

ARTICLE

“The Bad School on the Northwest Side”: Indexical Order and High School Choice in Chicago¹

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ABSTRACT

Research throughout the United States has found that the type of high school a speaker attended can impact linguistic variation. However, this work has largely focused on adult alumni of schools. This paper examines high school students' reversal of the Northern Cities Vowel Shift, an ongoing sound change in Chicago, through a qualitative analysis of interview content and quantitative analysis of vowel production. Results show that students from varied socioeconomic backgrounds who attend “elite” high schools produce more reversed variants of the highly salient TRAP and LOT vowels than those at other schools. This suggests that variants originally associated with class have taken on higher-order indexical meanings as students use them to reflect their positions in a status-based hierarchy.

1 | Introduction

As sound changes advance across large geographic areas, they progress unevenly across populations. The speakers who lead these changes often share macro-social identities, like place or social class affiliations (Labov 1972). But the features undergoing these macro-level sound changes also hold social meanings related to the more micro-level, interactional contexts in which speakers engage in the semiotic processes of meaning-making (Bucholtz and Hall 2005; Eckert 1989). One such micro-level factor, as revealed by recent work in cities throughout the United States, is the type of high school an individual attended (usually Catholic vs. public schools), which can impact their productions of linguistic features undergoing sound change (D'Onofrio and Benheim 2020; Carmichael 2014; Duncan 2021; Labov et al. 2016; Sneller 2018).

This paper examines how an ongoing sound change, the reversal of the Northern Cities Vowel Shift (NCS), is unfolding among adolescents in the Chicago metropolitan area, where high school type predicts variation in the NCS. I argue that circulating

discourses surrounding perceived school quality play a critical role in students' understandings of school type as an indicator of social status. Although school type does not directly derive from socioeconomic status, it is materially and ideologically intertwined with class in these discourses. This then enables adolescents to draw on linguistic features associated with one hierarchy (socioeconomic status) in order to index a newly relevant hierarchy, school type.

1.1 | Social Meaning and Linguistic Change in Adolescence

Linguistic change peaks among adolescents as they diverge from speech styles produced by older community members (Labov 2001; Tagliamonte and D'Arcy 2009). For this reason, studies of adolescents provide insight into the social processes underlying sound change. Adolescents' use or avoidance of a linguistic feature or style is considered to be reflective of their orientation toward or away from the social meanings associated with it (Eckert 2000). Much work on adolescents' language use has centered

on ethnographies conducted within high schools. This work has found that adolescents use language to index their involvement in locally relevant peer communities of practice (e.g., Bucholtz 2011; Mendoza-Denton 2008; Rosa 2018). For example, Eckert (1989, 2000) observed that students' identification with the "jock" or "burnout" peer groups at a Michigan high school was predictive of their production of some NCS features. Adolescents also recruit socially meaningful styles to align or distance themselves from others: in Antwerp, teenagers recruited a stylized working-class variety to disalign themselves with teachers (Jaspers 2011). In the United Kingdom, despite the overall lack of prestige afforded to working-class forms of Teesside English, students used these forms to assert status within schools (Snell 2018).

Community-wide patterns are available for local meaning-making: individuals draw upon features' preexisting social meanings in the broader community to index new social meanings and identities (Silverstein 2003; Zhang 2008). This enables these features to attain higher orders of indexicality, paving the way for sociolinguistic change (Eckert 2008; Silverstein 2003). Thus, Eckert's (2000) jocks and burnouts represented more general class patterns: the jocks' orientation toward school was informed by their expectation that academic success would help them achieve a middle-class adulthood. Meanwhile, the burnouts anticipated working-class futures and thus had less interest in school-based activities. Schools can also serve as sites through which students can access languages or varieties that are prestigious in the adult labor market. For example, in Cairo, school type conditioned exposure to Classical Arabic, a requirement for some occupations (Haeri 1996). In this way, the features used to index local social meanings are informed by their social meanings at larger scales. And as students enter the adult workforce, these social affiliations—and the semiotic resources used to index them—come to shape how individuals index these larger social categories in turn.

The high school an individual attended can influence engagement with place-linked features into adulthood, as demonstrated by work on adults throughout the United States. Dodsworth and Benton (2017) demonstrated that the reversal of the Southern Vowel Shift in Raleigh, North Carolina, could be predicted by school-based social networks. In other cities, this pattern has been attributed to differences in contact or network density due to the classed (Carmichael 2014) and racialized (D'Onofrio and Benheim 2020; Labov et al. 2016) demographics of various school types. In Philadelphia, for example, students at parish-based Catholic schools have denser social networks than those at selective admissions (test-in) schools (Sneller 2018, 2024). However, contact is not the only factor leading to school-based differences in production: in suburban St. Louis, Duncan (2021) found that the high school an individual attended was an important social group marker in adulthood, especially for those who attended school during an era when Catholicism (and consequently Catholic school attendance) was more socially significant. At the post-secondary level, alumni of locally oriented U.S. universities produced more local features compared with their peers at elite, nationally oriented universities (Prichard 2016). These school-based differences in linguistic production suggest that the indexical moves unfolding "on the ground" within individual schools are both informed by and accrete upward in relation to the macro-social categories that condition

large-scale sociolinguistic variation and change in cities and regions.

Importantly, this past work has focused on the consequences of high school type for adult alumni. To better understand the role of high schools in linguistic change, this paper focuses on the ideologies and linguistic production of high school students themselves, drawing on data from sociolinguistic interviews with Chicago-area adolescents. I argue that adolescents understand schools as belonging to a social hierarchy, with elite schools reifying and (re)producing higher social status. Students' use of local features that index socioeconomic status (among other social meanings) then comes to reflect their social positioning in terms of high school type, thereby attaching higher-order indexical meanings to these features.

The following sections describe the education system and the process referred to as "school choice" in Chicago and the broader United States, followed by the linguistic system under investigation in this paper, the NCS.

1.2 | High School Choice in the United States

In the United States, students are entitled to free, public education for primary and secondary school. Public schools typically operate within geographically defined catchment areas, though some areas allow students to apply to attend a school outside their district based on space availability or for specialized academic programs. Public schools are primarily funded by state governments. However, the state-provided funds are often inadequate, leading local municipalities to supplement this funding with their own revenue (Allegretto et al. 2022). Since wealthier areas can leverage larger tax bases, this results in funding disparities across school districts. Illinois (the state containing Chicago) ranks 9th out of the 50 states and DC in terms of its per-student spending, but its high-poverty school districts receive about 4% less than low-poverty districts. According to the Education Law Center, in states like Illinois, "above average funding levels often mask significant disparities among districts, or ... a flat distribution that does not target resources where they are most needed" (Farrie and Kim 2024: 25). While funding is not the sole predictor of school quality or student educational performance, funding disparities reinforce existing impacts of socioeconomic inequality on the education system. Many parents with the resources to do so seek out alternatives to the public school system, especially in underfunded urban areas (Ben-Porath and Johanek 2019). In this paper, I follow Ben-Porath and Johanek (2019) in defining "school choice" as the ability for families to determine where their children attend school from among multiple options, even though this "choice" is limited by structural inequality.

American parents' socioeconomic status is related to but not deterministic of the type of school their children attend. The primary strategy that affluent parents use to "choose" schools is residential choice: deliberately living in neighborhoods or suburbs that district into their favored public schools, which necessitates having the financial resources to live in those areas. Alternatively, parents might pay for private schools. Here, too, there are resource-based inequalities: Catholic schools are subsidized by the archdiocese and can therefore charge lower tuition

rates than other private schools, making them more accessible to middle-income families. Finally, to keep affluent students and the per-student funding that accompanies them in the public school system, some areas, including Chicago, operate a system of public “magnet” schools, which admit students based on academic achievement (Sander 2015).

As in other urban areas, White children opt out—or rather, are opted out by their parents—of the Chicago Public School system at dramatically higher rates than students of color (Sander 2015). The result is a starkly segregated education system: Chicago is 45% White (United States Census Bureau 2022), but White students comprise just 11% of Chicago Public School students (CPS 2020), which includes neighborhood, charter, and “selective enrollment” (magnet) schools. Chicago’s selective enrollment schools follow a class-based affirmative action policy: 30% of seats are reserved for the top-scoring students on the admissions exam, regardless of background. The remaining seats are allocated proportionally based on neighborhood-level socioeconomic status, itself effectively a proxy for race. Though this policy is controversial for considering factors beyond academic performance (Smylie and Amin 2024), the result is that these schools are among the most racially and socioeconomically diverse in the city (Lauen 2007).

Decisions about school choice can also be racially motivated. As schools become more racially diverse, White parents become increasingly likely to view them as poor quality, regardless of actual academic performance as assessed by metrics like standardized test scores and graduation rates (Goyette et al. 2012). School choice and the self-selection of White students out of urban neighborhood public schools—and into private or suburban public schools in majority White areas—contribute to growing racialized segregation within U.S. schools (Sander 2015). Sociologists have documented that schools can socialize students into ideologies and attitudes regarding race and class, including their own social positions and future socioeconomic potential (Hagerman 2018; Jack 2019). Non-White families in urban areas also seek to send their children to what they perceive as high-quality schools, but barriers to accessing “elite” schools disproportionately affect racialized minorities (for example, commuting to Chicago’s magnet schools from predominantly Black neighborhoods is difficult; Pattillo 2015).

The result is a hierarchical system in which urban neighborhood public schools come to be viewed as inferior in quality to suburban public schools, magnet schools, and private schools. Ben-Porath and Johaneck (2019) consider education a “public/private/positional” good, in that while public options exist, so does a private market. As a “positional good,” education quality creates an ordered hierarchy that confers greater benefits on some individuals over others. Essentially, elite education is viewed as a component of social status. This paper explores how this status is indexed linguistically by students.

However, sociolinguistic work on school choice has so far been limited to adult alumni of these schools. As linguistic styles are used to position the self in relation to the surrounding social landscape (Eckert 1989, 2008), understanding the role of schools in promoting sound change at a city-wide level necessitates considering the speech styles of high school students themselves.

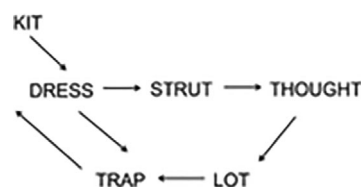


FIGURE 1 | The Northern Cities Shift.

This paper explores Chicago-area high school students’ productions of the NCS, a vocalic system associated with local White speakers that is currently undergoing reversal (D’Onofrio and Benheim 2020; McCarthy 2011).

1.3 | The NCS in Chicago

The Northern Cities Shift (NCS), or the clockwise rotation of the low and mid vowels (Figure 1), is the regional vocalic pattern historically described as typical of White speakers in the Inland North region of the United States, which stretches along the Great Lakes area from upstate New York to Wisconsin and Illinois (Labov et al. 2006; McCarthy 2011).

The earliest stages of the NCS involved the raising of the TRAP vowel and fronting of LOT, initiating a chain shift. Labov et al. (2006) defined the NCS by the following criteria: a TRAP vowel higher and fronter than DRESS, DRESS and LOT vowels within 375 Labov-normalized Hz of each other (reflecting LOT-fronting), and a STRUT vowel that is backer than LOT. Though early work suggested that variables associated with the NCS were largely below the level of consciousness (Labov et al. 2006), some speakers in the Inland North have since developed metalinguistic awareness of them (Sneller 2012; Thiel and Dinkin 2020).

Today, ideologies prevalent in metalinguistic commentary (D’Onofrio and Benheim 2020, Benheim and D’Onofrio 2024) and performances (Hallett and Hallett 2014) suggest that NCS features—particularly raised/fronted TRAP and fronted LOT—are enregistered (Agha 2003) as typical of “white ethnic” (especially Irish, Italian, or Polish), working-class personae and neighborhoods. These ideological links are corroborated in actual production patterns in Chicago. In one residential area, White speakers produced more Northern Cities-shifted vowels than Black speakers (D’Onofrio, Benheim and Foster 2020), and older Irish Catholic speakers were more Northern Cities-shifted than their White Protestant neighbors (D’Onofrio and Benheim 2020). However, there was not a straightforward mapping of NCS vowels to ethnoreligious identity: Catholic school alumni displayed more Northern Cities-shifted vowels than their religiously Catholic peers who had attended selective enrollment or non-parochial private schools (D’Onofrio and Benheim 2020).

Recently, the TRAP and LOT vowels have been observed to be reversing the NCS trajectory among White speakers throughout the Inland North (Thiel and Dinkin 2020; Wagner et al. 2016), including Chicago (McCarthy 2011), such that TRAP backs and lowers and LOT backs in apparent time. In various Inland North locales, this reversal has been attributed to economic changes leading individuals to orient away from “rust belt” cities (Wagner

et al. 2016; King 2018) and to increasing metalinguistic awareness and negative evaluations of the NCS (Thiel and Dinkin 2020; Wagner et al. 2016).

The NCS is associated with the White working class in Chicago and elsewhere in the Inland North, but previous work has also found that high school attendance conditions White speakers' use of these features into adulthood (D'Onofrio and Benheim 2020). Given that high school choice is itself a racialized and classed process (with affluent White families opting out of neighborhood public schools at higher rates than other demographic groups), one question that arises is whether these high school choice effects on language are a result of students' macro-social identities (i.e., students who share a socioeconomic background are also more likely to attend the same school), or whether they result from some other social process. This paper compares vocalic productions according to high school students' socioeconomic backgrounds and high school type. Results showed that high school type predicts students' productions of TRAP and LOT independently of the effects of neighborhood-level socioeconomic status (SES).

2 | Methods

2.1 | Participants

The data are drawn from sociolinguistic interviews collected in 2020–2022 with Chicago-area adolescents (born 2002–2006). Participants were recruited via parenting and neighborhood Facebook groups, flyers, and snowball sampling. Since the NCS is associated with White Chicagoans in production, and White Chicagoans are also more likely to have and exert their material resources in order to “choose” schools, this paper focuses on the subset of self-described monoracially White participants ($N = 31$), out of a total sample of 42 adolescents. All participants were from the Chicago area (defined broadly to include the surrounding suburbs), had spoken American English since childhood, and enrolled in or just completed 10th–12th grade at the time of the interview.

The interviews were relatively free-flowing conversations lasting between 40 and 75 minutes. Though I allowed the participants to “guide” the conversation in discussing topics that were of interest to them, interviews generally covered participants' experiences in schools, peer social groups, opinions about Chicago and their neighborhoods, the ongoing COVID-19 pandemic, and future educational and career plans. At the end of the interview, participants read a wordlist (not analyzed here) and were then asked explicitly about the Chicago “accent” (whether it exists, who might be likely to have one, and what its features are). All acoustic data analyzed for this paper come from participants' spontaneous speech during the interview. Metalinguistic commentary was drawn from the explicit discussion of “accents” at the end of the interview, or earlier in the interview if brought up unprompted by the participant.

2.2 | High School Type

Discourses regarding school choice are prevalent among Chicagoans, including the adolescents discussed here. To aid in

the quantitative analysis, participants' commentary about high school types was used to classify schools into three overarching categories: elite (including magnet and non-parochial private schools), non-elite (including neighborhood public schools within Chicago and Catholic schools), and suburban public schools. All names are participant-selected pseudonyms. As demonstrated by this commentary, school type is significant to adolescents' social understandings.

Perhaps the most salient discourses surrounding the Chicago Public Schools (CPS) system highlighted its perception as an underfunded school district with poor academic outcomes. Bartholomew, who attended a neighborhood school, said, “*The rep [=reputation] with CPS is like lowly funded and like low graduation rates or like low grades in general.*” Trinity, who left the CPS system to attend a Catholic high school, reported that her middle school “*wasn't very academically good and it was like kind of unsafe.*” Commentary about the alleged poor quality of Chicago Public Schools was common even among students who did not attend these schools. Elyse, a suburban public school student, said, “*All I've heard is like, the [CPS] schools are worse, teachers don't get paid anything.*” For this reason, many students who “opted out” of the public school system remarked that they and their families never considered CPS schools as an option. Brandon stated that his parents chose to live in the suburbs because of the “*good schools,*” adding, “*The city was not considered for school purposes. Or because of school purposes, that is.*” Vivian, who attended a selective enrollment school, noted that, “*We were thinking if I didn't get in we might move to Glenview,*” an affluent suburb.

However, the rationale behind these different alternatives to neighborhood CPS schools differed by school type. Non-parochial private and magnet schools were framed as aspirational in terms of their rigorous academics, extracurricular opportunities, and ability to prepare students for elite universities and prestigious careers. For example, Michelle, a private school student, said, “*These four more years before college are the most important years.... You've gotta find the path um like the right school for you that's going to help you find where you want to be in life, where you want to go after high school. So I think once you've reached that age, parents are less like, 'okay, well I'm just going to send you to the local elementary school, local middle school, whatever.'*” Ariel, who attends a magnet school, focused on her school's perceived academic excellence: “*Sometimes, neighborhood schools, the education, it's not unreliable, but you just don't always know what you're going to expect. And when you have a selective enrollment, IB², or private school, the curriculum and methods of teaching are a lot more outlined when you go into that school.*” Ariel's consideration of the selective enrollment and private schools as a unit supported my decision to class these school types together as “elite” schools, which students attended for their allegedly strong academics.

Meanwhile, I combined Catholic schools with neighborhood CPS schools as “non-elite” schools. While Catholic schools certainly allow students to opt out of neighborhood public schools, participants did not frame this decision as related to school quality or elite status, but rather as a means of accessing religious education. Kylie explained, “*Religion is just like an important like aspect of our family and like they wanted us to... learn about*

like Catholicism.” Ezekiel, similarly, said, “We’ve kind of like been taught to . . . respect or like be proud of your Catholic education.” This commentary aligns with Sneller’s (2018) observation that Catholic schools in Philadelphia serve as an alternative to public schools for working-class White students who cannot afford tuition at more elite private schools. Not all participants who attend Catholic schools come from working-class backgrounds (indeed, most do not), but these schools have not absorbed the connotations of elite-ness attached to magnet and non-Catholic private schools.

Finally, students at suburban public schools discussed their parents’ residential choices as a consequence of the perceived good quality of their schools. Piper noted that her family chose their suburb, “I think because of the schools probably,” and Audrey stated that her parents “just said that they really liked the schools.” As noted by Duncan (2021), suburbs can hold different place-based associations for individuals compared with cities. Coupled with the way suburban public schools occupy a kind of liminal space—students in the suburbs are attending their neighborhood public schools, they just come from families with the resources and desire to choose those neighborhoods—these students were analyzed separately from those at other “elite” schools.

Although the dominant discourse among participants is that most students should aspire to “opt out” of the neighborhood school system, some students contested these discourses. Despite being religiously Catholic, Bartholomew noted that his parents “Were sort of against putting me in [Catholic school]... I feel like with public schools you get more of a exposure to a variety of people and then with Catholic schools it’s like, you know, narrowed down.” Despite his comments (quoted earlier) about his school being underfunded and overcrowded, then, he sees its diverse student body as an asset for educational purposes (echoing ideologies noted by Hagerman 2018). Similarly, several students de-emphasized the rigorous academics that others prioritized about elite schools. For example, Hannah, who attends a neighborhood CPS school, stated, “I didn’t really wanna go to [a selective enrollment school] because I know it’s a very competitive school.” Chelsea likewise stated that she did not consider alternatives to her neighborhood public school because “A lot of my friends were going” to the neighborhood school.

2.3 | Socioeconomic Status

It is notoriously difficult to assess socioeconomic status for adolescents (Eckert 1989). Adolescents have not yet completed their formal education, nor do they have full-time occupations or income. While data on parental occupations were collected, many participants did not know their parents’ precise job functions within large companies, making it difficult to use occupation-based socioeconomic scales that distinguish between managerial and nonmanagerial white collar occupations (e.g., Labov 1972). Instead, I opted to use the Chicago Public Schools’ Tier scale as a proxy for SES. This is the scale used by the selective enrollment schools to enact their class-based affirmative action scheme. Use of this scale aligns with previous research in sociolinguistics suggesting that composite scales are more predictive of class-based variation than single-measure scales (Labov 2001).

TABLE 1 | Participant demographics by high school type and CPS Tier.

	Elite school	Non-elite school	Suburban public school	Total
CPS Tier 4 (highest SES)	5	11	7	23
CPS Tier 3 (middle SES)	3	1	3	7
CPS Tier 2 (lower SES)	1	0	0	1
Total:	9	12	10	31

The CPS Tier scale relies on census tract-level data. One drawback of this metric is that it cannot capture socioeconomic disparities between families within the same census tract. However, it eliminates the need for self-report measures of socioeconomic status or parental occupation. The CPS scale divides the city of Chicago into four tiers based on each census tract’s: (1) median family income, (2) percentage of owner-occupied households, (3) percentage of single-parent families, (4) percentage of households where a language other than English is spoken, (5) adult educational attainment, and (6) a “school performance variable,” based on standardized test scores for neighborhood schools within the catchment area (CPS 2022a). For the present study, data on tiers for participants who lived within the city of Chicago were collected from the CPS School Locator (CPS 2022b). For participants who lived in Chicago suburbs, information for the first five components was collected from the U.S. Census Bureau’s 2021 American Community Survey data (United States Census Bureau 2022) and school performance data collected from the most recently publicized Illinois Assessment of Readiness (IAR)³ test results for the public middle school(s) in each suburban census tract (ISBE 2022). Suburban participants were then sorted into tiers by comparing these criteria to the available CPS data (CPS 2022a). Table 1 outlines the school type and SES breakdown of the participants in this analysis.

Tier 4 is the highest socioeconomic tier within the city, representing the top quartile of census tracts. Tier 3 represents the next highest quartile. For clarity, in the remainder of this paper, I refer to Tier 4 as “higher” and Tier 3 as “middle” neighborhood SES to reflect their correspondence to more traditional class labels. The class distribution in the present sample is skewed to favor the higher tier, but this skew is proportional to Chicago’s actual demographics, where racialized disparities in socioeconomic status result in over 70% of White Chicagoans living in Tier 4 (higher tier) census tracts and 21% in Tier 3 (middle tier; Borstein 2021). Note also that Tier 3 (middle tier) students are underrepresented in non-elite schools (in fact, just one participant attending a non-elite school lives in a Tier 3 census tract). This is in part because many White families who send their children to CPS neighborhood schools live in neighborhoods served by a high school with a White plurality; these high schools have catchment areas comprised mainly of Tier 4 tracts.

Additionally, note that only one participant—a selective enrollment school attendee—lives in a Tier 2 census tract. This participant was binned together with Tier 3 (middle tier) participants for the following analysis, though I acknowledge that the realities of her family's socioeconomic situation likely led to a markedly different experience of class than other participants. That said, whether or not she was included in the sample did not affect the directionality or statistical significance of the results, so her data were included for completeness.

2.4 | Acoustic Analysis

Due to the COVID-19 pandemic, interviews were conducted remotely. Audio was recorded in Zencastr, an online interface that records locally (on each participant's device) in lossless 16-bit 44.1 kHz WAV format, in line with the recommendations of studies examining the impact of remote data collection on acoustic quality (Sanker et al. 2021).

Interviews were transcribed and force-aligned with FAVE (Rosenfelder et al. 2014). The present study focuses on the TRAP and LOT vowel classes, from which primary stressed tokens were extracted using a Praat script. As NCS reversal of TRAP results in a nasal split within this vowel class, pre-nasal BAN and pre-oral TRAP were classed separately; tokens preceding the velar nasal were excluded. In addition, tokens were extracted for the other NCS-implicated vowel classes (THOUGHT, KIT, DRESS, and STRUT), as well as GOOSE, GOAT, FLEECE, BAN, and POOL. Tokens preceding nasal segments were also excluded for other front vowels (FLEECE, KIT, and DRESS). FLEECE and pre-/l/ POOL class tokens were collected for normalization purposes. Tokens preceding or following another vowel, glide, or rhotic were fully excluded from the sample, as were tokens preceding /l/, excepting the POOL class.

For each vowel class, the first three tokens per lemma greater than 60 ms in duration were selected and boundaries hand-corrected in Praat. Tokens were capped at 30 tokens per vowel class within these criteria. Midpoint F1 and F2 measurements for each token were collected through a Praat script. Measurements that fell more than two standard deviations from the mean per vowel class per speaker were hand-checked for accuracy. These measurements were then normalized using the Lobanov method (Lobanov 1971). Linear mixed effects models were fit to the Lobanov-normalized midpoint F1 and F2 measurements for the TRAP and LOT vowels using the *lme4* package in R (Bates et al. 2015). *P*-values were obtained using the *lmerTest* package (Kuznetsova et al. 2017).

The fixed effects of interest included SES (higher vs. middle) and high school type (elite vs. non-elite vs. suburban) using dummy coding for contrasts. A Tukey test was used to assess pairwise mean comparisons for the three-way school type distinction. Place (labial vs. coronal vs. dorsal vs. glottal) and manner (lateral vs. nasal vs. oral) of articulation of the preceding segment, log-transformed duration, and speaker self-reported gender⁴ (boys vs. girls) were included as control fixed effects. Speaker and word were random intercepts. Finally, as different microphones are known to systematically affect acoustic measurements (Sanker et al. 2021), participant device type (Mac Laptop vs. PC Laptop

vs. Lenovo Laptop vs. iPad) was included as a control fixed effect to account for these potential distortions, though this factor did not emerge as significant. Interactions between fixed effects were tested but were dropped as they were not significant and did not improve model fit as assessed by a comparison of the sums of squares of the residuals.

3 | Results

3.1 | Metalinguistic Commentary

Adult Chicagoans metalinguistically link Northern Cities-shifted TRAP and LOT vowels to White or White ethnic (Irish, Italian, or Polish) working-class people and neighborhoods within the city (D'Onofrio and Benheim 2020, Benheim and D'Onofrio 2024). Not all participants in the present sample acknowledged the existence of a Chicago accent; many maintained that the Midwest as a region is “standard” with respect to language. Those who did discuss the accent mentioned the same features (TRAP and LOT vowels) that are also discussed by adults, often referring to the TRAP vowel as “the A sound” or performing stock phrases like “*mom and dad*” or the stressed vowel in “*Chicago*” to demonstrate.

Adolescents made similar social meaning associations as adults to Northern Cities-shifted vowels, with comments centering on ethnicity and neighborhood. Several participants discussed these features as associated with the “South Side Irish” population, referring to historically Irish, working-class neighborhoods in the city, and Ava described picturing “*big, burly Italian men*” as having the accent (neither Irish nor Italian ancestry was predictive of vocalic production in this sample).

Though neighborhood and, to a lesser extent, ethnicity are ideologically linked to socioeconomic status, some participants also referenced SES directly. Ariel, for example, described the typical Chicago-accented speaker as being “*a lower class South Side type person*,” while Kendall mentioned that the accent is associated with “*certain classes of people*.” And Michelle described how Chicago accents were uncommon, “*In the far North like ... really wealthy areas*,” but that residents of those wealthy areas “*assume that when you go into the heart of the city, they're just like a different breed of people. Um they have an accent I guess*.” In all, Northern Cities-shifted TRAP and LOT vowels are enregistered (Agha 2003) with the same groups of people (namely, White or White ethnic Chicagoans from working-class areas) for both adolescents and adult community members.

Not all indexical meanings can be explicitly discussed, as some variants are below the level of consciousness (Labov 1972). While many participants discussed perceiving Chicago to be standard or normative with respect to accent, a perception study using the matched guise methodology (Lambert et al. 1960) on a sample including the 31 participants discussed here found that participants evaluated a speaker who produced more Northern Cities-shifted vowels as sounding lower in socioeconomic status (Benheim 2023). I take this as additional evidence that adolescents broadly associate Northern Cities-shifted TRAP and LOT vowels with lower socioeconomic status, even if they do not explicitly discuss this indexical link.

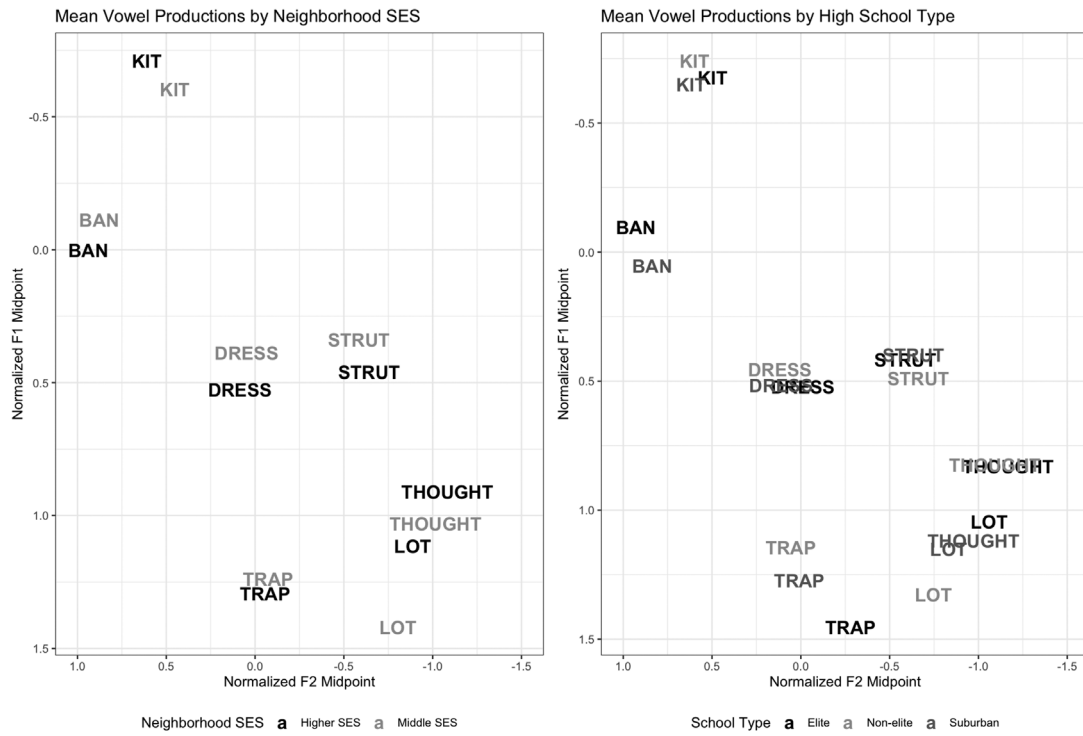


FIGURE 2 | Left: Vocalic productions by neighborhood SES: Tier 4 (higher SES) in black and Tiers 2 and 3 (middle SES) in gray. Right: Vocalic productions by high school type: Elite schools in black, non-elite schools in light gray, and suburban public schools in medium gray.

TABLE 2 | Model coefficients from linear mixed-effects models predicting normalized formant values (*: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$). Fixed effects in the full final model: SES, school type, gender, preceding place of articulation, preceding manner of articulation, log duration, and device. Random intercepts: speaker, word.

Vowel class	Formant	SES (=Tier 4)	School type (non-elite vs. elite)	School type (suburban vs. elite)	School type (suburban vs. non-elite)	Gender (=boys)
TRAP ($N = 921$)	F1	0.035	−0.272**	−0.278**	−0.006	−0.208*
	F2	0.023	0.334***	0.326***	−0.008	0.187*
LOT ($N = 580$)	F1	−0.242**	0.266**	0.107	−0.159	0.274**
	F2	−0.123	0.202*	0.208*	0.006	0.218*

3.2 | Acoustic Analysis

Differences in mean acoustic production for each of the NCS-implicated vowel classes by neighborhood SES and high school type are depicted in Figure 2. Table 2 outlines the results of the linear mixed effects regression models and Tukey comparison of means tests for F1 and F2 of the TRAP and LOT vowels.

For neighborhood SES, only LOT F1 emerged as significant, with students from “higher” neighborhood SES backgrounds producing higher LOT vowels. Notably, these SES-based effects do not extend to the highly salient TRAP vowel class in either dimension or to LOT F2, despite previous work linking both features to SES based on adults’ production patterns (McCarthy 2011) and metalinguistic commentary (D’Onofrio and Benheim 2020, Benheim and D’Onofrio 2024).

Significant effects of school type emerged for TRAP such that students at elite schools produced lower (higher F1) and backer (lower F2) vowels than students at non-elite and suburban schools. Elite students also produced significantly higher (lower F1) LOT vowels than non-elite students and backer (lower F2) LOT vowels than both non-elite and suburban students. For both vowels, these results are consistent with elite students producing fewer Northern Cities-shifted vowels than their counterparts at other school types.

Taken together, then, high school type significantly predicts production of both vowels currently undergoing NCS reversal in Chicago, whereas neighborhood SES is predictive only of LOT in the F1 dimension. While metalinguistic commentary (D’Onofrio and Benheim 2020, Benheim and D’Onofrio 2024) and production data in Chicago and other parts of the Inland North (McCarthy 2011; Nesbitt 2021) associate Northern Cities-shifted vowels with

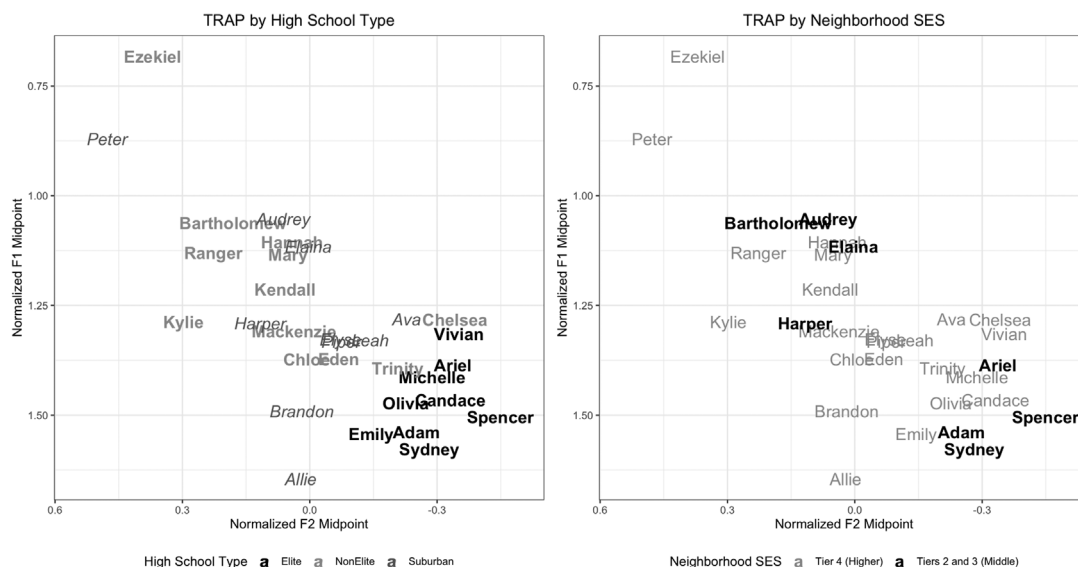


FIGURE 3 | Individual Lobanov-normalized TRAP productions by high school type (left; elite = black, non-elite = light gray, suburban = medium gray italics) and neighborhood SES (right; higher = gray, middle = black).

speakers from lower SES backgrounds, neighborhood SES alone does not account for the observed variation of these vowel classes. The following section addresses the indexical links between SES, NCS vowels, and school type.

4 | Discussion

4.1 | High School Choice and Production

Despite the TRAP and LOT vowels' associations with SES in social evaluations (Benheim 2023), metalinguistic commentary, and previous production studies (D'Onofrio and Benheim 2020; McCarthy 2011), neighborhood SES was not significantly predictive of TRAP production (for either formant) and was predictive of LOT production only in the F1 dimension. However, production of both variables was significantly predicted by school type. To assess the possible indexical meanings leading elite students to produce less Northern Cities-shifted TRAP and LOT vowels than others, I turn now to an exploration of individual students' productions in relation to their meta-commentary about different high school types. As LOT was predicted by both high school type and neighborhood SES (in the F1 dimension), the remainder of this paper focuses primarily on the TRAP vowel, which was significantly predicted only by high school type and therefore yielded clearer visualizations at the individual speaker level. That said, the same aggregate pattern holds for LOT (see Figure 2). Figure 3 depicts each speaker's mean Lobanov-normalized TRAP production by high school type (left) and neighborhood SES (right). In what follows, I argue that students' commentary about perceived school quality can shed light on the social meaning of TRAP variation. Students view schools as ordered in a hierarchy (school quality). That TRAP productions correspond to ideologies about school quality (with students at higher quality schools producing lower/backer vowels) suggests that students are drawing on a feature originally associated with socioeconomic status to index this locally relevant social distinction. In this way,

institutions like schools enable linguistic variables to take on new indexical meanings.

In interpreting this variation in TRAP productions by school type, it is worth considering what these schools symbolize for students. In what follows, I first discuss students' ideologies about school type, which correspond to the group-level school type-based distinction in TRAP. In particular, students compare schools based on education quality, funding, and crime, with elite schools ranking highly on each of these. Next, I turn to individual speakers, showing how differences in attitudes toward schools are paralleled by within-group differences in TRAP production. As discussed above, students at elite schools discussed rigorous academics as a strength. For example, Adam stated, "*I think being at a school like this you're with people of similar ability like academically. And it pushes you to get higher scores and stuff.*" Olivia, who attended a private school, noted that, "*The curriculum is really good in terms of like making sure we're super well-rounded... and having, like, very in-depth conversations about kind of like advanced topics at a young age.*"

However, commentary about school quality extends beyond educational quality. Many students also discussed school funding as a relevant factor along which they assessed schools. Ariel remarked that "*I guess since it [a selective enrollment school] was like newly built people just assume 'oh, it's still kind of shiny, I guess it's rich.'*" Allie, meanwhile, discussed what she perceived to be frivolous uses of money by her suburban public school, asserting that, "*We're spending money on ourselves that we don't really need to be spending, that we could be donating to charities and other schools. Like Chicago Public Schools are not doing too hot. Like I think if we could help out there, it would benefit.*" This rhetoric positions elite and affluent suburban public schools as high in quality in comparison with underfunded neighborhood CPS schools.

For their part, students at neighborhood Chicago Public Schools largely agree with this assessment. Bartholomew referred to his

school as “A prime example of lack of funding to school because it’s ... overly crowded and um just a really old building and stuff’s falling apart.” Students at other non-elite schools also commented on the poor material conditions of their schools relative to schools that were perceived to have better access to funding. Ranger, a Catholic school student, recalled a recent visit to a suburban public school for a football scrimmage: “I just went there for a 7-on-7 and oh my gosh... it was huge, they had a really nice stadium. They had like four parking lots. They had nice like coach buses... stuff like that.” And Ezekiel, also a Catholic school student, noted that several nearby suburban public schools are stereotyped as wealthy “cause they’re like one of the bigger and nicer public schools... it’s the area you live in and how nice it is.” Peter, a suburban public school student, remarked negatively on the material quality of his school: “There would be like things I would like to change... Everyone in a second story [classroom], you have to hope that the air conditioning does not kick on or have a piece of wood, because we would take the wood and put it in the middle of the room to hold the projector so it wouldn’t be shaking.” Collectively, these students produce some of the highest and frontest TRAP vowels in the sample.

Finally, many students discuss their schools’ quality in terms of crime, especially perceived gang activity, violence, and drug usage. Elaina, a suburban public school student who produces a relatively high TRAP vowel, remarked that “Our school is filled with, like, a lot of people who do drugs and all of that.” In contrast, Michelle, a private school student who produces a low and back TRAP vowel, noted of several nearby neighborhood CPS schools, “People say, ‘oh, that’s a druggie school, that’s a gang school, that’s um—whatever.’ So I think yeah there are a lot of assumptions being made and a lot of reputations set for sure,” contrasting this with her own private school, which she views as relatively “safe.” Eden, a Catholic school student whose TRAP vowel falls toward the middle of the range, observed of a nearby neighborhood public school that “Everyone is like, ‘don’t go there,’ like, ‘I’d rather be sent to an all-girls’ school than go there.’... I hear a lot of stories about like fights in the hallways and that kind of thing.” Commentary around crime is typically centered on neighborhood CPS schools or suburban public schools in lower-income and more racially diverse areas.

At a large scale, then, students’ TRAP productions appear to be organized according to judgments about each school’s status in terms of indicators such as education quality, school funding, and crime. The students who produce the lowest/backest TRAP vowels are also those who view their schools as high in status along these criteria. And importantly, participants’ commentary regarding quality does not emerge in isolation. Rather, participants make relational comments comparing their schools against others, and their productions of the TRAP vowel are broadly organized in line with these assessments, with students at schools perceived to be high quality, well-funded, and safe producing the lowest and backest TRAP vowels. In this way, students are applying a linguistic resource (raised/fronted vs. lowered/backed TRAP) associated with one social hierarchy, socioeconomic status, to another similar, but not quite equivalent structure related to school elite-ness. In doing this, TRAP takes on a higher-order indexical meaning (Silverstein 2003). This new social meaning is not divorced from associations between TRAP and socioeconomic status: a school’s resources are, at some level,

dependent on the material and social resources available to the school district. However, that TRAP productions are predicted by high school type despite an ideology that these features are linked to socioeconomic status suggests that adolescents are orienting around the school quality-based hierarchy as a relevant social dimension to index linguistically. Production differences in TRAP, therefore, reflect students’ positionalities within this hierarchy. Indeed, this parallels Eckert’s (1989) findings that students’ community of practice-based variation in productions of NCS vowels at a Michigan high school also echoed class-based associations.

This idea is additionally supported by individual variation in viewpoints about school quality and TRAP production. For example, among suburban public school students, within-group differences in TRAP production correlate with students’ perceptions of their schools: Brandon viewed his school as “rated really highly for education,” and Elyse noted, “The schools are really good around here as far as they’re rated and I agree, I think my school is wonderful.” Both produce relatively low and back TRAP vowels compared with other suburban public school students. In contrast, Peter, who also attends a suburban public school and produces one of the highest and frontest TRAP vowels in the sample (Figure 3), remarked on his high school’s differentiation of students by their expected academic trajectories, stating that, “In math, they might tell you how to do graphing or they might not... They’re probably seeing it as, ‘Okay, what’s important for that student when growing up. What are they gonna use?’” as not all students were expected to continue their education beyond high school or have a need for advanced mathematics.

A similar distinction appears in the productions of two of the non-elite students who produce relatively low and back TRAP vowels. Trinity, a Catholic school student, observed that her school was developing an elite reputation: “There’s so much attention on our school now because of like athletics and like our new campus... My school is... making everything high achieving now.” Chelsea, a student at the neighborhood school mentioned above by Eden as having a reputation for fighting, asserted that “People sometimes think [it’s] like the bad school, you’ll like get in fights. But it’s like, it’s like the bad school on the Northwest Side of Chicago. Like there’s fights... but like, it’s not as bad as you might think.” In contesting the stereotype of her school as a “bad school” by noting its location on the Northwest Side, Chelsea is demonstrating an awareness of both her school’s status in relation to other more elite schools, as well as that its geographic location situates it within an area that is relatively Whiter and wealthier—and therefore better resourced—than many other Chicago neighborhoods. For both Chelsea and Trinity, then, lower and backer TRAP vowels may correspond to their beliefs that their schools are not, in fact, low in education quality and/or unsafe.

That is not to say that the production of TRAP is purely agentive. For example, Kendall, a Catholic school student quoted above acknowledging that she associates Northern Cities-shifted vowels with “certain classes of people,” also reported that with respect to the “Chicago accent,” “sometimes... people will associate having an accent with like not being professional.” Despite her awareness of these negative associations and plans to someday work as a lawyer, however, she still produces a relatively high and front

TRAP vowel and is aware of this: “*I hear that I’m drawing out the A in a certain way.*” Thus, despite her awareness of the negative (“unprofessional”) social associations of raised/fronced TRAP, Kendall acknowledges that it persists in her own production.

Overall, then, despite metalinguistic commentary suggesting that these variants are linked to socioeconomic status, participants’ productions of TRAP correspond at a macro-level to high school type, rather than neighborhood SES. This variation aligns with students’ evaluations of different school types, with students at elite schools producing fewer Northern Cities-shifted vowels, just like more socioeconomically elite Chicagoans. At an individual level, however, students may vary in their productions of this vowel. The non-elite school students who produce fewer Northern Cities-shifted TRAP vowels are also those who express viewpoints suggesting that they perceive their allegedly non-elite schools as relatively high in quality.

The school type-based distinction emerges based on elite students producing fewer Northern Cities-shifted vowels compared with all other students (suburban and non-elite alike). In the context of the ongoing reversal of the NCS, this means that elite students are leading the sound change away from these stigmatized variants, even though students across school types share in their social evaluations of these vowels, and even though students from similar neighborhood SES backgrounds at other school types produce higher and fronter vowels. What, then, might lead elite students to differentiate themselves from their peers at other schools vis-à-vis their vowel productions?

One possibility, in line with previous work on network effects in high schools (Dodsworth and Benton 2017; Sneller 2018), is that elite students are exposed to reversed TRAP and LOT vowels via their peers. As these variants are ideologically associated with SES, it is possible that exposure to higher SES peers might lead elite students to accommodate to them. If this were the case, however, we would expect to see differences in the production of these vowels between students at elite private schools (with relatively wealthy student bodies), like Michelle and Olivia, and those at the more socioeconomically diverse selective enrollment schools, like Candace and Ariel. As depicted in Figure 3, however, students at both types of elite schools produce similarly low/back TRAP vowels. While contact plays a role in sound change—producing a lowered/back TRAP vowel necessitates exposure to this variant—ideological factors are also relevant (Duncan 2021).

Another possibility is that students at elite schools view this status as potentially related to their future socioeconomic positions. As described above, students at elite schools discuss their beliefs that their academically rigorous, well-funded schools will support them in their future career aspirations (e.g., Michelle’s statement that elite schools “*will help you find where you want to be in life*” and Peter’s observation that higher-level math was taught only if teachers thought it would be “*important for that student when growing up*”). Through this discourse, then, students at elite schools link attending these schools to securing high-status social positions later in life—and therefore, perhaps, using linguistic resources associated with this high social/socioeconomic status to signal this school-based status as well. In this way, the indexical moves made in local contexts both reify and help produce larger-scale social meanings.

5 | Conclusion

High school students circulate discourses related to school choice and school quality. Not all participants reach consensus regarding whether a particular school is “high quality,” but most still participate in the construction of an ideological hierarchy ranking schools in relation to one another along these criteria. In addition to factors like social networks, contact, and preexisting class-based disparities identified in previous research as contributors to high school choice effects (e.g., Dodsworth and Benton 2017; Labov et al. 2016; Sneller 2018), students actively participate in developing this “elite-ness” hierarchy and locating themselves—via indexical resources like TRAP—within it. During high school, then, adolescents are socialized into an understanding of their social positionalities within a broader eco-system consisting not only of peers at their own schools, but also students at other schools within the Chicago area.

A long tradition in sociology has viewed schools as a means through which cultural capital is reproduced (e.g., Bourdieu 1991; Jack 2019). The present findings demonstrate that adolescents are attuned to the social capital inherent in having attended an elite school, as reflected in their differential linguistic productions. In doing so, they have adopted a feature associated with one social hierarchy (socioeconomic status; D’Onofrio and Benheim 2020, Benheim 2023) and applied it to a different, more locally relevant hierarchy (school type), thereby leading these features to take on social meanings at a higher indexical order (Silverstein 2003; Eckert 2008). I leave open the possibility that these students also believe that attending an elite school will propel them into a high socioeconomic position in the future, and therefore see these SES- and eliteness-based indexical meanings as related (similar, for example, to Eckert’s school-oriented “jocks” whose vocalic productions mapped onto middle-class status; Eckert 1989, 2000).

However, these findings also suggest that students are not simply reflecting published school rankings or adults’ meta-commentary about “good” and “bad” schools. In such a case, we would expect students at the highly ranked suburban public schools to differ significantly from non-elite students in production. That we do not find this—there are no significant differences between suburban and non-elite students for salient vowels TRAP or LOT, and elite students produce backer TRAP vowels than *both* non-elite and suburban students—indicates that there is something specific to attending an elite (selective enrollment or non-parochial private) school relative to other school types that leads them to be perceived differently.

Again, this aligns with education literature on school choice in the United States. Policymakers and politicians highlight magnet, private, and charter schools as emblematic of “school choice” because they present parents with a choice between multiple school options. However, the primary method by which families with resources “choose” schools is by selectively living in suburbs and other areas that district into “good” public schools (Ben-Porath and Johanek 2019). This means that elite schools serve as competition to neighborhood public schools, whereas suburban public schools are themselves the default option for families in that location. This is then reflected in students’ linguistic productions, wherein elite students index this social position in opposition to students at other school types, especially the

non-elite schools they might have otherwise attended. Overall, this suggests that elite education is a meaningful social status in and of itself (Prichard 2016).

Circulating discourses about school quality help students learn which schools are “good” or “bad,” which schools face issues with drugs and violence and which are “safe,” and which schools have material resources and which do not. In this way, adolescents are socialized into an understanding of their own schools—and the linguistic resources utilized there—and how these map onto a social hierarchy.

In the midst of ongoing sound change, the linguistic options available for adolescents—between, say, a relatively fronter or backer TRAP vowel—have preexisting social meanings in the wider community. Northern Cities-shifted TRAP and LOT are associated with lower socioeconomic status, and adolescents may be looking toward their future social positions as adult community members in deploying socially meaningful linguistic features (Eckert 1989, 2000). But as adolescents, they are also using those resources to index a hierarchy that is relevant to them at a more local level, as an index of high school type.

The role that certain schools play in promoting the ongoing reversal of the NCS demonstrates more generally that we as sociolinguists must attend not only to the social types and categories that speakers index linguistically, but also to how those social categories emerged in the first place. Students are not randomly sorted into high schools; their high school attendance is a complex interplay of their families’ residential choices and opportunities, access to information about different schools, performance on standardized tests, religious affiliation, personal preferences, and so on. And, of course, all of these factors are themselves guided by preexisting macro-social factors like race, socioeconomic status, and place (Ben-Porath and Johaneck 2019; Pattillo 2015). But the linguistic effects of high school choice do not straightforwardly fall out of students’ backgrounds with respect to these factors.

Indeed, elite schools themselves take on social significance because they are treated as socially significant. Adolescents view magnet and private schools as prestigious because—based on circulating discourses—they view access to a “high quality” education as a resource to attain a higher social position. Elite schools are therefore imbued with social meaning, creating the potential for adolescents to index their affiliation with them. In linguistically indexing affiliation with a social category, then, speakers are telling us not just which categories they belong to but also which categories are worth indexing in the first place.

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Conflicts of Interest

The author declares no conflicts of interest.

Endnotes

- ¹ This research was conducted at Northwestern University; the author is currently affiliated with Brown University (Program in Linguistics, 91 Waterman Street, Providence, RI 02906).
- ² International Baccalaureate, an advanced academic curriculum available in some high schools.
- ³ Tiers within Chicago are calculated based on the results of the NWEA MAP test, which is not administered in most suburban districts. The IAR test is taken by all students; scores were universally higher in the suburbs versus the city.
- ⁴ As shown in Table 2, significant main effects of gender emerged for TRAP and LOT. I discuss the gender patterns in these data elsewhere (briefly, boys produce more Northern Cities-shifted vowels; Benheim 2023).

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