in the passage is a "blanket statement", which demonstrates a divergent stance from the passage. The other participants focusing on the conflicts adopt discursive strategies to 'objectively' analyse why the conflicts may happen. For example, Squirrel compares the oppression described in the passage to the ethnic conflicts in Africa:

"The story is very much like real life. The part where hearing people and *lónggrén* have conflicts is very like the ethnic conflicts in African countries. [...] I think *lónggrén* is a group and normal people is another group. When *lónggrén* live in the mainstream society, they find they are the minority as a group"

By comparing the oppression of hearing people to conflicts between African ethnic groups without any group explicitly being an oppressor in the discourse, Squirrel takes a distant stance from the passage, and approaches the passage from a third-person viewpoint. Then, he speaks from his own experience:

“We, *tīngzhàngzhě* [people with hearing impairment], are in the grey area between the two groups [...] We incorporate ourselves to the mainstream society as individuals, like minorities. Sometimes when there is only a *tīngzhàngzhě*, and I have something that I need hearing people to do for me [...] I feel sorry. To appreciate their help, I used to help them with their coursework”

In this follow-up comment, it becomes clear that Squirrel does not see himself as part of the dominated group as described in the passage. Instead, he does not belong to either hearing people or *lónggrén*, strengthening his distant stance towards the passage. He also foregrounds how he feels sorry for asking hearing people for help, possibly due to the presence of the hearing researcher. That is, Squirrel takes a very different stance towards the passage from those who demonstrated ‘deaf solidarity’ in the previous group.

Most of the participants in this group (Table 5.2) attended speech therapy during childhood. No experience learning TSL may be one of the reasons for why they do not align themselves with the deaf signers described in the passage. Thus, they may be sensitive to the potential social danger of criticising hearing people in front of a hearing person (the researcher).

Under ableist medicalisation, if one fails to comply with the ableist norm, they are the ones to be blamed, instead of abled people, because they are considered not working hard enough to ‘overcome’ their disabilities when there is a neoliberal free market of medical assistances (Mitchell & Snyder, 2015). We can see many inspirational narratives admiring some disabled people’s achievement in ‘overcoming’ their disabilities. Disabled people can be critical of ableism while having inspirational experiences (Chrisman, 2011; Friedner,

2022); yet, the regime of ableist medicalisation usually does not authorise such a possibility. In fact, neoliberal ideologies (individual responsibility, free choice, etc.) are experimentally observed undermining socio-political solidarity and collective action (Girerd & Bonnot, 2020).

It is important to emphasise that D/HH individuals engage with deaf identity politics from a different perspective because of socio-autobiographic experiences. What is important to the current study is the displayed stance in the presence of the hearing researcher. What underlies the stance-taking here is “performative hearingness” (Henner & Robinson, 2021a), by which D/HH people perform accommodating to hearing people’s ways of living under the huge pressure of audism.

While the participants discussed in the present analysis are not the same participants discussed in Chapter 4, one may be curious about how the current social categorisation is comparable to the ‘Negative’/ ‘Neutral’ speakers in Chapter 4. In Chapter 4, the affective orientation toward auditory deprivation is argued to be a microcosm of how the participants view disability in relation to themselves in general. For instance, the ‘Neutral’ speakers displayed affective neutrality toward auditory deprivation to articulate a discourse that they are not influenced by deafness in everyday life. In contrast, here, the two identified social personae are directly linked to the political orientation towards disability politics.

Squirrel, Sandy, and Xiao-Fan are the only three persons who took part in both studies. Squirrel and Xiao-Fan both displayed negative affect towards auditory deprivation and take a distant stance from the discussed deaf passage in this study. Sandy displayed neutral affect towards auditory deprivation, and she takes a positive stance on the passage. Although I do not attempt to claim that one’s affective orientation towards disability and political orientation towards disability politics show a one-to-one mapping, the social categorisation identified in the two studies (the two chapters) seem to be related to a certain extent. There seems a trend among oral D/HH people in Taipei that when

one is aligned with the radical disability politics (which sees the relationship between hearing and D/HH people as a colonial or violent dominance), they are more likely to perform affective neutrality toward the disabled body; in contrast, when one distances themselves from disability politics, they are more likely to display negative affect towards the disabled body. It is not unexpected that for D/HH people who see auditory enhancement powered by machines as the source resisting disabled-bodiedness, they are aligned with the medical discourse developed by hearing people and thus might tend to distance themselves from a radical disability politics; for those who do not tend to see machine-assisted hearing as a source of resisting disabled-bodiedness, they are more aligned with the disability politics which tend to emphasise disability as a situation of social oppression. Although the phrasing above looks implying a causal relationship, there might not be a clear unidirectional causality between one's affective orientation towards the disabled body and political orientation towards disability politics. It is also worthy of noting that both affective orientation and political orientation discussed in this thesis are performed in the presence of a hearing researcher. The performance observed here may be different from that observed in the presence of a deaf or hard-of-hearing researcher.

In the remainder of this chapter, I will show how the stance-taking mobilises the topic-based style-shifting in the passage reading task.

5.5 Speech variation analysis

As mentioned above, amongst the 14 participants of this study, 10 do not demonstrate pathologised variants of the target variable, and the other 4 participants do. For the 4 participants, the variants of /s/ vary from stops, affricates, the glottal fricative [h], or deletion. That is, the focus should not be put on whether they retroflex or de-retroflex the few tokens where /s/ is realised as a sibilant fricative. Instead, the focus should lie on how they shift from the variants with very distinct manners/places of articulation to sibilant

fricative. Therefore, I frame the data analysis as two small studies: one on the pathologized speakers, and one on the others.

5.5.1 D/HH speakers of pathologised speech

There are four participants who demonstrate pathologised variants of /ʂ/ – Hua, Zuo-Zuo, A-Wei, and Xiao-Lu. All are ‘challengers of audism’. Each speaker has a different set of variants that are used to realise /ʂ/. There are five categories of variants observed in this study which they adopt to realise the retroflex fricative: deletion, the glottal fricative [h], plosives (e.g., [k], [p]), affricates (e.g., [ts], [ts^h]), and fricative sibilants (i.e., [s], [ʂ]). I use the five main categories to code the variants.

The coding is based on both phonetic similarity to the hearing variant, and how difficult it is for D/HH speakers to produce that sound. To capture the individual difference in terms of stylistic space, each variant is coded with a ‘relative rank’ for each speaker (Table 5.3). The relative rank represent how hearing-like a phone is, compared to the hearing variant [ʂ]. The most dissimilar variant from the hearing variant is coded as 1; the most similar variant to the hearing variant is coded as 2. Variants that do not exist in a speaker’s repertoire for realising /ʂ/ do not receive a rank. Coincidentally, the more phonetically similar to the hearing variant a phone, the more difficult the phone is. That is, the coding scheme simultaneously takes care of both aspects.

Table 5.3: The coding of variants in each speaker’s stylistic repertoire

participant	deletion	plosives	[h]	affricates	sibilants
A-Wei	–	–	–	1	2
Hua	–	–	–	1	2
Xiao-Lu	1	1.25	1.5	1.75	2
Zuo-Zuo	–	1	–	1.5	2

For instance, A-Wei and Hua only travel between affricates and fricative sibilants; in contrast, Xiao-Lu switches between all the five categories. Namely, even if the three speakers all realize a particular /ʂ/-initial token as an affricate

/ts/, this single phone is not equally weighted in their repertoires. For A-Wei and Hua, it is the least standard (hearing-like) variant, but for Xiao-Lu, it is the second most standard variant. A-Wei has two variants for /ʃ/ – affricates (i.e., [tʃ], [tʃ^h]) and the hearing variant [ʃ]; the former is the least hearing-like variant in his stylistic repertoire, thereby receiving the rank of 1. For Xiao-Lu, the manner of articulation of [h] is phonetically more similar to the fricative sibilant than plosives are, and /h/ is also a phoneme more difficult for D/HH speakers to acquire than plosives are (Peng et al., 2004). Thereby, [h] receives a higher rank than plosives do. The relative rank is operationalised as a continuous variable later to measure ‘hearing-like-ness’ of tokens.

In terms of statistical modelling, I am interested in how the speakers shift the degree of hearing-like-ness between the two topics. The dependent variable is the relative rank of hearingness of each token.

The two passages differ in the words with the fricative initial. We need to exclude the possibility that a topic effect results from different phonological environments of the words in the two passages. Thus, independent variables include the following linguistic factors: lexical tone (level/contour) (Chang, 2017), whether the following vowel is rounded (yes/no) (Chang & Shih, 2015; Yu, 2016; Chiu et al., 2020) and the height of the following vowel (high/mid/low) (Yu, 2016; Chiu et al., 2020), and log-transformed character frequency (Li, 2010; Chui et al., 2017).

Linear mixed effect models were fit to the data in R, using *lme4* package. Models were expanded incrementally from the null model. Fixed factors were added one by one, and interaction terms were subsequently added to the model where possible. By-speaker and by-Chinese character intercepts were included as random effects. Topic-by-speaker random slope was also included as a random effect. Likelihood ratio tests were run to determine whether the model fit of an expanded model is improved. Fixed effects and interaction terms were only retained in the model if the model fit was improved. By-speaker and by-character intercepts were included as random effects. Model expansion

continued until incorporating another independent variable did not improve the model fit.

For the pathologised speakers' data, in the best-fitting linear mixed effect model, the only retaining fixed effect is 'topic'. The formula is $Rank \sim Topic + (1 | Chinese Character) + (1 + Topic | Speaker)$. Recall that what the model predicts is the relative degree of sounding hearing-like.

We observed a main effect of topic (Estimate = -0.12, SE = 0.05, t -value = -2.35, $p = .019^*$). At the group level, the pathologised speakers shift to more non-hearing-like variants when reading the DEAF passage. That is, while the estimated degree of style-shifting is not very high, there seems a trend among the four speakers to diverge away from performative hearingness under the DEAF topic.

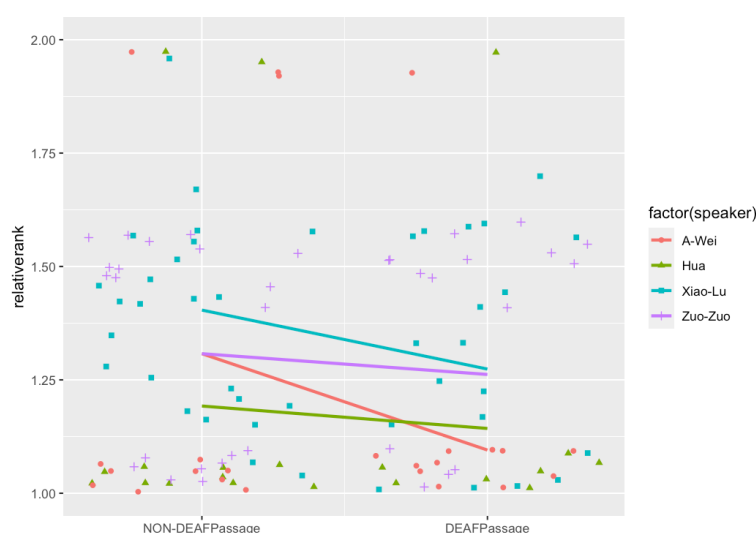


Figure 5.2: The trend of style-shifting between the two topics. A higher relative rank refers to variants that are closer to hearing variants of the retroflex fricative

In Figure 5.2, each speaker's style-shifting is plotted. A-Wei and Xiao-Lu demonstrate stronger style-shifting between topics than the others. In Chapter 3, A-Wei and Xiao-Lu are the two speakers who foregrounded individual agency in their comments on resisting audism, and they also invoked style-shifting toward hearing variants in a minimal-pair reading task, while Zuo-Zuo and Hua

did not. Thereby, it is not surprising that A-Wei and Xiao-Lu invoke a larger extent of topic-based style-shifting here. In other words, the style-shifting between topics we are observing here is influenced by individual differences in terms of stylistic variation, as in sociolinguistics, we know not all speakers are equally inclined to perform social meanings through linguistic practices.

5.5.2 D/HH speakers of non-pathologised speech

In the second study, I explore how speakers of non-pathologised speech engage with the target linguistic variable between topics. The dependent variable is the temporal-midpoint CoG of the frication of the syllable-initial /ʃ/. The extraction of CoG value was done via the same method as mentioned earlier. The frication duration was also automatically extracted by the same script on Praat.

Linear mixed effects models were fit into the data. The model expansion proceeded in the same way as mentioned earlier. Linguistic factors which were considered during model selection included lexical tone (level/contour), vowel roundedness (yes/no), vowel height (high/mid/low), log-transformed character frequency, and log-transformed frication duration (Chang & Shih, 2015). The midpoint F2 value of the following vowel was also considered as a potential factor, as previous research pointed out that Mandarin speakers sometimes invoke extra lip rounding/protrusion when making a retroflexed fricative (Chiu et al., 2020; Luo, 2020). As the preceding segment of the sibilant is reported to have little influence on the CoG of fricative sibilants in Taiwan Mandarin (Chiu et al., 2020), it was not considered in this study. The effect of prosodic prominence was already considered in the factor of frication duration (see Chang & Shih, 2015), so no separate factor of prosodic prominence was considered. It was proposed that passage length may have influence on style-shifting involving the CoG of the retroflexed consonant in Mandarin (Lin, 2018), so this study also considered the time when a token is produced in relation to the total time length of finishing a passage, i.e., time course (%).

For instance, if a speaker spends 100 seconds reading aloud a passage, when a token begins to be produced at the timestamp 66 seconds, the time course is denoted as 66%.

As shown in Table 5.4, the 10 participants included in this study have two styles of the ‘read-aloud’ accent. It co-varies with their stance-taking when reading the DEAF passage. It is likely that the participants who perform the ‘read-aloud’ accent in the same way as hearing people do are also more oriented to the hearing community, compared to the others. Thereby, they tend to distance themselves from the act of condemning audism in front of a hearing interviewer.

Table 5.4: ‘Read-aloud’ styles and stance-taking co-vary among the 10 speakers of non-pathologised speech

Participant	Read-aloud accent	Stance toward DEAF passage
Squirrel	Retroflexion	Distant
Canny	Retroflexion	Distant
XiaoFan	Retroflexion	Distant
Peiyu	Retroflexion	Distant
XiaoYou	Retroflexion	Distant
Kai	Retroflexion	Distant
Huei	De-retroflexion	Solidarity
McCrispy	De-retroflexion	Solidarity
QPM	De-retroflexion	Solidarity
Sandy	De-retroflexion	Solidarity

As the two social factors are completely aligned, we only need to include one of them in the statistical modelling. The ‘read-aloud’ style was considered during the model selection. I am interested in the potential interaction between ‘read-aloud’ style and topic. If the DEAF passage elicits the same direction of topic-based style-shifting from the 10 participants, we should see a significant interaction between the two factors, indicating that they all shift to the variant which indexes the same social meaning under the DEAF topic (although the variants are different at face value).

In addition, I also considered the absolute value of how much change

(Hz) in CoG of the sibilant was involved when a speaker shifted from interview speech to read speech (see Figure 5.1). It is a continuous variable, termed as ‘amount of CoG difference between registers’ (hereafter as ‘Register Difference’). Including this factor is to consider individual speakers’ tendency to respond to the register demand of standard speech, as not every speaker from the same community is equally sensitive to the social meanings indexed to linguistic variants and demonstrates the same amount of linguistic difference for style-shifting (Hall-Lew & Boyd, 2020; Hall-Lew et al., 2021b).

When recruiting participants, I did not balance the number of participants allocated to each of the groups of other social factors, such as gender, age and social class. These factors may affect the tendency to shift the place of articulation of /ɜ/ (e.g., Tso, 2017; Fon, 2018). Yet, practically it is hard to achieve a balance in participant allocation when working with marginalised and stigmatised speakers. Therefore, considering each speaker’s tendency to style-shift in response to the register demand of standard speech is the most available proxy for the other social factors. In fact, this proxy variable might more directly represent Eckert’s (1989, p.259) claim that “the most extreme users of phonological variables [...] are those who have to do the greatest amount of symbolic work to affirm their membership in groups or communities”. In the current research, amongst the 10 speakers of non-pathologised speech, there are only two men (Squirrel and Kai). While hearing men were reported to demonstrate little shift in the retroflexion of /ɜ/ to do read-aloud accent, Squirrel invoked the most change in CoG of /ɜ/ when shifting to read speech amongst the 10 participants; Kai invoked the least change. Compared to grouping the participants by for example gender, considering how much change in CoG of /ɜ/ is exploited in the read-aloud register more directly represents how much symbolic work individual participants do to embody abled-bodiedness.

Theoretically, individual orientation to the register demand of standard speech is not directly related to whether speakers are more or less likely to

demonstrate a topic effect. It is likely that a speaker demonstrates only either a topic-based style-shifting or a task-based style-shifting; it is not always the case that speakers always demonstrate none or both types of style-shifting (Hall-Lew et al., 2021a). It really depends on the topic which is talked about. In the current research, it is expected that if speaker do greater symbolic work to embody abled-bodiedness when engaging with the read-aloud register, they may also do greater symbolic work to engage with the DEAF topic.

The best-fitting model is as follows: $CoG \sim Topic * Register\ Difference + (1 | Chinese\ Character) + (1 + Topic | Speaker)$. No linguistic factor survived model selection. The interaction between ‘read-aloud’ style and topic was not significant, nor did it improve the model fit, thereby not being retained in the model. That is, no matter whether a speaker retroflexes or de-retroflexes to do ‘read-aloud’ accent, they shift to a higher degree of retroflexion under DEAF topic (Table 5.5). What means here is that the speakers are indexing **different** social meanings by the same direction of acoustical change under DEAF topic.

Table 5.5: Summary of the linear modelling of CoG value of /ɿ/ demonstrated by D/HH speakers who do not demonstrate pathologised variants

	Estimate	Std. Error	<i>t</i> value	Pr(> <i>t</i>)
(Intercept)	7077.06	480.14	14.73	<0.0001 ***
‘Read-aloud’ style = retroflexion	-1985.69	611.1	-3.24	0.014 *
Topic = DEAF	-284.7	83.39	-3.41	<0.001 ***
Topic = DEAF x register difference	0.43	0.17	2.45	0.015 *

The average CoG of /ɿ/ decreases by 284.7 Hz under the DEAF topic. It falls in the range of the decline in CoG (200-300 Hz) when hearing speakers shift from spontaneous speech to read speech (Tso, 2017), indicating that it is a great amount of CoG difference.

For the speakers who do ‘read-aloud’ accent via de-retroflexion (hereafter, ‘de-retroflexing’ speakers), they invoke more retroflexion under the DEAF topic, compared to the non-DEAF topic. That is, these speakers diverge away from performative hearingness when reading the DEAF passage. Sociolinguistically,

it is the same direction of indexical shift as shown in the results of the first study, where pathologized speakers shifted to less hearing-like variants under the DEAF topic. In contrast, the speakers who do ‘read-aloud’ accent via retroflexion (hereafter, ‘retroflexing’ speakers), they invoke more retroflexion under the DEAF topic to perform hearingness. For them, retroflexion is the resource to do ‘read-aloud’ accent. The demonstrate a difference direction of indexical shift.

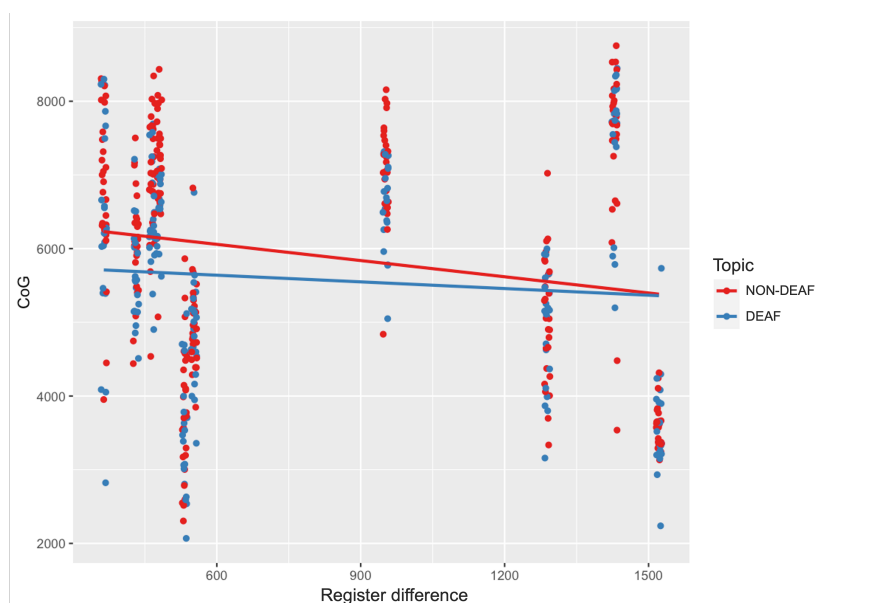


Figure 5.3: The topic effect is reduced among speakers who demonstrate larger changes in CoG (Hz) when shifting to read speech

Register difference is not a significant factor, so it’s not shown in Table 5.5. However, the significant interaction between topic and register shift indicates that speakers who demonstrate larger CoG difference between registers show a smaller topic effect (Figure 5.3). Each speaker’s standard speech style has been considered in the model. Thus, the interaction here is not driven by whether one has articulatory space to further retroflex the sibilant after having retroflexed the sibilant when shifting from interview to read speech.

The interaction indicates that when a speaker does greater symbolic work to perform standard speech in read speech, they are less inclined to show semiotic engagement with the DEAF topic through /ɛ/. We can see a speaker’s

tendency to perform standard speech as a tendency to engage with performative hearingness. Then, it is not surprising that among individuals who make greater symbolic work to perform hearingness, there is a weaker trend to style-shift to embody their relationship with deaf identity politics. However, as there are only 10 speakers included in this model, this claim awaits validation in future research.

5.6 Discussion

In this paper, I have demonstrated how stance-taking also contributes to different style-shifting in terms of indexical meanings in topic-based variation in read speech. However, it does not indicate that the framework of cognitive activation does not matter here. What the results show is we need a cognitive model of topic-based variation which considers speaker agency as a necessary factor, rather than only an external and unnecessary one. In this section, I go through the main theories of topic-based linguistic variation and see whether and how they are applicable to the current findings.

In the Labovian paradigm, a topic effect was believed to stem from the “attention paid to speech” model (Labov, 1966) where particular topics are conventionally associated with casual or careful linguistic styles. Yet, paying more attention to one’s own language may lead to, for instance, a performative speech/sign restricted to particular social contexts (Schilling-Estes, 1998). In linguistic performance, one does not necessarily use the standard or non-standard linguistic styles. This framework has been empirically evidenced having little predicting power for topic-based linguistic variation (Becker, 2009; Grieser, 2019). For the current research, even if the DEAF topic elicits more self-consciousness from speakers, we still cannot make sense of the observed style-shifting pattern – some invoked hearing speech style, and others diverged from it.

Recent research favours a cognitive account (Love & Walker, 2013;

Hashimoto, 2019; Devlin et al., 2019). In the exemplar model (Drager & Kirtley, 2016), linguistic information which is cognitively stored is socially weighted (Sumner et al., 2014). People cognitively store what they experience as episodic memories. The specific details of an episodic memory further undergo categorisation (Wedel, 2006). When people encounter linguistic information, both the linguistic information and its co-occurring social information become cognitively associated exemplars. Linguistic exemplars which share similar social information may thus be stored together. A linguistic exemplar may be linked with multiple social exemplars. The more frequently experienced one becomes cognitively weighted more, thereby producing a more stabilised social indexicality. Then, when certain social cues are activated, their associated linguistic information can be activated; vice versa. For instance, it is found when speakers narrate old events, they shift to the more conservative variants (Hay & Foulkes, 2016).

Nevertheless, not every topic-based style-shift is based on an explicit link between a topic and a linguistic feature. For example, there is no link between the topic of wages and non-standard variants in Coupland's (1984) study on the travel agent; yet, we still saw the travel agent shifted to non-standard variants when talking about their customer's wages. Third-wave sociolinguists have emphasised an agentive model in which topic-based variation is driven by persona management (Coupland, 1984; Grieser, 2019), identity embodiment (Becker, 2009; Su, 2012; Boyd, 2018), or stance-taking (Kiesling, 2011). This model does not presuppose any explicit link between linguistic resources and macrosocial information. Specifically, Kiesling's (2009; 2018) stance-taking model centralises what speakers/signers perceive their relationship with the topic or the addressee is. Instead of seeing style-shifting as an act of directly performing established macro-social indexicalities, Kiesling argues that in any social interaction, speakers/signers style-shift to embody their stance in the interaction. For instance, the travel agent in Coupland's (1984) study shifted to the client's non-standard speech style when the client complained about her wages to embody her "sympathetic" stance.

Work on topic-based linguistic variation in read speech has not taken an agentive account into consideration. As mentioned in the introduction, read speech does not occur in social vacuum, and the practice of reading aloud per se is a site where speakers take stance on the content of the passage to negotiate their relationship with potential audiences. I argue that passage reading should be analysed as a social practice where people engage with not only the passage but also the social values which are linked to such an activity. The reading practice is not different from other social practices where there is no real-person interaction, such as a viewing practice. For instance, in Park's (2021) analysis of a TV advertisement where South Koreans dramatically become paralysed when they are approached by native English speakers, he points out that South Korean viewers can immediately recognise the paralysed Korean persons as representing Korean people as incompetent English speakers and align themselves to the negative affective orientation to the inability to speak English to native English speakers. A practice-based explanation can shift our focus to how instances of similar practices are cognitively conceptualised as an exemplar of that practice, where contextual information recurring in this kind of practices retains.

As in the current research, the DEAF passage is concerned with condemning audism, which demonstrates interdiscursivity with other discourses in society (Silverstein, 2005) addressing the relationship between D/HH community and hearing people. For some of the participants, in those discursive practices, D/HH people may face social danger when they condemn hearing people; for example, they may be accused of having a "blank statement", i.e., being biased (as seen in XiaoYou's case).

In fact, a cognitive framework and a framework of speaker/signer agency are not mutually exclusive (Drager & Kirtley, 2016; Hay & Foulkes, 2016). When researchers emphasise how stance-taking mobilises a topic-based style-shifting, they do not negate the fact that the invoked linguistic style is cognitively linked to the invoked "stance indexicality" (Kiesling, 2009).

Surely a social indexicality of a linguistic variant is only widely recognised in a community when people have experienced adequate events where the social meaning co-occurs with linguistic variants. Furthermore, agentive processes do not stem from nowhere but from speakers' cognitive schemas where they have been habitualised to take a particular stance toward a certain topic (Bourdieu, 1977). Again, what we lack is a cognitive framework which acknowledges the fact that speaker agency is also rooted in cognitive schema (Dodsworth, 2008).

In the current research, we can see a potential relationship between whether one is highly medicalised and the stance that one takes on the DEAF passage. While it is not a one-to-one mapping, it is not speculated that when D/HH people are more involved in medicalisation, they are also more immersed in ableist ideologies, and therefore cognitively tend to distance themselves from criticising audism in the presence of a hearing person. It is also true that in the neoliberal ableist society, a positive social persona of disabled people has never included being critical of ableism but is concerned with how disabled people work hard and 'overcome' physical impairments without complaining about others (i.e., abled people). Thus, it is not strange that a large portion of D/HH participants in the current research hesitate to align themselves with the epistemic stance taken by the DEAF passage.

In the cognitive framework, a cognitive activation of a linguistic feature by the priming of a social exemplar is argued to be inhibited or reinforced by the subject's attitudinal orientation to that social exemplar (Drager & Kirtley, 2016). However, when events are stored as episodic memories in cognition, information like stances reoccurring in the similar events are also stored in the memories; they are not external to the memories. For instance, psychologists point out that certain emotions are elicited by particular people or things because emotional experiences are stored with the people or things which arouse those emotions and get weighted in cognition (Lebois et al., 2020); if engaging in some activities leads to an uncomfortable feeling many times, then

the link between this activity and an uncomfortable feeling gets reinforced.

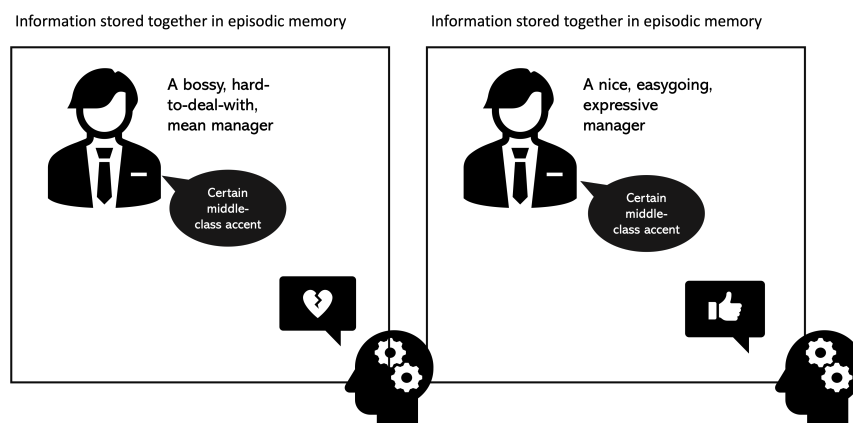


Figure 5.4: Different situations may involve the same accent but different persona types and affective orientations

As the person and the emotional experience they contribute to are experienced as a whole, they need to be modelled together through the lens of exemplar theory. As shown in Figure 5.4, imagine that a person needs to cope with two managers in the workplace, and the two managers have quite different personae –one is bossy, unfriendly and mean; the other is friendly, expressive and easygoing. The two managers both speak a certain middle-class accent. From the perspective of traditional exemplar model, as the two episodic events share the same accent and social information including the role of a manager, the link between a manager and a middle-class accent is weighted more. For speech production, it is then expected to see the speaker shift to this middle-class accent when talking about their supervisors in the workplace. However, this viewpoint downplays the fact that a single variant or variety can index multiple social meanings, and the indexical meanings can even conflict with each other (Eckert, 2008). Preston (2021) combines a third-wave variationist perspective with a cognitive sociolinguistic perspective, and points out that even in a non-interactional setting (e.g., a reading task), what indexical meaning of a linguistic variant is invoked still depends on the interactional nature of the speaker and the setting. The contextual information may outweigh “any other specific associations that might have dominated” (Preston, 2021, p.353).

Specifically, in Figure 5.4, the middle-class accent is not only stored with “managers”; it is also linked to a bossy, unfriendly persona type of managers, as well as the speaker’s negative affective orientation to such a persona type, and an easygoing, friendly persona type of managers, as well as the speaker’s positive affective orientation to this persona. Context matters. It is rare to talk about a certain topic without any stance included, if the topic is something which the speaker has often experienced in everyday life. The link between managers and the middle-class accent may be cognitively weighted more. Yet, when the speaker engages with a new situation, the brain does not only look for a general topic associated with this situation in episodic memory; the brain looks for past experiences which share similar contextual information with the new situation in episodic memory. For instance, Moore and Carter (2015) point out that a Scillonian person educated in mainland Britain shifts to different English speech styles when talking about different employees under a “company” topic; this speaker uses more mainland-oriented variants (e.g., raised TRAP vowels and backed BATH vowels) when talking about certain captains who achieved “authority, discipline, ambition and institutional status”, and shifts to Scilly-oriented variants (e.g., lowered TRAP vowels and fronted BATH vowels) to distance himself from other employees who don’t achieve this kind of status.

Psychologists point out that in episodic memories, situational experiences can be stored as exemplars of emotional categories (Lebois et al., 2020), including basic emotions and broader affect as understood in recent affective turn in the humanities (Clough & Halley, 2007). When a new situation happens, “emotional exemplars” are active in order to make sense of the new situation and the exemplar sharing similar context with the new situation can then activate the emotional category it belongs to (Lebois et al., 2020). For example, in Figure 5.5, a positive and a negative emotional category may include exemplars where the same accent was encountered by the emotional subject. Which indexical meanings associated to, for example, young people’s accent, would be activated depends on whether the subject is encountering

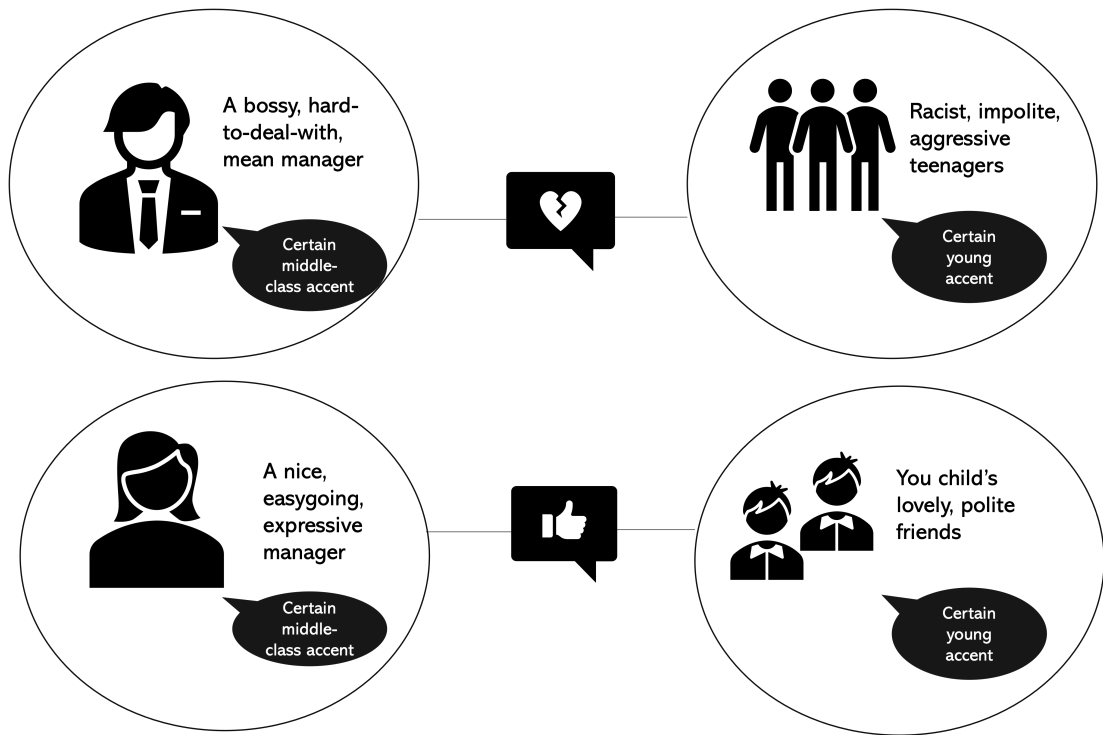


Figure 5.5: Past situations are stored as exemplars under emotional categories

a new situation where the accent is used by young people putting on a persona similar to the “child’s lovely friends” exemplar or the “racist, aggressive teenagers” exemplar.

I argue that we should situate our analysis of topic-based linguistic variation in how the brain activates a **practice-based** indexical exemplar (Figure 5.6) where the contingency among a social type of people, their linguistic features, the subject’s stance toward the social type of people is stored as a single conceptual unit. Note that the subject’s stance toward the social type of people can be mediated by their interlocutors. Different interlocutors may be cognitively stored with different stances (see [Rickford & McNair-Knox, 1994](#)). Ochs (1992) proposes a model of indexicality that linguistic features firstly index stances, and then stances further index social groups associated with the stances ([Kiesling, 2009, 2018](#)). The model I am proposing here conflates different orders of indexicality ([Silverstein, 2003](#)) because when people shift topics, the topic-shifting can operate on different scales – social activities (as in the current study), social groups ([Love & Walker, 2013](#)), social personae

An indexical exemplar

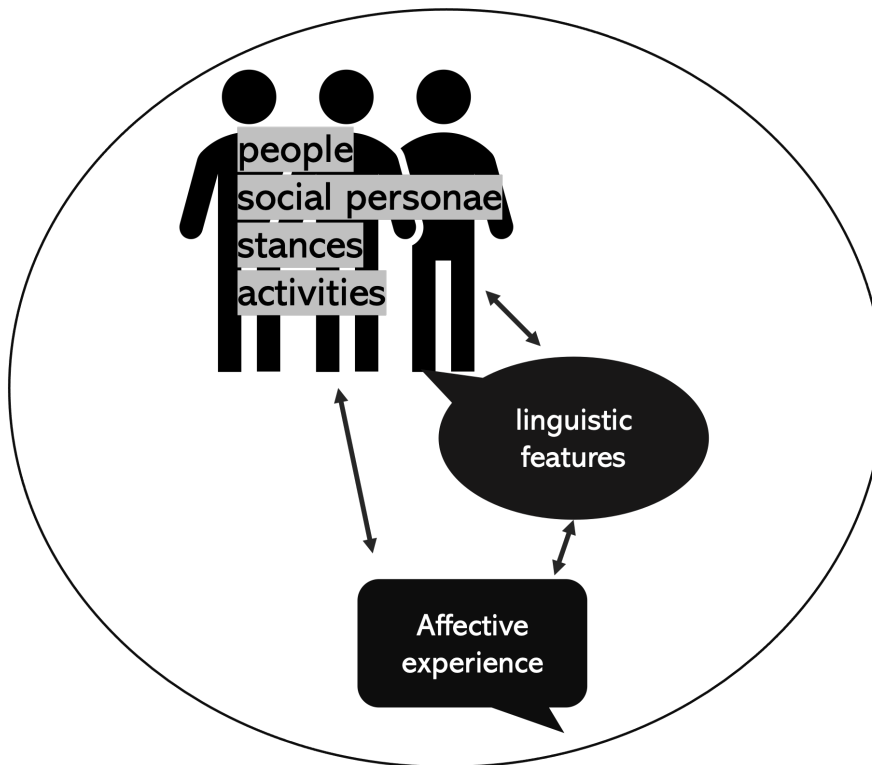


Figure 5.6: An indexical exemplar stores the contingency among elements of a situation. The arrows indicate how the contextual information are co-indexed

(Moore & Carter, 2015), or stances. The current model emphasises the role of the style-shifter's affective experience with any of the different scales in topic-based style-shifting.

It may not be the case that, when talking about a certain topic, its associated linguistic style is activated in the first place, and then because the subject has negative affective orientation toward engaging with the topic, the linguistic activation is then inhibited. Instead, I propose that when one engages in/with a social practice, the stance cognitively stored with the social practice of engaging with the topic is activated in the first place, and following this activation, other information like, for example, sociolinguistic representation can be activated (or not activated). It is rare to talk about a certain topic without any style-shifter's stance included, if the topic is something which the speaker has often experienced in everyday life. When the speaker engages

with a new situation, the brain does not always look for the most weighted exemplar where minimal information is present; the brain can look for other less weighted exemplars where similar contextual information with the new situation is present. For instance, Hay and Foulkes (2016) observe that when speakers talk about old events, they produce variants used in the past. In this case, the old variant is activated in exemplars where temporal information is preserved.

In my re-interpretation of Lee and Idemaru's finding about North Korean speakers in South Korea, a practice-based indexical exemplar can account for why the North Korean participants showed the greatest amount of phonetic convergence toward Seoul variety when talking about negative things about North Korea. The interviewer in their study was from South Korea. That is, the interview was actually a situation where refugees talked about the negative aspects of the life in their home country to a person from the host country. The act of talking about negative things in North Korea to South Koreans is absolutely not a single occurrence for North Korean refugees in South Korea, given that the asylum seeking process usually includes this kind of interview. It is not surprising that North Koreans need to perform aligning themselves to South Koreans via speech style-shifting when talking about negative things of North Korea. When you perceive threat from a social group, you perform distancing yourself from them. Lee and Idemaru did not find any significant topic-based style-shifting when the participants talked about neutral things of South Korea, compared to neutral things of North Korea. That is, it seems that we need a model predicting that when activated indexical exemplars do not own contextual information where affective experiences are present, the speaker does not tend to have a certain response to the activated indexical exemplars.

In other situations, for example, when you perceive threat from a bus moving toward you, the intuitive response to the situation activating such negative affect is to literally run away. In a natural conversation, people may

instead choose to avoid talking about the topics which elicit negative affect. (Surely people may also avoid talking about topics which elicit positive affect due to various reasons.) Yet, in an interview where the speakers are asked to talk about such topics, they could only use speech divergence as a strategy to distance themselves from the undesirable situation, if they do not choose to keep silent.

In Drager, Hay, and Walker's (2010) study on New Zealand English speakers, they found that after reading good facts about Australia, the participants who were sport fans surprisingly shifted to New Zealand speech style in wordlist reading, whereas those who were not sport fans shifted to Australian speech style. In other words, even if the sport fans were exposed to good facts about Australia, in their cognition, good facts about Australia may be an exemplar of negative affect (such as threat driven by national rivalries); thereby, they diverged away from Australian speech style. Their study supports the current proposal that we should locate exemplars in cognition by affective categories.

The studies on North Koreans (Lee & Idemaru, 2021) and New Zealanders (Drager et al., 2010) are comparable with the current research. In both studies, there are salient axes of sociolinguistic differentiation (Gal, 2016) involving two ideologically-constructed contradictory groups (i.e., North Korea vs. South Korea; New Zealand vs. Australia). The current research instead involves the axis of differentiation between hearing people and deaf people. There is a clear path for speech divergence to operate along –shifting one's speech to the style of the opposite group. Based on what we observed from this project, for oral D/HH people, how they perceive their relationship with the topic of deaf identity politics is essential. If speakers consider such the topic of the suppression of signing D/HH people relevant to them, speakers may make use of their own non-standard speech styles (usually known as deaf accents) to perform a positive stance on the passage and thereby index a broader performative deafness. If speakers consider such a topic irrelevant

or even dangerous to them, they may instead exploit a linguistic variant which indexes a ‘distant’ stance toward the passage, and thereby performative perform hearingness. Thereby, we should start an exemplar model-oriented analysis by locating what stance orientations are cognitively linked to message communicated in the passage in indexical exemplars.

For the participants who distance themselves from the deaf topic, the social practice of criticising hearing people in front of a hearing person seems to trigger a negative affective orientation, likely because of their experience with medicalisation. To respond to such situation which activates threatening feelings, the intuitive strategy is to diverge away from the speech style associated with deafness, which is one’s own casual speech style. For them, to diverge away from a deaf accent is to shift to a hearing-like accent. In contrast, for the participants who directly challenge audism, the topic of deaf identity politics instead activates the affect of solidarity (or intimacy, depending on individual cases), and for them, criticising audism to a hearing person is nothing that they should avoid. To embody the solidarity, they shift to the speech style associated to the topic (social group) in that practice-based exemplar. Such an ideologically contested passage concerned with identity politics is a nice site where we can see how people respond to the very different affective experiences elicited by the topic and style-shift.

In previous research where interviewers are from dominant social groups and interviewees are from dominated social groups (e.g., [Rickford & McNair-Knox, 1994](#); [Lee & Idemaru, 2021](#)), interviewees shift to the speech styles associated with the dominant social groups to align themselves with the interviewers, when they talk about topics where such an alignment is expected; for example, talking about the school to white people ([Rickford & McNair-Knox, 1994](#)), and talking about negative things of North Korea to South Koreans [Lee & Idemaru \(2021\)](#). In the current study, we instead see variation among D/HH interviewees in terms of whether they align themselves with the hearing interviewer, when they talk about hearing people’s oppression upon D/HH

people. There can be many factors complicating the picture why among 14 participants, there could be 8 persons diverging away from the speech style of the dominant group. It might be partly because of my descriptive stance toward deaf speech specified in the recruitment text, creating an atmosphere where they feel encouraged to challenge audism. An important factor that has been observed throughout this study can be whether one is immersed in ableist ideologies, which may discourage them from challenging structural oppression. This can be related to whether one has connection with signing communities or whether one has experiences with speech therapy. In sum, people have agency in whether to align themselves with the dominant social group and embody such alignment via linguistic style-shifting.

5.7 Conclusion

This article demonstrates how considering speaker agency is important in topic-based linguistic variation in read speech and proposes that we should not miss the fact that passage reading is a social practice where people engage with the message conveyed in the passage. In this study, D/HH speakers invoke different directions of shift in indexical meanings when reading aloud the same passage, which is concerned with the oppression of D/HH signers. Future research can explore how the topic-based variation may appear different when the interviewer is also deaf or hard of hearing. When the researcher and the participant are both members of the community, if topic-based style-shifting in read speech appears different, we have more evidence to support the current proposal that we should always include stance-taking in a cognitive account of topic-based variation.

Chapter 6

Conclusion

6.1 Disability and style-shifting

The central research question of this thesis is how disability mobilises style-shifting. Throughout this thesis, I have demonstrated how disability as an axis of the social self mobilises phonetic variation in style-shifting among oral deaf or hard-of-hearing (D/HH) speakers in various ways. It is closely tied to how D/HH individuals see disability.

In the three studies included in this thesis, three strategies were adopted to explore the relationship between disabled-bodiedness and style-shifting. In the first study, disabled identity is in the spotlight. The participants were aware that what they did in the reading tasks was to be recognised by hearing people as deaf ways of speaking. That is, the first study directly examines what happens to one's speech style when their disabled identity is highlighted. In the second study, disabled-bodiedness is operationalised as affect. It relates being disabled to the condition where individuals lose access to a physiological ability; it is related to how disability is framed within medical discourses of disability. In the third study, disabled-bodiedness is instead approached as a political solidarity with other disabled people who do not necessarily share the same disabled experiences with the participants.

In Chapter 3, disabled-bodiedness does not invite a positive identity practice which participants engage in to demonstrate disabled speech styles. The only exception is Hua. For some speakers, disabled-bodiedness emerges as powerlessness, when they do not think what they are doing really matters for making a change in society, thereby giving up shifting to variants indexing hearingness. The other speakers instead exploited hyperarticulation to realise socially meaningful minimal pairs, embodying a sociological consciousness with which they perceived disabled individuals as powerful agents participating in social change. However, except Hua, they all perceived hearing-like speech to be the target variety that D/HH speakers should speak. That is, speaking a hearing-like variety is a strategy to embody abled-bodiedness, which is a way to resist the stigma that D/HH people do not speak.

The participants did not practice disability as a social category that can receive positive ontology and further transfer such positive ontology to “deaf accents”. While they may be resisting ableism via performing standard speech, it can also be considered an act of reproducing normalcy (cf. [Sparkes et al., 2018](#)). In other words, the style-shifting towards standard speech is not so much about disabled-bodiedness, but an embodied practice of ‘overcoming’ disability.

Different from the other participants, Hua instead did not believe in the link between speaking a hearing-like variety and resisting audism; her positive stance on “deaf accents” was further performed by not invoking any style-shifting when realising socially meaningful minimal pairs. In Hua’s case, disability receives a positive or neutral ontology, and this ontology is transferred to pathologised speech which embodies disabled-bodiedness.

In Chapter 4, speakers shift to variants indexing deafness because they display negative affect toward the disabled body. During auditory deprivation, speakers appeared to exploit /i/-backing to display negative affect toward the disabled body. Disabled-bodiedness mobilises style-shifting not because they want to sound disabled-bodied; the speakers style-shift because it is one of the

semiotic resources available to embody an affective shift. For the participants who display affective neutrality toward auditory deprivation, in contrast, they do not perform the medical discourse of disability – they take a neutral affective stance toward the physiological change they were experiencing. It seems they instead perform a type of disabled-bodiedness that disabled individuals have given deafness a neutral ontology. This type of disabled-bodiedness mobilised the style-shifting in the way that no stylistic shift was performed, which is itself a kind of image construction, e.g., toughness (Pratt, 2019), independence (D’Onofrio, 2022), etc.

In Chapter 5, speakers shift to variants indexing deafness to embody alignment with deaf identity politics. We saw speakers shift toward speech features indexing deafness when reading out loud a passage concerned with the oppression of D/HH signers. Technically, D/HH identity invites a positive identity practice here. Yet, it is not clear whether there is a positive ontology of deafness underlying this positive identity practice. What can be confirmed is that there is a positive evaluation of solidarity. Disability does mobilise the style-shifting toward D/HH accents here through the invocation of a stance of political solidarity. Like what Grue (2015, p.101) argues:

“Disability identity [...] is a marker of actual or potential solidarity [...] The positive valuation belongs, rather, to the mutual affirmation of shared experience, and to the social and political potential that can be unleashed through such affirmation and consequent collective action.”

Grue argues that a disabled identity is mostly built upon solidarity in socially and politically resisting ableism. Disability is a shared experience of being dominated and colonised.

6.2 Limitations

This thesis only analysed read speech, a highly self-conscious speech. This thesis shows disabled-bodiedness can mobilise style-shifting through negative

identity practices. Disabled-bodiedness also invites a positive identity practice via the disabled identity as a marker of solidarity. It does not mean that in other non-highly self-conscious settings, disabled-bodiedness can invite more diverse positive identity practices, not necessarily linked to a demonstration of ‘deaf solidarity’.

In addition, the three studies are based on data from interviews where the participants mainly talked to a hearing interviewer. While in some interviews, the participants brought their parents or friends to the interview, they still talk to me. There may be an audience effect from their parents or friends, but it is hard to empirically analyse in the read speech data. The observation I obtain from the three studies is that disabled-bodiedness mobilises style-shifting in self-conscious speech in limited ways when the main interlocutor or observer is a hearing interviewer, within the contemporary social context of disability rights movements in Taiwan. With changes in the agenda of disability rights movements, it is possible that in the future, linguistically pathologised people engage in positive identity practices where pathologised speech becomes resources to perform disabled identities in the presence of abled interviewers.

My previous work (Wan, 2021a) included the conversation among three middle-aged D/HH women in which they negotiated the connection between cochlear implantation and abled-bodiedness together and I was only there learning from their experiences. Kerschbaum (2021) points out that it is much rarer to see “interactional analyses of disabled people talking together than accounts in which disabled people navigate interactions and social constructions of disability with service providers, researchers, or other interlocutors who do not openly or within the interaction openly identify as disabled” (p.215). Again, when D/HH participants engage in a conversation with a hearing researcher, they are engaging with a dominant medical discourse of deafness, even if the researcher has disclosed their stance on disability. As the medical discourse of disability is very dominant in society, it is

impossible to ignore the positionality of a **hearing** researcher working with D/HH people only because this hearing researcher says a few words about how they do not attempt to evaluate the participants' speech. We do not know how linguistic resources may be employed in different ways to embody disabled-bodiedness when the participants talk about disability to other D/HH people. The participants may have different experiences with disability, thereby negotiating the tensions emerging from their different experiences (Wan, 2021a; Kerschbaum, 2021). This is something which never emerges in interviews which are structured and led by abled researchers. For example, Black speakers shift to standard (white) American English styles when talking about the school to white interviewers, and they shift to African American English styles when the interlocutor is also Black (Rickford & McNair-Knox, 1994). That is, even for non-linguistically pathologised people, the symbolic order operating along other social axes still plays a significant role in eliciting the interlocutor effect. A possible direction for future research is either to have D/HH interviewers, or to invite more than one D/HH participant to a sociolinguistic interview and background the role of the researcher as an interviewer but as only a co-participant of the conversation.

6.3 Future research

This thesis has demonstrated how variationist sociolinguists can work with speakers whose speech is pathologised in a way that foregrounds speaker agency rather than physiological limitation. This thesis is among the first to directly address the problem arising from the division of academic labour between variationist sociolinguistics and speech-language pathology by conducting quantitative variationist research.

This thesis has mainly focused on segmental features. Mandarin is a tone language. D/HH people who do not have access to sounds below 250 Hz have limited auditory access to the discrimination of lexical tones (Hu et al., 2019). Many D/HH people actually have auditory access to sounds below 250

Hz, but they may hear the tones in ways different from hearing people. Thus, D/HH speakers may develop different lexical tone patterns. For example, they maintain the lexical tone contours, but demonstrate different pitch height and pitch slope, or rely on creaky voice to realise low tones (Yu & Zhang, 2019). In Taiwan, uses of lexical tones are variables which often index whether one is local or from abroad. Non-tone language speakers develop different lexical tone patterns when they learn Mandarin, or tone language speakers transfer the lexical tone patterns from their native language to Mandarin. Future research can look at how D/HH speakers make use of lexical tones to negotiate their disabled identities (Wan, 2021a,c) and even perform being foreign, which per se indexes hearingness.

As this thesis only puts focus on speech, future research may look at how linguistic style-shifting in other modalities are mobilised by disability. For example, in this thesis, the participant Huei simultaneously signed Taiwan Sign Language when she talked to me because she would like to practice TSL. However, I had very low TSL proficiency, and I did not ask for ethical approval of video recordings. In my impression, there are other persons (not in this project) who simultaneously speak and sign when they talk to non-signers. This may be a transition process for late signers (Lillo-Martin & Henner, 2021) to shift not only language use but also identity. In spoken language, it is impossible to see bilingual speakers to simultaneously speak two languages. I believe the co-production of speech and sign in Huei's interview is a rich site to explore how a shift in one's linguistic identity to a second language may affect one's use in their first language when they speak the first language. Even if a D/HH speaker does not use sign language, it is also important to see how facial expressions, gestures, body positions (Podesva, 2021) are utilised as semiotic resources in style-shifting. As written language (hand-written or smartphone-mediated) is often used in face-to-face interaction between D/HH people and hearing people, or among D/HH people, variation in written text (e.g. Ilbury, 2020; Meletis, 2021) is another rich site where we can explore style-shifting.

This thesis demonstrates how variationist sociolinguistics can be an ally of disability studies. Variationist sociolinguistics has been working on issues relevant to race, social class, gender, sexuality, and other social categories where marginalisation and oppression can take place. When sociolinguists start working on disability, we will gradually be able to picture how all the different lines of oppression intersect with each other through the examination of linguistic practices.

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Appendix 1: Comparison between *Zhuyin*, *Pinyin* and IPA

<i>Pinyin</i>	IPA	<i>Zhuyin</i>
p	p ^h	ㄆ
b	p	ㄅ
t	t ^h	ㄊ
d	t	ㄊ
k	k ^h	ㄎ
g	k	ㄍ
f	f	ㄈ
x	ɕ	ㄒ
sh	ʃ	ㄕ
s	s	ㄙ
h	x/h	ㄏ
zh	tʃ	ㄗ
z	ts	ㄘ
ch	tʃ ^h	ㄘ
c	ts ^h	ㄘ
j	tɕ	ㄐ
q	tɕ ^h	ㄑ
m	m	ㄇ
n	n	ㄋ
r	ʐ/dz/z	ㄖ
w/u	w	ㄨ
l	l	ㄌ
y	j	ㄩ

Appendix 2: Minimal pairs

請說 ㄅ ㄠ、(報) / ㄆ ㄠ、(泡)

請說 ㄆ ㄠ、(套) / ㄆ ㄠ、(到)

請說 ㄅ ㄠ (科) / ㄆ ㄠ (歌)

請說 ㄌ ㄠ (交) / ㄌ ㄠ (敲)

請說 ㄆ ㄠ、(煞) / ㄌ ㄠ、(薩)

請說 ㄆ ㄠ、(照) / ㄆ ㄠ、(造)

請說 ㄆ ㄠ v (吵) / ㄆ ㄠ v (草)

請說 ㄆ ㄠ (吸) / ㄌ ㄠ (雞)

請說 ㄆ (師) / ㄆ (知)

請說 ㄌ (私) / ㄆ (疵)

Appendix 3: Story reading – Chinese Royal History

母儀天下，地位尊崇，是後宮所有女子夢寐以求的地位，縱觀中國歷史上的皇后，有的很得皇帝喜歡；有的無寵，自始至終不得皇帝喜愛。然而，清朝卻有這麼一個皇后是因「斷髮」從此失寵，她就是烏拉那拉氏皇后。乾隆三十年，皇后睽違已久，陪伴乾隆皇帝和太後來到江南，二月初十是皇后生日，在途中乾隆還給皇后慶祝生日，一切都很和諧美好，然而乾隆皇帝一生都比較風流多情，據記載，乾隆皇帝深夜要登岸遊玩，沈溺酒肉女色，皇后極力勸諫，乾隆不僅沒有聽她的勸告，反而說她精神上有問題，悲憤至極的烏拉那拉在情急之下，剪了頭髮，而在滿族習俗中「斷髮」是非常忌諱的，只有在皇太后去世，或皇帝駕崩時，後宮妃嬪們才可以剪頭髮，可是乾隆此時還健在，烏拉那拉卻突然剪了頭髮，無疑是在詛咒乾隆，這一舉動徹底惹怒了皇帝，從此烏拉那拉便失去了恩寵，之後痛苦鬱鬱而終，死後甚至沒有以皇后國喪的禮儀操辦。

Appendix 4: Story reading – allegory: Deaf and Hearing Relationship

[Original text]

聽損朋友曾跟我說過一個故事：在很久很久以前，「阿帕王國」中並存著兩大民族，主要差異在於使用語言的不同。其中占多數的是「偉族」，他們的語言以口語為主，王族、政府中的官員，皆是偉族出身，偉族文化四處可見，另一族叫「比族」，由於聽力障礙的問題，肢體語言是他們所發展出來的溝通手段，雖然語言不同，這兩大民族的文字相近，因此藉由筆談交流，不過偉族的人常常嫌筆談麻煩，老是拿筆談來開刀，鬧得兩個民族間出現文化代溝，事實上，偉族有相當強烈的排他意識，對他們來說，比族的肢體語言溝通方式簡直怪異，無法忍耐，甚至將比族的語言納為一種異端，認為肢體語言是邪惡的象徵，會敗壞國家。就連王族、政府官員和耆老也持一樣的意見，他們認為，偉族的口語表達方式，才是真正的主流，因此，比族的母語遭到壓制，隨著偉族靠攏，如此特別的肢體語言逐漸失傳，愈來愈不快樂，最終兩個民族爆發嚴重衝突。

[English translation]

A friend of mine once told me a story: a long time ago, there were two major ethnic groups in the "Apa Kingdom", and the main difference was the language used. The majority of them are "Wei people", whose language is mainly spoken. The royal family and government officials are all Wei People, whose culture can be seen everywhere. The other ethnicity is called "Bi people". Because of deafness, gestural language is the means of communication that they have developed. Although the languages are different, the two ethnic groups have similar written languages, so they communicate through written texts. However, Wei people often find it troublesome to communicate through writing. There is a cultural gap between the two ethnic groups. In fact, the Wei people have a strong sense of exclusivity. For them, the gestural language of the Bi people is simply weird and unbearable, and even the language of the Bi people is regarded as a heresy. They think gestural language is a symbol of evil and can corrupt a country. Even the royal family, government officials and the elderly hold the same opinion. They believe that the oral language of the Wei people should be the real mainstream. Therefore, the native language of the Bi people is suppressed. As the Bi people accommodate to Wei people, the gestural language was gradually lost, and Bi people became increasingly unhappy, and eventually a serious conflict broke out between the two peoples.

Appendix 5: Satisfaction survey on hearing assistive devices

Note: The satisfaction survey is adapted from the Satisfaction with Amplification in Daily Life (SADL) (Cox & Alexander, 1999). The participants responded to a Chinese version of this survey. For participants who only use hearing aids, “cochlear implant(s)” was replaced with “hearing aid(s)”.

Instructions

Listed below are questions on your opinions about your cochlear implant(s). For each question, please circle the letter that is the best answer for you. Keep in mind that your answers should show your general opinions about the cochlear implant (s) that you are wearing now.

A = Completely disagree, F = Completely agree

1.	Compared to using no device(s) at all, my device(s) help me understand the people I speak with.	A	B	C	D	E	F
2.	I am frustrated when my device(s) pick up sounds that keep me from hearing what I want to hear	A	B	C	D	E	F
3.	Obtaining my device(s) was in my best interests.	A	B	C	D	E	F
4.	People notice my deafness more when I wear my device(s).	A	B	C	D	E	F
5.	My device(s) reduce the number of times I have to ask people to repeat.	A	B	C	D	E	F
6.	I speak with a more standard accent when I wear my device(s).	A	B	C	D	E	F
7.	My device(s) is worth the trouble.	A	B	C	D	E	F
8.	I am content with the appearance of my device(s)?	A	B	C	D	E	F
9.	My device(s) improve my self-confidence.	A	B	C	D	E	F
10.	The sound from my device(s) is natural.	A	B	C	D	E	F
11.	The person who provided me with my device(s) is professional.	A	B	C	D	E	F
12.	My device(s) makes me seem less abled.	A	B	C	D	E	F
13.	My speech is more intelligible to other people when I use my device(s).	A	B	C	D	E	F
14.	If people see my device(s), I feel ashamed.	A	B	C	D	E	F
15.	My device(s) enable me to live like a hearing person.	A	B	C	D	E	F

Appendix 6: Sentence list

1. 「大學法」賦予各大學自治的權力
2. 「踏雪尋梅」是一首中文歌曲
3. 「道家」啟發了德國哲學家海德格
4. 「套圈圈」是夜市很常看見的娛樂
5. 「低音」對一些女歌手而言很困難
6. 「踢毬子」是古代宮廷的休閒活動
7. 「島嶼生態學」關心島嶼如何孕育許多特殊的物種
8. 「討海人」不能把筷子平放在碗上
9. 「毒品防制」是內政部主責的業務
10. 「圖靈」，英國的電腦之父，因為同志身分遭迫害
11. 「地球」是太陽系中的第三顆行星
12. 「替代役」為偏鄉的孩童帶來不同的教育方式
13. 「兔崽子」原本的意思是指野種
14. 「杜甫」是唐詩史上的重要人物

Appendix 7: Recruitment text

The following text is the recruitment text. It was also included in the consent form.

各位朋友好，我是愛丁堡大學的博士生宗綸，目前正在進行以台灣聽障者華語表現為主題的研究，幾年前曾在這邊發過問卷，很感謝當時各位的支持與幫忙！現在我將台灣聽障者的研究議題帶到語言學博士班的學習中，希望能得到各位繼續鼎力相助：)

學術界與公共社會長期以來未能充分尊重且呈現聽障者的整體華語表現，而將其視為「語言病理」，讓聽人社會對於聽障朋友有許多誤解。為了補足這樣的缺口，我們正在招募聽障朋友成為我們的受訪者，協助我們進行華語發音錄音工作，以及關於聽障生活的社會語言學訪談。如此一來，台灣聽障社群的完整輪廓才能愈趨完整。如果您符合以下標準，並且您自願參與我們的研究計畫，請聯繫我們。我們正在找尋符合以下條件的聽障者：

1. 十八歲（含）以上
2. 面對面溝通時最常使用的語言是華語（國語）
3. 在普通學校（聽人學校）接受教育
4. 現在居住於大台北都會區（台北市、新北市、基隆市）
5. 於台灣成長、在台灣學會華語（國語）

這個研究計劃的宗旨並不是要測試您的發音是否符合聽人社會的標準；相反地，我們希望能夠讓聽人社會認識聽障者的聲音樣貌，讓聽障者的華語在台灣能獲得更多的承認與能量。如果您有興趣參與研究，在此向您說明：這個研究將會包含發音階段與訪談階段，總時間預計不超過兩小時。我們會提供您五百元的超商禮券作為回饋，如果您希望將回饋留給其他受訪者，我們也很歡迎，那樣我們能夠在有限的經費支持下招募到更多聽障朋友，讓資料更豐富。

研究進行期間，我們將會使用錄音設備做紀錄，這樣未來分析資料階段，我們才能更精準地呈現細節，避免任何錯誤的呈現。如果您在訪談階段對於聽人研究者的口語有理解困難，我們也會在現場準備一本您專屬的筆談用筆記本，因

此，您不必擔心筆談內容會暴露給其他受訪者知道。

這個研究計劃的內容首先會成為愛丁堡大學語言學的博士論文內容，接著預計以英語發表至國際期刊、研討會、或聽障者相關會議，讓國際社會更瞭解台灣聽障者的經驗，以台灣經驗回饋世界。未來，研究內容也可能會以中文發表在國內期刊、研討會、或聽障者相關會議，以讓中文世界對於聽障者的處境有更深入的瞭解。

The following text is the English translation. Texts in bold were emphasised in hashtags when the recruitment text was posted to Facebook.

Hello friends, I am Tsung-Lun, a PhD student at the University of Edinburgh. I am currently conducting research on the Mandarin language performance of deaf or hard-of-hearing (D/HH) people in Taiwan. I sent a questionnaire here a few years ago. I am very grateful for your support and help at that time! Now I bring the research topic of D/HH people in Taiwan to the my PhD study of linguistics, and I hope to get your help :)

For a long time, the academia and the public society have not fully respected and well presented the overall Mandarin performance of D/HH people, and regarded it as a “language pathology”, which has caused many misunderstandings of D/HH people in the hearing society.

To fill such gaps, we are recruiting D/HH people as our interviewees to assist us with Mandarin pronunciation recordings and sociolinguistic interviews about life with deafness. Only in this way can the picture of the D/HH community in Taiwan become be more complete. If you meet the criteria below and you volunteer to participate in our research, please contact us. We are looking for D/HH people who meet the following criteria:

1. 18 years old and above
2. The most common language used in face-to-face communication is Mandarin
3. Received education in ordinary schools (hearing schools)
4. Currently living in the Greater Taipei (Taipei, New Taipei, Keelung)
5. Growing up in Taiwan, learning Mandarin in Taiwan

The purpose of this research project is **not to test whether your pronunciation meets the standards of the hearing society**; on the contrary, we hope to let the hearing society understand the speech of D/HH people, so that D/HH Mandarin can be recognised and empowered in Taiwan. If you are interested in participating in the study, here is a note: this study will include a pronunciation phase and an interview phase; **total time is expected to be no more than two hours**. We will provide you with **a gift voucher of NTD 500** for a convenience store. If you want to leave your voucher to other participants, we are also very welcome, so that we can recruit more people with limited financial support, enriching the data.

During the research period, we will use recording equipment to record, so that we can present the details more accurately and avoid any misrepresentation in the future analysis of the data. If you have difficulty understanding the spoken language of the hearing researcher during the interview, we will also prepare a notebook specifically for you, so you do not have to worry about the content of the written text being exposed to other interviewees.

The content of this research plan will first become the content of a PhD dissertation in linguistics at the University of Edinburgh, and then it is expected to be published in English in international journals, seminars, or disability conferences, so that the international community can better understand the experience of D/HH people in Taiwan. Taiwanese experiences can contribute to the world. In the future, the research may also be published in Mandarin in domestic journals, seminars, or conferences related to disability, so that the Mandarin-speaking world can have a deeper understanding of the situation of D/HH people.