Radboud Universiteit

Faculty of Arts: Master Thesis

The Effect of Awareness Raising on Reducing Negative Attitudes Towards Weakly and Moderately Dutch-Accented English Speakers

1. Abstract

Speakers of English as a second language often face bias because of their accents, especially in academic or professional settings. This kind of prejudice can lead to negative evaluations in job interview settings, undermining the speaker's credibility and limiting access to employment opportunities, regardless of actual competence. Recent research has shifted away from reducing accentedness in speakers, and more towards interventions aimed at changing listener perceptions and attitudes. The present study examined the effectiveness of an awareness-raising intervention (a video about accent bias) in reducing negative bias towards English spoken with weak and moderate levels of a Dutch accent. A total of 148 participants completed an online questionnaire and experiment. The participants were randomly assigned to one of four conditions, varying by accent strength (moderate or weak Dutch accent) and intervention (exposure to the awareness-raising video or no exposure - control group). Participants then evaluated the speaker across multiple dimensions to form a picture of their general attitude: dynamism, hirability, competence, status, likeability, and affect. Results showed no statistically significant effect of the intervention on attitude ratings. Overall, the moderately-accented speaker was rated less favourably than the weakly-accented speaker, regardless of whether participants were exposed to the intervention. Additional factors relevant to interpreting bias, such as participants' first language (L1), were also considered. These findings suggest that accent-based bias may be resistant to brief interventions, possibly due to deeply ingrained listener attitudes. Future research may require more intensive or long-term approaches to effectively reduce such bias.

2. Introduction

Background of the Study

In today's globalized world, multiculturalism is increasingly widespread (Crystal, 2003). The English language functions as a lingua franca for communication between speakers of diverse linguistic backgrounds and cultures (Seidlhofer, 2005). As the number of non-native English speakers grows, so too does the prevalence of accent bias - a form of linguistic discrimination that remains underrecognized. Accent, defined as the manner of pronunciation influenced by a speaker's native language (Giles, 1970, as cited in Spence et al., 2024), is often used as a basis for unjust evaluation.

Accent bias refers to negative judgements based on pronunciation rather than linguistic competence (Gluszek & Dovidio, 2010; Lev-Ari & Keysar, 2010). Research consistently shows that non-native English speakers are perceived as less competent, intelligent, or of lower status than native speakers (Lippi-Green, 1997; Gluszek & Dovidio, 2010). These perceptions are often benchmarked against so-called 'standard' accents, reinforcing systemic inequalities (Lippi-Green, 2012). In hiring contexts, speakers with non-standard accents are often unfairly disadvantaged, regardless of their qualifications (Deprez-Sims & Morris, 2013; Roessel, 2019).

Despite its impact, accent bias remains under-addressed in legal and institutional frameworks. While EU laws prohibit discrimination based on race, ethnicity, and nationality (European Commission, 2025), accent discrimination is seldom explicitly referenced. These protected categories can overlap with accent discrimination, particularly when an accent is associated with a specific ethnicity.

In the Netherlands, English is commonly used as a second language, particularly in academic and professional settings (European Commission, 2012). Dutch-accented English, although intelligible and fluent, is evaluated less favourably than native varieties of English (Nejjari et al., 2021).

Accent bias not only undermines fair decision-making in important environments like job interviews but also reflects broader societal attitudes towards language and identity. Guided by intervention theory (Michie et al., 2011), this research tests whether increased awareness can influence how listeners judge speakers across key evaluative dimensions. Specifically, the present research investigates whether raising awareness of accent bias can reduce negative attitudes towards weakly and moderately Dutch-accented English in a professional context. By exploring this issue through the lens of hiring discrimination, the

study aims to contribute to the development of interventions that promote more equitable treatment of non-native English speakers in the recruitment process.

Literature Review

Accent bias refers to automatic, often unconscious preferences for certain accents over others. It is typically implicit and can influence judgment without conscious awareness (Greenwald & Banaji, 1995). In contrast, accent prejudice involves more explicit, conscious negative evaluations or stereotypes directed at individuals based on their accent (Lippi-Green, 1997). While both contribute to discriminatory outcomes, bias tends to operate subtly and unconsciously, whereas prejudice reflects more deliberate negative attitudes. To address accent bias, a review of the existing literature and possible interventions is essential. Key theories and findings on accent discrimination and accent strength help explain how bias arises. Research on bias reduction strategies such as awareness raising (Roessel et al., 2017), perspective taking (Weyant, 2007), and demonstrating competence (Spence et al., 2024) offer insight into how such bias might be mitigated.

Accent Discrimination and Accent Strength

Research shows that non-native accents trigger negative biases, with non-native speakers often judged less favourably than their native-accented equivalents (Fuertes et al., 2012; Gluszek & Dovidio, 2010). Accent strength further influences these perceptions, with stronger accents typically eliciting more negative evaluations (Lev-Ari & Keysar, 2010; Roessel et al., 2019). The negative judgements are rooted in bias rather than actual linguistic competence, as accents function as salient markers of social categorization (Brusa & Proverbio, 2024).

A meta-analysis on accent bias conducted by (Spence et al., 2024), is a valuable contribution to the discussion, as it focuses on how non-native English or non-standard accents influence hiring decisions. The Spence et al. (2024) study found that hiring bias existed, as candidates with standard accents were consistently rated as more employable than those with non-standard accents (Spence et al., 2024). In Spence et al.'s 2024 study, bias against non-native speakers was notably stronger than against regional British accents, suggesting that discrimination is driven more by perceptions of otherness than by linguistic variation.

Relatedly, Spence et al. (2024) found that accent bias was more pronounced for roles which required strong communication skills and was linked to perceptions of social status.

The findings suggest that people deemed non-standard accented speakers to have lesser communication skills than native English speakers. These findings indicate that accent bias in hiring stems from societal stereotypes rather than actual concerns about communication, highlighting its arbitrary nature.

Related research shows that non-native English-speaking teachers also experience accent bias, with job advertisements often favouring native-accented speakers through phrases like “native speaker required” or “must speak English like a native” (Chahkandi, 2024), reflecting broader societal prejudices. Chahkandi (2024) highlights how internship adverts frequently reflect the *native speaker fallacy*, the mistaken belief that only native speakers can use a language ‘correctly’ (Phillipson, 1992, as cited in Chahkandi, 2024, p. 2). This assumption ignores the reality that non-native speakers can be highly proficient and effective communicators. Phillipson (1992) critiques this prescriptivist view, arguing for a more inclusive understanding of linguistic competence.

Similar to Chahkandi’s findings, were Roessel et al.’s (2017), they found that stronger European accents (German) are perceived as less comprehensible in a hiring setting, even when actual intelligibility or comprehensibility remains unaffected. According to Derwing and Munro (1997) comprehensibility is about how easy or difficult the speech is to understand overall, including aspects like grammar, vocabulary, fluency, and listener effort. Intelligibility is relatively more objective as it refers to how much of the speech the listener can accurately recognize; it is about the sounds and whether they can be decoded correctly.

Building on the idea of perceived versus actual comprehensibility, Hendriks et al. (2018) found that German English speakers with a moderate accent were perceived to be less intelligible than those with a slight accent. Previous findings indicate that the perceived comprehensibility of a speaker with a non-native accent can also be influenced by accent strength (Hendriks et al., 2018; Lev-Avri and Keysar, 2010; Roessel et al., 2017).

Processing fluency, or the ease of comprehension, is a key contributor to accent bias (Derwing and Munro, 2009). Non-native accents may require greater cognitive effort, which can lead to more negative evaluations of the speaker (Gluszek and Dovidio, 2010). Lev-Ari and Keysar (2010) suggest that listeners may subconsciously equate processing difficulty with lower credibility. However, fluency alone does not fully explain accent bias. Prejudices and stereotypes also play a central role. For example, Van Hout and Smit (2008) found that even fully comprehensible non-native accents are still judged negatively.

Listener background can further influence processing fluency. Hendriks et al. (2023) found that in English Medium Instruction (EMI) settings, lecturers with non-native accents

were evaluated more negatively by Dutch and international non-native listeners, than by native English listeners. This finding suggests that non-native listeners may judge accents against native pronunciation standards. Vicarious shame theory (Lickel et al., 2005) helps explain this pattern. According to this theory, non-native listeners may experience embarrassment on behalf of other L2 speakers, leading them to judge those speakers more negatively (Hendriks et al., 2018). Dutch listeners may expect Dutch English speakers to mirror a 'standard' native English accent in their speech, despite the fact that most British speakers of English have a regional accent themselves (Trudgill, 1999).

Similarly, Nejjari et al. (2021) found that Dutch-accented English is often viewed less favourably than native English accents. In their (2021) study, Dutch listeners tended to prefer British and American accents, associating them with greater prestige and competence. This bias explained through the concept of vicarious shame (Hendriks et al., 2018; Lickel et al., 2005) and Phillipson's (1992) notion of linguistic imperialism.

This bias may be shaped by how English is taught in the Netherlands. Derwing et al. (1998) highlight the need for more research on pronunciation instruction. English teaching often centres on Received Pronunciation (RP) as the 'correct' variety (Wells, 1982; Jenkins, 2000), reinforcing the native-speaker norm. This reflects the outdated belief that standard native accents (such as RP) represent the ideal form of English (Lippi-Green, 1997; Phillipson, 1992), a view that marginalizes both non-native and regional accents and perpetuates discriminatory attitudes in educational and professional contexts.

Accent preference, shaped by linguistic imperialism, is also influenced by gender bias (Spence et al., 2024). Spence et al. found that women with standard accents were rated more favourably than those with non-standard accents, while men's accents had little effect. This suggests women may be more vulnerable to accent-based discrimination in professional settings.

Accent discrimination has serious consequences, particularly in employment, where non-native speakers may encounter barriers to career advancement (Hansen et al., 2014). Therefore, reducing such bias is essential for promoting equality and inclusivity in recruitment processes. Although public awareness is growing, for example, through media coverage (Ro, 2021), research into effective interventions remains limited (Hansen et al., 2014). Further to this, Hideg et al. (2024) conducted a study which found that accent discrimination persists across workplace settings, despite growing diversity and inclusion efforts.

In summary, research suggests that prejudice underlies accent bias in hiring,

disproportionately disadvantaging candidates with non-native accents. This form of bias can result in qualified individuals being overlooked, undermining merit-based selection processes (Lippi-Green, 2012). In response, scholars have increasingly focused on identifying strategies to reduce accent-based discrimination.

Intervention theory

Intervention theory provides a framework for understanding how and why an intervention may lead to change, in this case, a reduction in accent bias. The present study draws on principles from implicit bias theory (Greenwald & Banaji, 1995), which suggests that unconscious stereotypes can be modified through awareness and reflection. It also aligns with intergroup contact theory (Allport, 1954; Pettigrew & Tropp, 2006), which proposes that exposure to outgroup members, under appropriate conditions, can reduce prejudice. This theoretical foundation supports the rationale for using awareness-raising as a prejudice-reduction tool in hiring and professional contexts. By increasing participants' awareness of the existence and consequences of accent bias, the video used in the present study aims to prompt more reflective and fair judgements of non-native (Dutch) speakers of English.

Prejudice Controls

Previously, intervention efforts to quash accent bias have focused on accent reduction (Gluszek & Dovidio, 2010), placing responsibility on non-native speakers to alter their speech, rather than challenging biased listener attitudes. However, emerging research highlights the potential of alternative strategies to shift this focus to the listener, such as awareness raising (Roessel et al., 2017), perspective taking (Weyant, 2007) and demonstrating competence (Spence et al., 2024).

Awareness Raising

One key strategy explored to address prejudice is awareness raising. Efforts to reduce bias against non-native accents have focused on understanding the psychological mechanisms behind prejudice, particularly to support self-regulation and control of automatic biases (Bodenhausen et al., 2009). Accent bias is often considered a form of unconscious bias - implicit attitudes that influence perception and behaviour without conscious awareness (Greenwald, 1995). As such, raising awareness of these biases may encourage individuals to critically reflect on their assumptions, potentially reducing negative evaluations of non-native speakers. This approach aligns conceptually with the habit breaking framework proposed by Devine et al. (2012), which showed that interventions targeting implicit bias awareness can

produce lasting reductions in prejudice. Although their work focused on racial bias, the underlying mechanism (raising awareness to disrupt automatic responses) is directly applicable to accent-based prejudice.

However, further research is required to examine this idea, as Roessel et al. (2019) found that their intervention of raising awareness was only effective when the accent of the speaker was strong. Given these findings, the current study investigates whether a targeted awareness-raising intervention can effectively reduce bias against non-native accents in evaluative judgements.

Empathy and Perspective Taking

Another psychological approach to reducing accent bias involves encouraging listeners to adopt the speaker's perspective (Weyant, 2007). Perspective-taking can decrease perceived social distance between speaker and listener, a key factor in the development of bias (Galinsky & Moskowitz, 2000). When examining stereotypes relating to race and gender, Shih et al. (2009) found that perspective-taking interventions led to increased empathy and reduced stereotyping, suggesting that understanding discrimination from the victim's viewpoint can diminish prejudiced attitudes.

Empathy is a central component of perspective-taking. It can also be fostered through experience-taking (mentally placing oneself in another's situation) which has been shown to reduce accent discrimination (Batson et al., 1997). Hansen et al. (2014) applied a related intervention based on exposure, encouraging participants to focus on conversational similarities despite accent differences. By reducing the perception of the speaker as an 'other', the intervention successfully weakened the foundation of accent bias and promoted empathy.

Hansen et al. (2014) also adopted perspective taking as an accent bias mitigation strategy, with successful results. However, the study highlighted social desirability bias as a key limitation and called for further research using methods that reduce the influence of this bias. Social desirability bias occurs when participants respond in ways they believe are socially acceptable rather than truthful, which may compromise the validity of findings (Tourangeau & Yan, 2007).

Proving That Competence Mitigates Accent Bias

Another accent-bias prevention intervention to be considered is proving the competence of the speaker in other ways, so that the listener does not rely solely on speech to judge competence. As previously mentioned, Spence et al. (2024) found that candidates with

standard accents were generally rated as more hireable than those with non-standard accents. However, when candidates with non-standard accents demonstrated clear competence through other means, the negative impact of their accent was reduced. These findings suggest that displaying observable competence can effectively mitigate accent-based discrimination. Building on the outlined existing findings, the present study aims to explore whether such bias-reduction strategies (particularly awareness raising) can be effectively applied in a hiring context.

Research Questions and Hypotheses

More research is needed into awareness-raising as a prejudice control strategy in hiring contexts. Video offers an effective delivery method, presenting information efficiently while engaging both visual and auditory learners, making it more engaging than static formats such as scripts or posters. This study responds to a gap in the literature by evaluating a video-based intervention aimed at reducing bias against Dutch-accented English - a combination rarely explored in existing research. To date, no studies have tested the effectiveness of such interventions targeting Dutch-accented non-native English speakers. This research aims to investigate whether an awareness-raising intervention can mitigate negative attitudes toward speakers of English with weak or moderate Dutch accents.

To build on the aforementioned studies, the central research question this study seeks to address is:

- To what extent does a prejudice control intervention focused on raising awareness of accent bias reduce bias toward non-native speakers of Dutch-accented English?

- Hypothesis 1 (H1)**:** Participants in the experimental group who are exposed to the awareness-raising video will show more positive attitudes toward the accented speakers (both weakly and moderately accented) than participants in the control group who do not receive the intervention.

Interventions aimed at raising awareness of accent bias have been shown to reduce negative stereotypes and improve listener attitudes toward non-native speakers (Bodenhausen et al., 2009; Greenwald, 1995; Roessel et al.,2019). In contrast, participants who do not receive awareness-raising interventions may rely more on ingrained biases, resulting in more negative evaluations of accented speakers. Therefore, it is expected that the non-experimental

(control) group will demonstrate more negative attitudes toward both weakly and moderately accented speakers compared to those exposed to the intervention of awareness raising.

- Hypothesis 2 (H2) : A moderate Dutch accent in English will lead to more negative attitudes from listeners than a weak Dutch accent in English at least in the control condition.

Previous research has consistently identified accent strength as a key predictor of listener bias and negative social evaluations (e.g., Fuertes et al., 2012; Gluszek and Dovidio, 2010; Roessel et al., 2019). Therefore, it is expected that a moderate Dutch accent will evoke more negative attitudes than a weak one, due to increased salience and the associated social judgements it may trigger.

This study aimed to assess whether an awareness-raising intervention could reduce negative judgements toward non-native speakers and fundamentally improve fairness in hiring evaluations.

3. Method

Materials

This study employed a 2 (accent strength: weak vs. moderate Dutch-accented English) × 2 (intervention: exposure to video vs. control) between-subjects design.

Participants were asked to imagine themselves on a hiring panel and were shown a job advertisement (Appendix A5). They then listened to the same answer to the interview question, *"How do you engage students in a multicultural classroom?"*- delivered either in a weak or moderate Dutch-accented English. The audio clips (42 and 47 seconds) were designed to be long enough to allow for attitude formation without losing participants' attention.

A job interview scenario was chosen due to its real-world relevance and the established presence of accent bias in hiring contexts (e.g., Spence et al., 2024). The role of a lecturer in Global Communication at a Dutch university was selected based on Hendriks et al. (2023), who found that lecturers with moderate Dutch accents were rated more negatively than those with slight or native British accents in English-Medium Instruction (EMI) settings. A university lecturer role was also considered appropriate for the audio stimulus, as it is generally viewed as competence-based, relevant to findings by Spence et al. (2024), who showed that demonstrating competence in domains other than speech can mitigate accent bias.

Participants in the control condition listened to one of the two audio clips (either weakly or moderately accented). In contrast, those in the experimental condition first watched an awareness-raising video, then listened to the same audio fragment corresponding to their randomly assigned accent condition.

The three-minute video, narrated by a multilingual non-native speaker, aimed to foster empathy and understanding by sharing personal experiences of accent-related bias. It aligns with Batson et al.'s (1997) empathy-based approach to reducing bias and portrays the speaker as a competent university lecturer, echoing Hansen et al.'s (2014) finding that demonstrated competence can help counteract accent-based bias. A full transcript of the video is shown in Appendix A4.

Stimuli

To select appropriate stimuli for the main study, a pretest was conducted with 17 native Dutch participants, each of whom evaluated four speech fragments of Dutch speakers speaking English. The pretest was conducted to also ensure a clear distinction in perceived accent strength between the weak and moderate conditions. The pretest stimuli consisted of four scripted speech recordings representing varying accent strengths. All audio samples were recorded by female Dutch speakers of similar age living in the Gelderland region, to minimize variability. Based on pretest questionnaire (appendix A1) results, two recordings were selected for the main study: one representing a weak Dutch accent and one a moderate Dutch accent. See Appendix (B) for full pretest details.

Participants

The final sample consisted of 148 participants (95 female, 64.2%; 50 male, 33.8%; 3 non-binary, 2.0%). The majority of participants were female. Participants' ages ranged from 18 to 72 years, with a mean age of 35.62 years (*SD* = 15.42). Educational experience varied, with the majority holding a bachelor's degree (47.3%), followed by a master's degree (32.4%), high school diploma (10.8%), and PhD (9.5%). Most participants had completed at least an undergraduate degree. Regarding occupation status, participants were categorized as 20.3% students only, 58.1% employed only, 0.7% both student and employed, and 20.9% 'other'. Most participants were employed full-time or part-time. English was the most common first language among participants (58.8%), followed by Dutch (29.7%). The remaining 11.5% of participants reported a variety of other first languages, including German (2.7%), Italian (2.0%), and several others, each making up less than 2% of the sample.

Overall, most participants were native English speakers.

To assess the success of random assignment to conditions, a series of Chi-square tests and independent-samples *t*-tests were conducted across demographic and background variables (gender, age, education level, occupation status, participant L1, perceived accent strength of participant, previous exposure to Dutch-accented English , English proficiency and general attitude towards EMI non-native lecturers). Overall, results indicated no significant differences between groups in terms of gender, age, occupation, education, self-rated accent strength, or prior exposure to Dutch-accented English (all *p*s >.05), suggesting successful random assignment.

However, two exceptions were noted: participants in the weak accent condition reported significantly higher English proficiency than those in the moderate accent condition, and pre-existing attitudes toward non-native English-medium lecturers differed by accent group also (see appendix C2 for full results). These differences suggest potential confounding variables and should be considered when interpreting the findings.

Each experimental condition included a minimum of 35 participants, ensuring balanced group sizes for reliable analysis and interpretation. See Table 1 for exact figures.

Table 1

Frequency and Percentage of Participants by Experimental Condition

Condition	Frequency	Percent (%)
Weakly Accented Audio Sample Only	37	25
Weakly Accented Audio Sample with Intervention	36	24
Moderately Accented Audio Sample Only	36	24
Moderately Accented Audio Sample with Intervention	39	27
Total	148	100

Note: N = 148.

On average, participants completed the questionnaire in *M* = 503.85 seconds (approximately 8.4 minutes), *SD* = 377.59.

Experiment Design

The two independent variables: Dutch accent strength in English (moderate vs. weak) and intervention (video exposure vs. control) are shown in Figure 1.

Figure 1

Experimental Conditions and Design

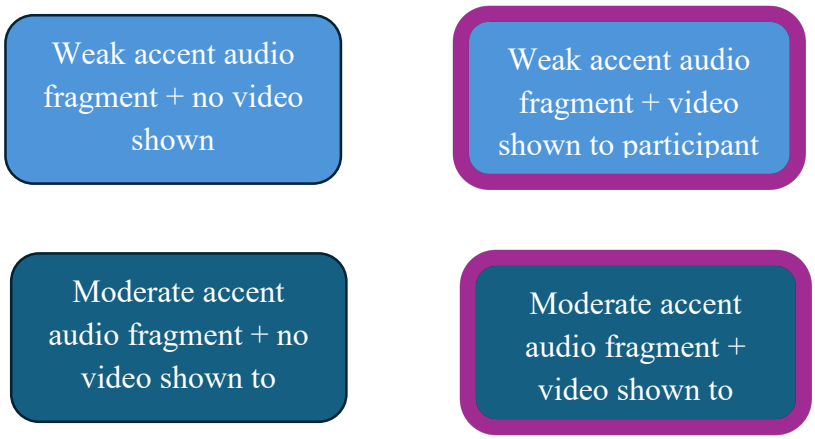

Figure 1: Four groups based on accent strength (weak/moderate) and intervention (video/control) were randomly assigned to participants.

A strong Dutch accent was excluded due to its relative rarity in the target population, as Dutch speakers generally demonstrate high levels of English proficiency, which tends to result in less phonological transfer (Education First, 2023). Female voices were used based on prior findings that female-accented speech often receives more negative evaluations than male-accented speech (Spence et al., 2024).

The audio clips featured a scripted response to a job interview question (Appendix A3), simulating the hiring of a lecturer for a Global Communication course taught in English at a Dutch university. This role requires strong communication and English skills, and it reflects a context where accent discrimination has been previously reported (Chahkandi, 2024; Henriks et al., 2023; Spence et al., 2024), making it a relevant setting in which to test the impact of bias-reduction strategies. The job interview script was developed based on an informal interview with Dr. Noemi Mentes (Radboud University) about strategies for effectively teaching in an international, multilingual classroom (personal communication, December 5, 2024). The scripted interview response was intentionally strong, minimizing variation in content quality so that evaluations would reflect perceptions of speech and accent rather than what was said.

Instruments

There were several dependent variables measuring attitudes in the study: dynamism, hirability, status, competence, likeability, and affect. These were measured through the medium of a questionnaire. The Likert scale style of questions was selected as it is user-friendly. User-friendly is defined as 'Of hardware or software: easy to use or understand, esp. by an inexperienced user; designed with the needs of a user in mind'(Oxford University press,1972).

The scales used in the questions for the questionnaire were based on Hendriks et al., 2023, which also measured attitudes to a speaker's accent. The questionnaire was produced using Qualtrics software (Qualtrics, 2023) and written in the English language (appendix A6). Participants were randomly assigned to one of four conditions using the Qualtrics randomizer, and their assigned condition was recorded using embedded data fields for use in later analysis.

Accent Strength

- Strength of foreign accent was measured with seven-point Likert scales anchored by 'completely disagree - completely agree' following the statements 'This speaker sounds like a native speaker of English' (reverse coded) and 'This speaker has a strong foreign accent in English' (based on Jesney, 2004, as cited in Hendriks et al. 2023). The reliability of the two items was good: ($\alpha = .77$). The reliability in the original source was ($\alpha = .81$).

Dimensions

Attitudes towards the prospective lecturer were also measured by seven-point Likert scales. The question format was 'The speaker sounds', also anchored by 'completely disagree – completely agree'.

- Dynamism was measured with the items 'energetic', 'engaging', 'assertive' 'lively ($\alpha = .81$). The dynamism scale was adapted from Cargile & Giles (1994). While their original paper did not report reliability statistics (Cronbach's α), the present study demonstrated strong internal consistency, supporting the scale's robustness.
- Hirability was measured with the items 'I would recommend the speaker for the role of lecturer in Communication', 'the candidate is suitable for the role of lecturer in Communication', 'the candidate would be good in a lecturing role' ($\alpha = .91$), inspired by (Roessel, Schoel & Stahlberg, 2018). Although not strictly required, an exploratory

factor analysis (EFA) using principal axis factoring was conducted to confirm the internal structure of the attitude scale for hirability and support the validity of composite scoring because this scale was self-constructed for the purposes of the current study. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .741, indicating a middling level of adequacy. Bartlett's Test of Sphericity was significant, ($\chi^2(3) = 308.86$, $p < .001$), supporting the factorability of the correlation matrix. All three items loaded strongly on the single factor (loadings = .812 to .928 – see Table 2), indicating that they all reflect the same underlying construct. These results support the use of a composite hirability score.

Table 2

Factor Loadings for Hirability Items (Principal Axis Factoring)

Item	Factor 1 Loading
The candidate is suitable for the role of lecturer in Communication	.93
I would recommend the speaker for the role of lecturer in Communication	.90
The candidate would be good in a lecturing role	.81
Eigen Value	2.55
% of variance	85
α	.94

Note: Factor loadings in **bold** indicate the items selected for this factor.

- Competence was measured with the items 'reliable', 'intelligent', 'competent', 'hardworking' and 'educated' (α = .74). In the validation source :Hendriks et al., (2023) (α = .92).
- Status was measured with the items 'authoritative', 'trustworthy', 'self-confident', 'influential' and 'has a powerful voice' (α = .80). In the validation source :Hendriks et al., (2023) (α = .87).

- Likeability was measured with the items ‘credible’, ‘sympathetic’, ‘warm’, ‘humorous’, ‘tactful’, ‘polite’ (α = .81). In the validation source :Hendriks et al., (2023), (α = .81) .
- The scale for affect was inspired by Nejjari et al. (2012) study. Affect was measured with the items ‘the speaker sounds friendly’, ‘the speaker came across as sympathetic’, ‘the speaker seems likeable’, ‘I would enjoy interacting with this speaker’, ‘I felt comfortable listening to this person’ (α = .89). Nejjari et al. (2012) used an affect dimension based on items like ‘friendly’ and ‘likeable’ but did not report internal consistency.
- Original origin of speaker was measured with the question ‘Which country do you think this speaker is from?’ followed by a drop-down list of 48 European countries and the option ‘I don’t know’, from which listeners were asked to select one.

Background Characteristics

Several self-report scales were included in the questionnaire to measure participants’ general attitudes toward non-native English accents in EMI lecturers, exposure to Dutch-accented English, self-rated English proficiency, and perceived strength of participants’ own accent. Because reliability coefficients indicated acceptable to excellent internal consistency, composite (mean) scores were computed. These characteristics were also rated on a 7-point Likert scale (1 = completely disagree, 7 = completely agree).

- General background attitudes toward non-native English accents in EMI teaching were assessed using six items. Example items include: ‘Speakers with non-native English accents should learn to speak English better’ and ‘It is irritating when a speaker has a non-native accent in English’. Internal consistency was high (α = .84). The six items were averaged to create a composite score, with higher values indicating more negative attitudes.
- Exposure to Dutch-accented English was measured using three items assessing familiarity and frequency of interaction (e.g., ‘I regularly talk to people who have a Dutch accent in their English’). A composite exposure score was created (α = .94).
- English language proficiency was assessed with four self-rated items on speaking, writing, listening, and reading (1 = very poor, 7 = excellent). A composite proficiency score was computed (α = .91).

- Perceived accent in English of participants was self-assessed using two items: ‘I sound like a native speaker’ and ‘I have a strong foreign accent when I speak English’ (reverse-coded). These were averaged to form an Accent Perception Score, with higher scores reflecting greater self-perceived nativelikeness ($\alpha = .77$).

Procedure

Before completing the questionnaire, participants were informed that their data would remain confidential and anonymous, and that they could withdraw at any time. Participants were invited to take part in the experiment individually. The study was open for anyone to participate in. Recruitment was conducted via social media platforms (LinkedIn, Facebook, Instagram) and through physical posters on the Radboud University campus, which included a QR code linking to the study (appendix A2). The questionnaire remained open for 3 weeks. At the start of the study, participants provided informed consent and answered brief demographic questions covering age, gender, and occupation or student status. Participation was voluntary, with clear instructions provided throughout. To reduce bias, minimal information was shared about the study's purpose during participation, but a full debrief was provided afterward, including ethical considerations.

Statistical Treatment

All analyses were conducted using IBM SPSS Statistics (Version 29). Descriptive statistics (means, standard deviations, and frequencies) were computed for all relevant variables to summarize participant responses. A significance level of $\alpha = .05$ was used for all statistical tests. Data with incomplete responses or obviously erroneous entries (such as unrealistic ages) were removed prior to analysis.

To test Hypothesis 1 (H1) - whether the intervention (video exposure vs. control) affects participant evaluations , and Hypothesis 2 (H2) - whether accent strength influences those evaluations, a series of 2 × 2 between-subjects analysis of variance (ANOVA)s were conducted. The independent variables were intervention (video exposure vs. control) and accent strength (weak vs. moderate). Each ANOVA was conducted on each of the 6 dimensions measured: dynamism, hirability, competence, status, likeability, and affect. These analyses allowed examination of both main effects and the interaction between accent strength and intervention.

To assess whether participants could accurately identify the speaker’s national origin, Chi-square tests were conducted. For analysis, origin identification responses were recoded as correct vs. incorrect. The first analysis tested whether identification accuracy differed by

accent strength condition (weak vs. moderate) as a manipulation check. The second examined whether accuracy varied by listeners' L1 background (Dutch vs. English). In both analyses, responses were coded dichotomously: 1 for correct identification and 0 for incorrect.

An independent-samples *t*-test was conducted to compare evaluative ratings between Dutch L1 and non-Dutch L1 participants on each of the six attitude dimensions.

The participants' free text comments were coded for tone (positive, neutral, negative, or no comment). A Chi-square test was conducted to compare tone category frequencies across intervention conditions.

To assess the success of random assignment and ensure comparability across experimental conditions, a series of Chi-square tests (for categorical variables such as gender, education, occupation, and first language) and independent-samples *t*-tests (for continuous variables such as age, self-rated English proficiency, accent strength, and exposure to Dutch-accented English) were conducted.

Assumptions for parametric tests, including homogeneity of variance, were evaluated using SPSS's default procedures (e.g., Levene's test). Effect sizes are reported alongside significance tests where appropriate.

4. Results

The main purpose of this study was to investigate the effect of an awareness-raising intervention on the effect of accent bias.

Manipulation Checks

Accent Strength - Foreignness

A two-way ANOVA was conducted to examine the effects of accent strength (weak vs. moderate) and listener group (Dutch vs. English) on perceived foreignness of the speaker. There was a significant main effect of accent strength, ($F(1, 126) = 69.05$, $p < .001$, $\eta p^2 = .354$), with moderate-accented speakers rated as sounding significantly more foreign ($M = 5.50$, $SD = 1.20$) than weak-accented speakers ($M = 3.56$, $SD = 1.54$). There was no significant main effect of listener group, ($F(1, 126) = 1.19$, $p = .279$, $\eta p^2 = .009$), indicating that Dutch and English participants did not differ overall in how foreign they rated the speakers.

However, there was a significant interaction effect between accent strength and listener group, ($F(1, 126) = 6.48$, $p = .012$, $\eta p^2 = .049$). While both Dutch and English listeners rated moderate-accented speakers as more foreign than weak-accented speakers, the

difference was larger for Dutch listeners (moderate: $M = 6.09$, $SD = 1.00$; weak: $M = 3.35$, $SD = 1.63$) than for English listeners (moderate: $M = 5.17$, $SD = 1.18$; weak: $M = 3.72$, $SD = 1.50$). This suggests that Dutch listeners were more sensitive to accent strength in their foreignness judgements. Levene's test indicated a violation of the assumption of homogeneity of variance ($F(3, 126) = 4.70$, $p = .004$), so results should be interpreted with caution. Table 3 shows means and standard deviations for perceived accentedness (foreignness) of each audio fragment.

Accent Strength - Nativeness

In line with this finding, a two-way ANOVA was conducted to examine the effect of accent strength (weak vs. moderate) and listener group (Dutch vs. English) on how native the speaker was perceived to sound. There was a significant main effect of accent strength, ($F(1, 126) = 9.96$, $p = .002$, $\eta p^2 = .073$), with weak-accented speakers rated as sounding more native ($M = 3.65$, $SD = 1.77$) than moderate-accented speakers ($M = 2.89$, $SD = 1.62$).

There was also a significant main effect of listener group, ($F(1, 126) = 5.70$, $p = .018$, $\eta p^2 = .043$). English listeners rated the speaker as sounding more native overall ($M = 3.54$, $SD = 1.59$) than Dutch listeners ($M = 2.74$, $SD = 1.90$).

Importantly, the interaction between accent strength and listener group was also significant, ($F(1, 126) = 5.66$, $p = .019$, $\eta p^2 = .043$). While both Dutch and English listeners rated weak-accented speakers similarly ($M = 3.65$), Dutch listeners rated moderate-accented speakers as significantly less native ($M = 1.96$, $SD = 1.43$) compared to English listeners ($M = 3.42$, $SD = 1.50$). This suggests that Dutch listeners were more sensitive to accent strength when judging how native the speaker sounded.

Levene's test indicated a violation of the homogeneity of variance assumption ($F(3, 126) = 4.94$, $p = .003$); results should therefore be interpreted with some caution.

Table 3

Means, standard deviations and n *for perceived accentedness (foreignness) of audio fragments as a function of listener group and accent strength (1 = not at all; 7 = extremely).*

L1 Listener Group	Moderate			Weak			Total		
	M	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*
Dutch	6.09	0.996	23	3.35	1.631	20	4.81	1.906	43
English	5.17	1.181	41	3.72	1.501	46	4.40	1.536	87
Total	5.50	1.195	64	3.56	1.538	66	4.54	1.671	130

The results of the two-way ANOVAs confirmed that participants reliably distinguished between the two levels of accent strength (weak vs. moderate), with significant differences in both perceived nativeness and foreignness. This effect was consistent across both Dutch and English listeners, supporting the success of the experimental manipulation.

Speaker Origin Identification

A chi-square test of independence was conducted to examine whether the strength of a Dutch accent (weak vs. moderate) influenced participants' ability to correctly identify the speaker's origin. Correct identification was defined as recognizing the speaker as Dutch. In the moderate-accent condition, 33 out of 55 participants (60.0%) correctly identified the speaker as Dutch, compared to 41 out of 58 (70.7%) in the weak-accent condition. This difference was not statistically significant, ($\chi^2(1) = 0.54$, $p = .463$). This suggests that participants' ability to identify the speaker's nationality was not significantly affected by accent strength. See Appendix C1 for a full results.

Recognition Accuracy and L1 of Participant

A chi-square was conducted to examine whether participants' ability to identify the speaker's native language (L1) varied by their own L1 background. The test revealed a significant association between participant L1 and accuracy of accent identification, (χ^2 (1) = 14.79, $p <$ .001), Cramér's $V = .38$, indicating a moderate association. Participants whose L1 was Dutch were significantly more likely to correctly identify the speaker (*correct* = 92.9%) compared to participants whose L1 was English (*correct* = 58.3%). This interpretation is supported by

the standardized residuals, which exceeded ±1.96 for the incorrect identification cell (Dutch: −2.5; non-Dutch: 2.1; see Table 4). This indicates that Dutch L1 participants made fewer incorrect identifications than expected, while L1 English participants misidentified the speaker more often than expected by chance. Therefore, the significant relationship is primarily driven by non-Dutch participants being more likely to misidentify the speaker. Mean identification accuracy also differed by group: L1 Dutch participants (M = 0.93, SD = 0.26) outperformed L1 English participants (M = 0.58, SD = 0.50).

Table 4

Observed Counts and Column Percentages for Identification Accuracy by Participant L1

L1 Language	Incorrect Count (% within column)	Correct Count (% within column)	Total
L1 Dutch	3 (11%)	39 (53%)	42
L1 English	25 (89%)	35 (47%)	60
Total	28 (100%)	74 (100%)	102

Note: n = 102

For clarity, identification accuracy is presented both overall (Table 4) and broken down by accent strength and participant L1 (Table 5).

Table 5

Absolute and relative frequencies of correct identification of speaker origin by L1 group and accent strength (n with percentages in parentheses).

L1 Language	Moderate		Weak		Total	
	Correct	Incorrect	Correct	Incorrect	Correct	Incorrect
L1 Dutch	23 (100%)	0 (0.0%)	16 (84%)	3 (16%)	39 (93%)	3 (7%)
L1 English	19 (61%)	12 (39%)	16 (55%)	13 (45%)	35 (58%)	25 (42%)
Total	42 (78%)	12 (22%)	32 (67%)	16 (33%)	74 (73%)	28 (28%)

Effects of Accent Strength and Intervention on Ratings of Speaker for each Dimension

To address the central research question ('To what extent does a prejudice control intervention focused on raising awareness of accent bias reduce bias toward non-native speakers of Dutch-accented English?') and to test H1 (whether the intervention (video exposure vs. control) affects participant evaluations), a 2 (Intervention: Video vs. control) × 2 (Accent Strength: Weak vs. Moderate) between-subjects ANOVA was conducted. H1 predicted that participants in the experimental group (who watched the awareness-raising video) would show more positive attitudes towards the accented speakers than those in the control group.

This analysis examined the effects of accent strength and the video intervention on participant ratings across six evaluative dimensions: dynamism, hirability, competence, status, likeability, and affect. Table 6 shows the means and standard deviations for all 6 general attitude dimensions by accent strength and intervention condition. Scores across conditions tended to cluster around the midpoint or higher, indicating generally neutral to moderately positive evaluations of the speaker.

Dynamism

A two-way between-subjects ANOVA examined the effects of intervention condition (video exposure vs. control) and accent strength (weak vs. moderate) as factors on dynamism ratings did not find a significant effect, ($F(1, 144) < 1$, $p = .940$). There was a marginal main effect of accent strength, ($F(1, 144) = 3.84$, $p = .052$, $\eta^2_p = .03$), reflecting a small effect size, with speakers using a moderate Dutch accent rated slightly lower in dynamism ($M = 4.9$, $SD = 1.0$) than those with a weak accent ($M = 5.2$, $SD = 0.8$). The interaction between accent strength and intervention was not significant, ($F(1, 144) = 1.80$, $p = .182$.)

Hirability

A two-way ANOVA examined the effects of intervention condition (video exposure vs. control) and accent strength (weak vs. moderate) on hirability ratings. The intervention had no significant effect, ($F(1, 144) = 0.53$, $p = .467$). However, there was a significant main effect of accent strength, ($F(1, 144) = 16.59$, $p < .001$, $\eta^2_p = .10$), reflecting a moderate effect size, with speakers using a moderate Dutch accent receiving lower hirability ratings ($M = 4.6$, $SD = 1.3$) than those with a weak accent (M = 5.4, SD = 1.1). The interaction between accent strength and intervention was not significant, ($F(1, 144) = 1.63$, $p = .204$).

Competence

A two-way ANOVA with accent (weak, moderate) and intervention (control vs. intervention) as factors showed that intervention was not found to have a significant effect on competence ratings ($F(1,144) = 2.78$, $p = .097$). A significant main effect of accent on competence ratings ($F(1, 144) = 12.15$, $p < .001$, $\eta^2_p = .078$) with a moderate effect size was found. Speakers with a moderate Dutch accent ($M = 5.4$, $SD = 0.9$) were shown to have lower ratings for competence than those with a weak Dutch accent ($M = 5.9$, $SD = 0.8$). The interaction between accent strength and intervention was not statistically significant ($F(1, 144) = .66$, $p = .420$).

Status

A two-way ANOVA was conducted to examine the effects of accent strength (weak vs. moderate) and intervention condition as factors (video exposure vs. control) on perceived status. The main effect of intervention condition was not significant, ($F(1, 144) = 1.23$, $p = .270$), suggesting no meaningful difference in perceived status between the control group and the intervention group. There was no significant main effect of accent strength, ($F(1, 144) = 1.99$, $p = .161$). Similarly, the interaction between accent strength and intervention was not significant, ($F(1, 144) = 0.06$, $p = .808$).

Likeability

A two-way ANOVA with accent (weak vs. moderate) and intervention (video exposure vs. control) as factors found that intervention did not have a significant effect on likeability ratings ($F(1,144) = 3.38$, $p = .068$). A significant main effect of accent on likeability ratings ($F(1, 144) = 5.07$, $p = .026$, $\eta^2_p = .03$) was found, with a small effect size. Speakers with a moderate Dutch accent ($M = 4.7$, $SD = 0.9$) were shown to have lower ratings for likeability than those with a weak Dutch accent ($M = 5.0$, $SD = 0.8$). The interaction between accent strength and intervention was not statistically significant ($F(1, 144) = .86$, $p = .356$).

Affect

A two-way ANOVA with accent (weak vs. moderate) and intervention (video exposure vs. control) as factors showed that intervention was not found to have a significant effect on affect ratings ($F(1,144) = 1.45$, $p = .230$). A significant main effect of accent on affect ratings ($F(1, 144) = 11.49$, $p < .001$, $\eta^2_p = .07$), with a moderate to large effect size was found. Speakers with a moderate Dutch accent ($M = 4.8$, $SD = 1.2$) were shown to have lower ratings

for affect than those with a weak Dutch accent (M = 5.4, SD = 0.9). The interaction between accent strength and intervention was not statistically significant (F(1, 144) = .37,p = .544).

Table 6

Means (and Standard Deviations) for Attitude Ratings by Accent Strength and Intervention Condition (*Higher values indicate more favourable ratings*)

Dimension	Weak–Control(n = 37) *M (SD)*	Weak–Intervention(n = 36) *M (SD)*	Moderate–Control(n = 36) *M (SD)*	Moderate–Intervention(n = 39) *M (SD)*
Dynamism	4.8 (1.1)	5.0 (1.0)	5.3 (0.8)	5.1 (0.8)
Competence	5.7 (0.8)	6.1 (0.6)	5.4 (0.9)	5.5 (0.9)
Hirability	5.2 (1.2)	5.6 (0.9)	4.7 (1.2)	4.6 (1.3)
Status	4.8 (1.0)	5.0 (0.8)	4.6 (1.1)	4.8 (0.9)
Likeability	4.8 (0.9)	5.2 (0.7)	4.6 (0.9)	4.7 (0.8)
Affect	5.2 (1.0)	5.5 (0.7)	4.7 (1.1)	4.8 (1.2)

Appendix C4, Table 17 shows ANOVA results (accent strength and intervention).

Exploratory Analysis

In addition to the main hypothesis tests, exploratory analyses were conducted to provide further context and deeper insight into the findings.

General Background Attitudes

To evaluate the impact of the intervention on general attitudes toward EMI lecturers with non-native accents, individual survey items (six in total; see Appendix A6) and a composite attitude score (with good internal reliability: α = .85) were analysed using independent-samples t-tests. No significant differences were found between the intervention and control groups on any of the items (*all ps* > .19). Similarly, the composite score, created by averaging participants' ratings across all evaluative dimensions, did not differ significantly between

groups. These findings suggest that the video had little to no effect on participants' broader attitudes toward non-native-accented EMI lecturers. However, because pre- and post-intervention data were not collected, it is not possible to accurately determine whether any attitude shifts occurred.

Attitude Ratings: t-Tests by Participant L1

A series of independent-samples *t*-tests were conducted to examine whether participants' first language (L1 Dutch vs. L1 English) influenced their ratings across the six evaluative dimensions. The category of 'other' for participant mother tongue language was excluded from analysis due to insufficient sample size. A *t*-test on a general attitude composite score revealed no significant difference between groups, ($t(129) = -0.58$, $p = .565$), consistent with the pattern observed across most individual dimensions. No significant differences emerged between Dutch and non-Dutch participants on dynamism, hirability, likeability, affect, or competence (all $ps > .19$, $ds < 0.05$).

However, the independent samples *t*-test on the status dimension, with L1 (Dutch L1 vs. English L1) as a between-subjects factor, showed a significant difference between Dutch and non-Dutch participants ($t(76.73) = -3.49$, $p < .001$). This difference, −0.62, 95% CI [−0.98, −0.27], represented a medium-to-large effect size ($d = -0.68$). Dutch L1 participants ($M = 4.43$, $SD = 1.00$) rated status significantly lower in general than L1 English participants ($M = 5.05$, $SD = 0.87$). Taken together, these results suggest that participants' L1 background did not significantly influence most attitude dimensions, except for status, where L1 English participants rated speakers more highly than L1 Dutch participants rated Speakers. (see Table 7).

Table 7

Attitude Ratings by Listener Group (Dutch vs. English L1)

Dimension	Dutch L1 *M* *(SD)*	English L1 *M* *(SD)*
Dynamism	5.0 (1.0)	5.1 (0.9)
Hirability	4.9 (1.3)	5.1 (1.2)
Competence	5.6 (0.8)	5.6 (0.9)
Status	**4.4 (1.0)**	**5.0 (0.9)**
Likeability	4.9 (0.7)	4.8 (0.9)
Affect	5.2 (1.0)	5.0 (1.1)

Note: N = 148 (Dutch = 85, Non-Dutch = 63). Significant results in bold.

Free Text Comments

Beyond quantitative measures, participants' open-ended comments provided insight into the nature and tone of their perceptions. Participants were asked what stood out to them about the speaker's attitude. A Chi-square test was conducted to examine whether the awareness-raising intervention was associated with a difference in participants' accent-related comments (negative, positive, neutral, or no comment). The results showed no significant association between intervention condition (intervention vs. control) and tone of comment made, ($\chi^2(3) = 2.28$, $p = .516$). These findings suggest that the intervention video did not significantly influence the likelihood or nature of participants' comments about the speaker's accent. This finding is in line with the previous results that the intervention had no effect in reducing negative perceptions of non-native accent. For further detail of the free text comments, see C3 (Table 16). However, a Chi-square test revealed a significant association between participants' first language (English or Dutch) and the type of comment they made about the speaker's accent, ($\chi^2(3) = 8.87$, $p = .031$, Cramér's $V = .26$), with a small to medium effect. Dutch L1 participants were overrepresented in positive comments (30% vs. 16% for English L1), while English L1 participants made more negative comments (34%) than their Dutch

counterparts (22%). This pattern suggests more favourable perceptions among Dutch L1 participants. See Table 8.

Table 8

Cross-Tabulation of Participants' First Language and Type of Accent-Related Comment

Comment Type	English L1	Dutch L1	Total
Positive	7 (16%)	26 (30%)	33 (25 %)
Neutral	19 (43%)	25 (29%)	44 (34%)
Negative	15 (34%)	19 (22%)	34 (26%)
No Comment	3 (7%)	17 (20 %)	20 (15%)
Total	44 (100%)	87 (100%)	131 (100%)

Note: Percentages are rounded to the nearest whole number and may not total exactly 100%.

A Chi-square test was conducted to examine the relationship between perceived accent strength (weak vs. moderate) and the tone of accent-related comments (negative, neutral, positive, no comment). The result was statistically significant, (χ^2 (3) = 18.55, $p <$ .001), with a moderate effect size (Cramér's V = .354) as demonstrated in Table 9.

Table 9

Observed Counts and Column Percentages for Accent Comment Tone by Accent Strength

Accent Strength	No Comment Count (% within column)	Negative Count (% within column)	Positive Count (% within column)	Neutral Count (% within column)	Total
Weak	15 (54%)	8 (22%)	25 (71%)	25 (52%)	73
Moderate	13 (46%)	29 (78%)	10 (29%)	23 (48%)	75
Total	28 (100%)	37 (100%)	35 (100%)	48 (100%)	148

This indicates that the tone of comments was significantly associated with the strength of the accent. Specifically, participants were more likely to make negative comments about

speakers with a moderate accent (38.7%) compared to those with a weak accent (11.0%). Conversely, positive comments were more frequent for the weak accent (34.2%) condition than for the moderate accent condition (13.3%). This pattern suggests that stronger (more noticeable) non-native accents elicited more negative and fewer positive responses from participants, in line with earlier Likert rating results in this study.

Summary of Results

Overall, results consistently indicated that accent strength significantly influenced participants' evaluations across all traits, except status. Weaker accents were primarily associated with more favourable judgements in hirability, competence, likeability, and affect, highlighting the presence of accent bias. In contrast, the intervention (video exposure vs. control) showed no substantial effect on any outcome measure, including general background attitudes, the tone of free text responses, or numerical ratings, suggesting it was ineffective in reducing bias toward Dutch-accented English, despite clear evidence that such bias was present.

5. Conclusion and Discussion

Effectiveness of the Intervention

Subtle gradations (weak and moderate) in accent strength elicit measurable bias - a finding that underscores how linguistic discrimination operates. Although awareness-raising (Devine et al., 2012) and perspective-taking interventions (Batson et al., 1997; Weyant et al., 2007) have shown promise in reducing accent bias, the video used in this study had no significant effect on speaker evaluations. As a result, H1 (that the intervention would reduce bias toward Dutch-accented English speakers) was not supported. The lack of effect from the video-based intervention suggests that brief, passive approaches may be insufficient to challenge deeply rooted linguistic biases. This finding is consistent with prior research showing that exposure alone rarely shifts attitudes without active, reflective, or repeated engagement (Roessel et al., 2019).

The video in this study was passively viewed, highlighting that cognitive engagement may be more critical than duration. This idea supports Paluck and Green's (2009) conclusion that interactive interventions are more effective than passive media exposure.

In a similar way, the intervention's ineffectiveness may also reflect limited participant engagement; Roessel et al. (2019) found that intervention effectiveness depends partly on how much participants reflect on the material. In this instance, participants were prompted to

move on from the video to listen to the audio fragment and answer questions, perhaps leaving limited mental space for reflection.

Finally, an alternative explanation for the intervention's ineffectiveness is social desirability bias, as found in Hansen et al.'s 2014 study, whereby participants adjust responses to appear tolerant (Tourangeau & Yan, 2007). This is difficult to eliminate but could be addressed in future research using implicit measures (e.g., eye-tracking), enhanced anonymity, or indirect questioning techniques (Greenwald et al., 1998).

Effect of Accent Strength

Consistent with prior research (e.g., Hendriks et al., 2023; Spence et al., 2024), this study found that speakers with a moderate Dutch accent were evaluated more negatively than those with a weaker accent. Specifically, weakly accented speakers were rated more favourably on hirability, competence, likeability, and affect, supporting H2. The finding is consistent with earlier studies showing that stronger accents are associated with reduced credibility and hirability (Hendriks et al., 2018; Fuertes et al., 2012, Roessel et al., 2019). Listeners appeared to penalize speakers with moderate accents, highlighting the persistence of accent-based discrimination in professional contexts.

However, unlike Hendriks et al. (2023) and Spence et al. (2024) who found negative effects on status, this study did not. One explanation may lie in the setting: participants evaluated a short job interview clip, whereas prior research focused on classroom contexts where authority of the speaker is more immediately obvious (Nejjari et al., 2021). These findings suggest accent bias may be more pronounced in relational dimensions than in perceptions of status, especially in brief or depersonalized interactions - an area worth exploring further in future research.

Contributions of Study

An important contribution of this study is the evidence of the existence of accent bias within a hiring context. This finding highlights how weak and moderate non-native accents (even within the same non-native accent group) can significantly influence perceptions in professional settings. Based on this, there is still a clear and unequivocal need for greater awareness of how accent prejudice can affect employment opportunities for speakers with a non-native accent.

Instead of comparing non-native to native speakers, this study included only non-native speakers with weak or moderate Dutch accents. The fact that the weak accent was

evaluated more positively suggests that, in the absence of a native benchmark, listeners may still apply a relative standard of 'nativeness' and penalize speakers who deviate further from it. This idea raises important questions about how people judge different levels of non-native accents when there is no native speaker to compare them to, and whether even mildly accented speakers are still expected to sound like native speakers.

The current study contributes to the accent bias literature by reinforcing communication accommodation theory (Giles et al., 1991), which suggests that perceptions of accented speakers are shaped by social expectations and norms. The finding that moderate accents were rated less favourably than weak accents supports this framework, indicating that even subtle deviations from native-like pronunciation can activate bias.

Although the Chi-square analysis of free-text comments was not statistically significant, the pattern of responses may reflect processes described in social identity theory (Tajfel & Turner, 1979). Specifically, Dutch participants tended to rate Dutch-accented speakers less favourably in general, which could suggest vicarious shame or an implicit desire to distance themselves from in-group members perceived as less proficient in English (Hendriks et al., 2018; Lickel et al., 2005).

The study's value also lies in showing that the intervention did not reduce bias, highlighting the limitations of brief passive awareness raising efforts, suggesting that accent bias is a deeply rooted social attitude unlikely to change through minimal exposure alone. The findings support growing evidence (Devine et al., 2012; Paluck & Green, 2009) that effective prejudice reduction strategies must be interactive or sustained more long-term. For example, Devine et al. (2012) reduced implicit racial bias through a structured reflective intervention - an approach that could be adapted for accent bias and would likely produce more meaningful attitudinal change than passive exposure.

Finally, the findings underline the layered nature of accent bias, with warmth-related traits (likeability, hirability) more broadly affected than power-related traits (status, dynamism). However, status ratings did vary by listener L1 background, with Dutch participants rating the more strongly accented speaker lower on status, suggesting that perceptions of authority may be influenced by in-group dynamics. This supports Hendriks et al. (2018), who found that listeners distinguish between likeability and professionalism when evaluating accented speakers. This finding suggests that interventions should be improved to separately address emotional (affective) reactions and judgements about competence. Distinguishing between these types of bias could lead to a more precise understanding of how linguistic discrimination operates in specific settings – such as a hiring context.

The Effect of Listener L1

An exploratory analysis of participants' native language backgrounds suggested that L1 may influence accent evaluations, although most differences were not statistically significant. Dutch L1 participants tended to rate the moderately accented speaker lower on dimensions generally, compared to non-Dutch participants. This pattern was not as pronounced in likeability ratings, which remained relatively consistent across groups.

This possible in-group distancing was also reflected in a few free-text responses. For example, one Dutch participant noted, "Everything was pronounced in such a horrible Dutch way...". However, overall, Dutch L1 participants made fewer negative and more positive open-text comments about the accent than English L1 participants, a divergence from their more critical numerical ratings.

This discrepancy between quantitative and qualitative responses may suggest differences in how participants express evaluation across formats. It could also reflect social desirability bias, with participants tempering their written comments while being more direct in numerical ratings. Additionally, cultural norms may play a role: Dutch communication is generally more direct (Hofstede, 2001), which might explain a greater willingness among Dutch participants to express critical attitudes through rating scales.

It is also possible that the inconsistent findings regarding L1 background were influenced by unequal group sizes, with fewer Dutch L1 participants compared to English L1 participants. This imbalance may have limited statistical power and contributed to less stable group-level patterns. These findings highlight the importance of combining qualitative and quantitative data, and of considering cultural and contextual variability when studying accent bias.

Accent Recognition and the Ideology of Native Speaker Norms

Recognition patterns are not purely phonetic; they are also shaped by cultural familiarity, prestige norms, and internalized beliefs about who 'owns' English. It is noteworthy that nine participants misidentified the Dutch-accented speaker as American. This finding suggests that some features of the speakers' accent may have been associated with American English, reflecting the global influence of American norms in accent perception (Lindemann, 2002). It highlights how accent recognition is shaped not only by phonetic features but also by sociolinguistic ideologies and cultural expectations.

L1 English speakers were more lenient in their numerical evaluations of speakers but

less accurate in identifying the speaker's origin. This may reflect a reduced familiarity effect, whereby unfamiliarity with certain non-native accents leads to weaker recognition and consequently, fewer strong biases (Lindemann, 2002). In contrast, Dutch L1 listeners showed greater recognition accuracy but gave more negative ratings, suggesting that familiarity may increase recognition without reducing bias, particularly when the accent activates in-group discomfort or vicarious shame (Hendriks et al., 2018; Lickel et al., 2005).

This pattern aligns with Nejjari et al.'s (2021) finding that Dutch speakers often prefer native British or American accents, viewing them as more 'correct' or prestigious - a preference shaped by linguistic imperialism (Philipson, 2010) and native-speakerism (Holliday, 2006). As the awareness-raising video states, "Language does not belong to anyone" (PBS NewsHour, 2018), such preferences reflect assumptions that native speakers hold greater legitimacy over English, reinforcing linguistic hierarchies and marginalizing competent non-native users. From a descriptivist perspective (Crystal, 2003) communication is successful if mutual understanding is achieved - regardless of accent. This challenges prescriptive attitudes (Lippi-Green, 1997) and offers an important lens for interpreting these findings.

Implications

The findings of this study have important implications beyond academic hiring contexts, extending to various fields where global communication and diversity intersect. To address accent bias more effectively, the following domains could benefit from targeted interventions and awareness strategies:

- Marketing and advertising: ensure diverse accents in global campaigns are treated equitably, recognizing how accent bias may shape consumer perceptions of brand trust (Derwing & Munro, 2009; Giles & Niedzielski, 1998).
- Organizational communication: implement accent bias training and inclusive communication policies to foster more collaborative, culturally sensitive workplaces.
- Healthcare and clinical settings: Educate both professionals and patients on how accent bias can affect trust and judgements in clinician–patient interactions (Flores, 2006).
- Legal settings: implement clearer anti-discrimination laws that explicitly include accent as a protected characteristic.

- Education: Ensure that students are exposed to, and educated about, non-native accents throughout the school system (in language classes and otherwise).

These applications demonstrate that addressing accent bias is essential not only in professional contexts but in everyday life, where inclusive communication is critical.

Directions for Future Research

Although this study measured previous exposure to Dutch-accented English, it did not assess whether this factor correlated with more positive evaluations of speakers. Future research could build on Lindemann (2002), by testing whether familiarity with an accent predicts reduced bias. The relationship between prior exposure, identification accuracy, and listener attitudes warrants further exploration, particularly given evidence that experience with non-native accented speakers can reduce negative bias.

Participants also self-rated their English proficiency and provided demographic information such as age, occupation, and education. Although these variables were not analysed in depth, they offer promising avenues for future research. Regression analyses using composite scores could help determine how individual differences (such as English language proficiency or demographic characteristics) influence evaluations, and whether they buffer against, or amplify accent bias. For instance, differences in intervention effectiveness across age groups should be examined, as younger individuals may be less responsive to brief video interventions due to shorter attention spans linked to digital media use (Rosen et al., 2011).

This study also highlights how judgements may reflect perception more than actual communicative ability. Hendriks et al. (2018) found that moderately accented speakers were rated as less intelligible, even when actual comprehension was unaffected, suggesting that negative evaluations may stem from bias rather than communication difficulty. To respond to this finding, future studies should include objective measures of intelligibility to distinguish real comprehension barriers from perception-based bias.

Limitations and Ethical Considerations

Several limitations should be considered when interpreting the findings of this study. Firstly, collecting only mother tongue data, rather than including nationality, was a missed opportunity. Mother tongue alone does not capture cultural or social identity, which may influence how participants perceive in-group relationships. For example, two participants who speak Dutch as a first language might differ in national or cultural background, which

could shape their views on accents and identity. Including nationality would have allowed for a more detailed understanding of these influences.

Secondly, another limitation is the possibility of priming. Participants who viewed the video may have anticipated hearing a non-native accent and adjusted their responses accordingly. This could reflect a desire to appear fair or unbiased, which relates to social desirability bias.

There was also an imbalance in participants' prior background attitudes towards non-native accents in EMI teaching. Those in the moderate accent condition reported more positive pre-existing views of non-native EMI lecturers. This difference may have influenced how they evaluated the speakers and could have reduced the observed effects of the intervention. Future studies should consider controlling of pre-existing attitudes.

The sample consisted mostly of highly educated individuals from Western countries, meaning the study took place within a Western, educated, industrialized, rich, and democratic context, termed 'WEIRD' by Henrich (2010). While this limits the generalizability of the findings, they are still relevant, since people in professional and hiring roles often come from similar backgrounds to this.

Finally, some ethical concerns must be acknowledged. Asking participants to judge speakers based solely on accent may unintentionally reinforce stereotypes. To limit this risk, the speakers were anonymized, and the study was framed as a general perception task. The brief nature of the intervention may also give participants a false impression that progress has been made towards reducing their bias, potentially discouraging deeper reflection. Although the study followed ethical procedures, it reflects broader challenges in studying implicit bias without reinforcing it.

Conclusion

This study examined whether an awareness-raising intervention could reduce accent bias in evaluations of Dutch-accented English speakers in a job interview context, and whether accent strength influenced those evaluations. The results showed that accent bias persists, particularly against moderately accented speakers. Speakers with a weaker Dutch accent were consistently rated more favourably across evaluative dimensions than those with a more moderate Dutch accent.

The preference for native-like accents (even within a shared linguistic group) highlights the persistence of internalized bias. These attitudes are especially concerning in professional settings, where implicit accent bias can contribute to systematic discrimination

in hiring. The findings underscore the need for effective strategies to mitigate accent bias, particularly in educational and multilingual professional environments like the Netherlands, where English is widely used but not natively spoken.

By exploring an underrepresented accent group and testing a video-based intervention, this study adds a novel perspective to the accent bias literature. However, the awareness-raising video did not reduce bias, suggesting that brief, one-off exposure is insufficient to shift deeply rooted language attitudes. Future strategies may require more sustained, interactive, or personalized approaches to foster genuine attitudinal change.

Beyond academic hiring, these results have broader relevance in fields such as marketing, healthcare, education, and law. The findings of this study are applicable to any context where perceptions of credibility are shaped by speech. Addressing accent-based prejudice is not only a matter of fairness in recruitment, but also a step towards more inclusive and equitable communication in an increasingly globalized world.

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7. Appendices

Appendix A: Materials

A1: Pretest Questionnaire

Audio Questions

Instructions: Please listen to the audio and respond to the following items.

Accent Perception

Participants rated the following statements on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*).

1. The speaker has a foreign accent.
2. The speaker sounds like a native English speaker.

Voice and Delivery

3. The speaker has a monotonous voice.
4. The speaker speaks slowly.
5. The speaker has a pleasant voice.
6. The speaker sounds natural.
7. The speaker speaks with confidence.

Perceived Origin

8. *Which country do you think the speaker is from?*
   (*Dropdown menu of options)*

A2: Participant Recruitment Poster Material

A3: Mock Job Interview Answer (referenced in main text)

Well, first of all, I believe that engagement begins with recognition. Recognizing the diverse backgrounds and expectations that students bring into the classroom. So, I always start the course by creating space for students to share those perspectives, languages, and experiences. I use small group activities that mix people across cultures, so they learn from each other, not only from me. I also try to vary my teaching methods using visual tools, case studies, and participatory discussions to meet different learning styles. Finally, I'm very intentional about including global examples in the curriculum so students feel represented and can connect to the theory to real-world situations from their own context. It's about creating a sense of belonging and curiosity at the same time.

A4: Transcript from the intervention video (YouTube, referenced in main text).

'JUDY WOODRUFF: We have all heard of racial profiling, but what about accent profiling?

Hernan Diaz is the associate director of the Hispanic Institute at Columbia University, and his first novel was just nominated for a Pulitzer Prize. Those are certainly accomplishments, and yet he possesses something else that sets him apart. That is tonight's In My Humble Opinion.

HERNAN DIAZ: I work at a university in New York with a large population of international students.

Walking around campus the other day, I was perplexed to see flyers advertising accent reduction or even accent elimination.

Having been born in Argentina, grown up in Sweden, and spent most of my life in the United States, I have, to some degree, a foreign accent in every language I speak.

Something in my Spanish makes taxi drivers in Buenos Aires ask me where I'm from.

In Swedish, my accent is very slight, but I have the vocabulary of a 12-year-old.

In my early 20s, I lived in London for a couple of years, which left its mark.

But the fact is, I got English almost as a gift, through Swedish.

And there is still a Scandinavian lilt in there.

Does my accent need correcting?

I don't think so.

To sound like who, exactly?

A native speaker?

What would that even mean?

Looking at accent-reduction classes online, the third hit I got wasn't aimed at Eastern European or South American immigrants.

It actually read, "Want to get rid of your New York accent?"

An accent can be a stigma, even within native speakers of the same language.

These variations, determined by geography, class, and race, are always identified with stereotypes, and fleeing from one means embracing another.

In England a Russian writer may adopt an upper-crust British accent.

In California, a Texan actor may aspire to a San Fernando Valley cadence.

Even though everybody has an accent, there certainly is such a thing as accent discrimination.

Most of us have either suffered or witnessed it at some point.

I can easily tell when I'm not being understood or when someone is underscoring a difference in pronunciation just to show me my place, because accent discrimination is, in the end, all about place, who belongs and who doesn't.

An accent is the echo of one language or tone in another.

I, for one, enjoy these ghostly presences of something strange in a familiar environment.

They are a reminder of the fact that language doesn't belong to anyone, not even to its native speakers.

Language is shared.

It is, in principle, a space where everyone is welcome and cooperates toward mutual comprehension.

And the very fact that there are accents in the first place, the fact that we can still understand each other through all the differences, is the most conclusive proof of the hospitality at the heart of every language.

JUDY WOODRUFF: Pulitzer Prize nominee Hernan Diaz’.

A5: Job Advert Provided to Participants

A6: Main Test Questionnaire

Accent Perception

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. The speaker has a foreign accent.

2. The speaker sounds like a native English speaker.

Voice and Delivery

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

3. The speaker has a monotonous voice.

4. The speaker speaks slowly.

5. The speaker has a pleasant voice.

6. The speaker sounds natural.

7. The speaker speaks with confidence.

Perceived Origin

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

8. Which country do you think the speaker is from? (Dropdown menu)

Dynamism

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. The speaker sounds energetic.

2. The speaker sounds enthusiastic.

3. The speaker has an engaging speaking style.

4. The speaker sounds assertive.

5. The speaker sounds lively.

Hirability

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. I would recommend the speaker for the role of lecturer in Communication.

2. The candidate is suitable for the role of lecturer in Communication.

3. The candidate would be good in a lecturing role.

Competence

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. The speaker sounds reliable.

2. The speaker sounds intelligent.

3. The speaker sounds hard-working.

4. The speaker sounds competent.

5. The speaker sounds educated.

Status

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. The speaker sounds authoritative.

2. The speaker sounds trustworthy.

3. The speaker sounds self-confident.

4. The speaker sounds influential.

5. The speaker has a powerful voice.

Likeability

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. The speaker sounds credible.

2. The speaker sounds sympathetic.

3. The speaker sounds warm.

4. The speaker sounds humorous.

5. The speaker sounds tactful.

6. The speaker sounds polite.

Affect

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. The speaker sounds friendly.

2. The speaker came across as sympathetic.

3. The speaker seems likeable.

4. I would enjoy interacting with this speaker.

5. I felt comfortable listening to this person.

General Attitudes

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. Speakers with non-native English accents should learn to speak English better.

2. A lecturer with a non-native accent in English is less effective than a lecturer with a native English accent.

3. Native English speakers are better suited to teach in English than speakers with non-native accents.

4. It is irritating when a speaker has a non-native accent in English.

5. Speakers with non-native English accents are less intelligent than native English speakers.

6. Speakers with non-native English accents cannot express their opinions in English as well as native speakers.

Exposure to Dutch-Accented English

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. I am familiar with Dutch-accented English.

2. I often meet people who have a Dutch accent in their English.

3. I regularly talk to people who have a Dutch accent in their English.

Self-Rated English Proficiency

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. Speaking

2. Writing

3. Listening

4. Reading

Self-Rated Accent in English

Instructions: Please rate the following statements on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree).

1. I sound like a native speaker.

2. I have a strong foreign accent when I speak English.

Appendix B: Pretest Design and Audio Fragment Selection

Pretest Speaker Sample Demographics

All speakers used to record the audio fragments were female and between the ages of 21-33, all of whom were born and raised in the Netherlands. Their proficiency in English was fluent. Table 10 shows speaker information from the audio fragments in the pretest.

Table 10

Pretest Audio Sample Speaker Demographics (N =17)

Speaker	Mother Tongue/Education	Intended Accent Strength	Audio Fragment Label
Female, 21, from Breda	Dutch/English	Moderate	1
Female, 27, from Nijmegen	Dutch/English	Weak	2
Female, 33, from Nijmegen	Dutch/English	Weak	3
Female, 25, from Nijmegen	Dutch/English	Moderate	4

Pretest Design

All fragments were similar in length (40-60 seconds). Each participant listened to the 4 fragments and evaluated the speakers on several dimensions:

- Accent strength (whether the speaker sounded Native or Foreign): ‘The speaker has a foreign accent’,’ The speaker sounds like a native English speaker.
- Voice characteristics: ‘The speaker has a monotonous voice’,’ The speaker speaks slowly’,’ The speaker has a pleasant voice’,’ The speaker sounds natural’, ‘The speaker speaks with confidence.
- Perceived origin of speaker: ‘Which country do you think the speaker is from?’.

Cronbach's Reliability (Pretest)

Cronbach's alpha was calculated to assess the reliability of the voice characteristic items in the pretest questionnaire. The item 'monotonous' was reverse-coded. The item 'slowly' was excluded and analysed separately due to its conceptually distinct nature. The internal consistency of the four-item voice quality scale (confident, natural, pleasant, monotonous [reverse-coded]) varied across audio fragments, with Cronbach's α ranging from .54 to .77. Despite lower alpha values for some fragments, likely due to small sample sizes, composite means were calculated for all clips to ensure clarity and comparability in subsequent analyses.

Selection of Stimuli

Based on the pretest data analysis, Audio Fragments 2 and 4 were selected for use in the main study: fragment 4 represented the moderate accent condition and fragment 2 represented the weakly accented condition. The audio fragments were also chosen as voice characteristics of the selected fragments were perceived to be the most similar based on statistical analysis.

A repeated measures ANOVA for audio clip (1, 2, 3, 4) as a within-subject factor and perceived foreignness (foreignness refers to how non-native a speaker sounds) as a between-subjects factor showed a significant main effect of audio clip, ($F(3, 48) = 204.65$, $p < .001$, $\eta^2_p = .93$). Pairwise comparisons using Bonferroni correction revealed that participants rated Audio Fragment 4 ($M = 5.94$, $SD = 1.48$) as significantly more foreign sounding than both Audio Fragment 2 ($M = 4.06$, $SD = 2{,}08$, $p = .013$) and Audio Fragment 3 ($M = 4.12$, $SD = 1.70$, $p = .003$). No other comparisons were statistically significant (all $p > .05$ with Bonferroni correction). Table 11 shows means and standard deviations for each audio fragment.

Table 11

Ratings of Perceived Foreignness by Audio Fragment

Audio Fragment	*M*	*SD*
1	5.0	1.9
2	4.1	2.0
3	4.1	1.7
4	5.9	1.5

N =17

A repeated measures ANOVA with audio clip (1, 2, 3, 4) as a within-subjects factor and perceived nativeness as a between-subjects factor showed a significant main effect of audio clip, ($F(3, 48) = 9.69$, $p < .001$, $\eta^2_p = 0.38$). Pairwise comparisons using Bonferroni correction revealed that participants rated Audio Fragment 4 ($M = 2.00$, $SD = 1.00$) as significantly less native-sounding than Audio Fragment 2 ($M = 4.06$, SD = 1.95, $p = .008$), Audio Fragment 3 ($M = 4.35$, $SD = 1.37$, $p < .001$), and Audio Fragment 1 ($M = 2.76$, $SD = 1.75$, $p = .008$). No other comparisons were statistically significant (all ps > .05, Bonferroni correction applied).

Pretest Repeated Measures ANOVA (Composite Scores of Perceived Voice Characteristics)

A repeated measures ANOVA for composite voice characteristics (pleasant, natural, confident, and reverse-coded monotonous) across four audio fragments revealed no significant main effect of audio clip, ($F(1.64, 26.23) = 1.83$, $p = .185$, $\eta^2_p = 0.10$). This suggests that all audio fragments were rated similarly in terms of voice characteristics, differing primarily in accent strength, as intended for use in the main study. Greenhouse-Geisser corrections were applied due to violation of the assumption of sphericity. Audio Fragment 2 ($M = 4.22$, $SD = 0.73$) was rated significantly more positively than Audio Fragment 3 ($M = 2.88$, $SD = 0.85$, $p < .05$, Bonferroni correction). No other comparisons were statistically significant. Table 12 shows descriptive statistics values.

Repeated Measures Analysis of Perceived Speed

A repeated measures ANOVA on the perceived speed of speech (slowly), with audio clip as a within-subjects factor, revealed a significant main effect, ($F(2.44, 39.07) = 38.19$, $p < .001$, $\eta^2_p = 0.71$). Greenhouse-Geisser corrections were applied. Audio Fragment 4 ($M = 1.24$, $SD = 0.44$) was rated as significantly slower than both Audio Fragment 2 ($M = 2.71$, $SD = 0.92$, $p < .001$) and Audio Fragment 3 ($M = 4.29$, $SD = 0.92$, $p < .001$), with Audio 2 rated as more similar to Audio 4 than Audio 3 was ($p < .05$). This result, combined with the fact that Audio Fragment 4 had the highest mean rating for perceived foreign accent strength, supported its selection for the moderately accented condition.

Table 12

Mean Ratings and Standard Deviation for Voice Characteristics by Audio Fragment

Audio Fragment	Voice Characteristics Combined *M*	*SD*
1	4.1	0.7
2	4.1	0.8
3	3.8	0.9
4	4.0	0.6

N =17

Audio Sample 1 was excluded from the main study for two reasons. Firstly, in the pretest, it did not differ significantly from the other fragments and was therefore considered too similar for meaningful comparison. Second, the speaker was from outside Nijmegen, unlike the other speakers, introducing potential accent variability unrelated to the experimental manipulation. Additionally, Audio 1 was excluded from the voice characteristics analysis due to its involvement in the native/foreign repeated measures design. Pairwise comparisons revealed that only the combinations of Audio 2 and 4, and Audio 3 and 4, showed significant differences in accent strength. Among these, Audio 2 and Audio 4 showed the most similar composite mean scores for voice characteristics and were selected as the stimuli for the main study, as other differences between them were minimal.

Given that 98% of participants (N = 17) in the pretest accurately identified the audio fragments as exhibiting a Dutch accent, the stimuli were considered appropriate for inclusion in the main test to reliably represent the intended relative accent strengths.

Appendix C: Additional Analysis with Supplementary Tables or Figures

Table 13 shows the accuracy of speaker nationality identification by accent strength, while Table 14 displays the frequency and percentage of specific countries named by participants in the main questionnaire.

C1 Speaker Origin Identification

Table 13

Accuracy of Speaker Nationality Identification by Accent Strength

Accent Strength	Correct	Incorrect	Total	% Correct
Weak	41	17	58	71%
Moderate	33	22	55	60%
Total	74	39	113	65%

Note: $\chi^2(1) = 0.54$, $p = .463$, Cramér's $V = .07$. There were 35 system-missing responses (23.6%), which were excluded from the frequency and percentage calculations.

Table 14

Correct Identification of Speaker's Nationality in Main Questionnaire (n = 113)

Country	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Austria	1	1	1	1
Belgium	1	1	1	2
Czech Republic (Czechia)	1	1	1	3
Denmark	5	3	4	7
Georgia	1	1	1	8
Their	2	1	2	10
Latvia	1	1	1	11
Lithuania	2	1	2	13
Netherlands	**82**	**55**	**73**	**86**
Norway	1	1	1	87
Poland	1	1	1	88
Slovakia	1	1	1	89
Spain	6	4	5	94
Their	4	3	4	98
Switzerland	1	1	1	99
Turkey	1	1	1	100

Note: 35 missing answers

C2: Participant Characteristics Randomized Distribution

To assess the success of random assignment, a series of Chi-square tests and independent-samples *t*-tests were conducted across demographic and background variables.

Gender

For gender, a Chi-square test showed no significant relationship with the intervention condition, ($\chi^2(2) = 0.40$, $p = .818$). Similarly, no significant relationship was found with accent strength, ($\chi^2(2) = 0.89$, $p = .641$). Gender did not differ significantly between groups - indicating even distribution.

Education Level

A Chi-square test showed no significant relationship between education level and intervention condition, ($\chi^2(3) = 7.26$, $p = .064$). A Chi-square test showed no significant relationship between education level and accent strength, ($\chi^2(3) = 3.74$, $p = .291$). Education level did not differ significantly between groups, indicating even distribution.

Occupation Status

A Chi-square test showed no significant relationship between final occupation and intervention condition, ($\chi^2(3) = 2.39$, $p = .495$). A Chi-square test showed no significant relationship between final occupation and accent strength, ($\chi^2(3) = 2.74$, $p = .433$). Occupation status did not differ significantly between groups, indicating even distribution.

Participant L1

Of the total sample, 112 participants (58.03%) were native Dutch speakers, 70 (36.27%) were L1 English speakers, and 11 (5.70%) reported another language as their first language. Chi-square tests showed no significant association between L1 and intervention or control group, ($\chi^2(1) = 0.004$, $p = .948$). Similarly, no significant association was found between L1 and accent strength condition, ($\chi^2(1) = 0.310$, $p = .578$). Participant L1 did not differ significantly between groups, indicating even distribution.

Age

The independent-samples *t*-test on participant age with experimental condition (control/intervention) as a between subject factor showed no statistically significant difference in age between groups, ($t(146) = -1.33$, $p = .187$, $d = -0.22$), 95% CI [–8.32, 1.64]. on participant age with experimental condition (accent strength) as a between subject factor showed no statistically significant difference in age between groups, ($t(141.15) = -1.69$, $p = .093$), 95% CI [–9.18, 0.72]. Age did not differ significantly between groups, indicating even distribution.

Self-Reported Accent Strength of Participant

The average self-reported accent strength for participants was 5.54 (on a 1–7 scale), ($SD = 1.59$). This suggests that, on average, participants perceived themselves as having a moderate to strong foreign accent in English. The independent-samples *t*-test on self-rated accent strength, with experimental condition (intervention/control) as a between-subjects factor, showed no significant difference between groups. This difference, 0.02, 95% CI [–0.42, 0.07], was not significant, ($t(146) = 0.25$, $p = .804$). Similarly, the independent-samples *t*-test on self-rated accent strength, with accent condition (weak/moderate) as a between-subjects factor, showed no significant difference. This difference, 0.09, 95% CI [–0.35, 0.68], was not significant, ($t(145) = 0.63$, $p = .531$). Self-rated accent strength did not differ significantly between groups, indicating even distribution.

Previous Exposure to Dutch-accented English (self-reported)

Participants reported a moderate level of previous exposure to Dutch-accented English ($M = 4.30$, $SD = 2.08$).The independent-samples *t*-test on exposure to Dutch-accented English, with experimental condition (intervention/control) as a between-subjects factor, showed no significant difference. This difference, 95% CI [–0.26, 0.55], was not significant, ($t(146) = 0.71$, $p = .481$). Similarly, the independent-samples *t*-test with accent condition (weak/moderate) as a between-subjects factor showed no significant difference in exposure ($t(145) = –1.12$, $p = .266$). Previous exposure to Dutch-accented English did not differ significantly between groups, indicating even distribution.

English Proficiency (self-reported)

Participants reported a high level of self-rated English proficiency ($M = 6.31$, $SD = 0.75$). The independent samples *t*-test on difference in participant English proficiency scores between control and intervention groups as a between subjects' factor, showed no significant difference between groups ($t(145) = -1.41$, $p = .161$), 95% CI [–0.42, 0.07]. The independent

samples *t*-test on participant English proficiency scores, with accent strength condition (weak vs. moderate) as a between-subjects factor, showed a significant difference between the weak and moderate accent groups. This difference, 0.32, 95% CI [0.07, 0.56], was significant ($t(145) = 2.58$, $p = .011$) and represented a medium-to-large effect ($d = 0.74$). Participants in the weak accent condition ($M = 6.47$, $SD = 0.67$) scored higher in English proficiency than those in the moderate accent condition ($M = 6.15$, $SD = 0.80$).Despite the statistically significant difference, the uniformly high scores (above 6 on the 1-7 scale, and near the average as a whole) across groups reduce the likelihood that this variable was a confounding variable.

General Background Attitudes EMI Lecturers with Non-native Accents

Participants reported on average, a neutral general attitude toward non-native accent English-medium instruction (EMI) lecturers ($M = 2.50$, $SD = 1.20$), suggesting mixed perceptions overall. The independent-samples *t*-test on background existing attitudes toward non-native English accents and the experimental condition (intervention/control) as a between subjects' factor, showed no significant difference in mean attitudes between groups, ($t(145) = 0.48$, $p = .632$, $d = 0.08$), 95% CI [-0.24, 0.40]. However, the independent samples *t*-test on background attitudes toward non-native English accents, with accent strength condition (weak vs. moderate) as a between-subjects factor, showed a significant difference between the weak and moderate accent groups. This difference, −0.67, 95% CI [−1.03, −0.30], was significant ($t(145) = -3.50$, $p < .001$) and represented a large effect ($d = 1.15$). Participants in the weak accent condition ($M = 2.16$, $SD = 1.07$) reported more negative attitudes than those in the moderate accent condition ($M = 2.83$, $SD = 1.23$). Participants in the moderate accent condition had more positive attitudes. This significant difference suggests that general attitudes were not evenly distributed across accent strength conditions, which should be considered a limitation of the study.

These results suggest that while most participant characteristics were successfully balanced across groups, differences in English proficiency and pre-existing attitudes toward non-native accented EMI speech may represent confounding variables and should be considered when interpreting the study's findings.

C3: Free Text Qualitative Comments

Of 117 valid responses, the most common type of accent-related comment was neutral (32.2%), with nearly equal proportions of positive (23.5%) and negative (24.8%) feedback. A smaller group provided no comment (18.8%). Table 15 shows the distribution of comments by tone.

Table 15

Frequencies and Percentages of Participant Comment Types

Comment Category	Frequency (n)	Percentage (%)
Positive	34	24%
Neutral	47	32%
Negative	36	25%
No Comment	27	20%
Total (n)	144	100%

Note: not all participants responded **,** (M = 1.70, SD = 1.12)

Table 16

Full Free Text Comments From Questionnaire for Question 'What Stood Out to You About the Speaker's Accent?' and First Language of Participant (n = 144). NB: all responses are presented exactly as they were received and not corrected in the instance of typographical errors.

Participant L1	*Free text comment responses to the question 'what stood out to you about the speaker's accent?'*
Dutch	*Slight lisp, liaison was kind of there but not to a satisfying extent, no glottal tâ€™s. I feel like there was strong interference with dental and alveolar letters*
Dutch	*It didnâ€™t sound like a native English speaker*
Filipino (Tagalog)	*The speaker had a neutral accent. Her/their pronunciation was good, but pronunciation is one thing, and accent is another.*
Dutch	*No obvious accent*
English	*She spoke English in a very well rounded manner*
Dutch	*Pronunciation of certain words.*
Greek	*Clear accent*
Hindi	*Their tone and slight change of shifts in the syllables*
English	*The heavy emphasis on s*
English	*Did not affect their.communication*
English	*Friendly and clear*
English	*Nothing, it sounds like a typical Dutch accent.*
English	*Clearly had good understanding of the English language. Everything was in context and relevant to the interview question. Easy to understand / listen to.*
English	*only that she spoke quite quickly without pauses between some of the words*
English	*Accent makes me feel more engaged to listen*
English	*They spoke clearly*
English	*American style english*
English	*Different pronunciations of words to a native English speaker*
English	*Some parts were quite soft and lacking in annunciation*
English	*Some words difficult to make out because of the speed of delivery.*
German	*I.e. the way they paused at certain parts of the sentence, argumentation style*
English	*It was easy to understand because it felt phonetic/staccato and so I could pick up each part of each word and understand clearly what was being said*

Participant L1	*Free text comment responses to the question 'what stood out to you about the speaker's accent?'*
English	*Sounded slightly American but hard to distinguish what accent*
English	*i could hear a european (dutch or swedish)twang to their accent*
Dutch	*They sound Dutch to me, but not overtly so, quite lightly accented. The speaker has good pronunciation and is clear in their diction.*
English	*They spoke very fast*
Dutch	*dutch accent, but only slightly. What stood out most was that the speaker is young.*
English	*There was a slight accent but her accent was easy to understand!*
English	*It was unusual and difficult to understand and hard to place where they were from*
English	*The D on 'the' and the heavy Rs*
English	*Not an English accent, but very well spoken english*
German	*i could not place what accent it was*
English	*Some words are said a little wrong - but I understood what she meant*
English	*Relatively pronounced diction and paucity.*
English	*Boring sounding*
English	*Quite staccato*
English	*They were sometimes difficult to understand and they made grammatical errors.*
English	*The lack of tone change throughout*
English	*It was pleasing to listen to- they spoke with good fluency, however there were a few mistakes that a native speaker may pick up on*
Dutch	*It sounded Dutch right away but I wasn't bothered by it*
English	*It was mixed*
English	*It was easy to understand*
English	*It sounded none English although the use of the language was very clear.*
English	*'S' sound is a bit lisp-y*
English	*Monotonous*
English	*The inflections she did in her voice sounded different to how a native English speaker would do them.*
English	*Some of the intonation on words.*

Participant L1	*Free text comment responses to the question 'what stood out to you about the speaker's accent?'*
Dutch	*The Dutch way of pronouncing English words, it didn't sound like they were putting any effort in trying to sound like a native speaker*
Dutch	*that they are dutch and it made it hard for me to actually understand what she was saying, it took me very long*
English	*American style of English, pronounced "the" as "da"*
Dutch	*The harsh loud dutch in the English.*
Dutch	*Over articulation. Little pauses.*
Dutch	*Very clear articulation*
English	*Quite clipped, it didnâ€™t sound like English (with an American accent) was their first language. It wasnâ€™t jarring & I could understand her well.*
Dutch	*They had difficulty pronouncing the th-sound*
Dutch	*I mean besides the fact that itâ€™s a very obvious accent, I also felt like they werenâ€™t fully comfortable in speaking in English because of the way they sometimes were searching for how to pronounce the words (not for very long, but sometimes they took a bit longer with pronouncing the first letter which made it seem like they didnâ€™t know how to continue)*
English	*One or two words were not as clear but I still understood the meaniing of what was being said*
Dutch	*The enunciation was a bit lacking, making it more difficult to understand*
English	*Clear and comprehensible*
Dutch	*Accent show characteristics of a Dutch native speaker, well-educated in English (university degree in English, probably)*
Dutch	*Nothing really stood out about the accent to me. It did take me two listens to fully grasp the content of what the speaker said. I also felt like the speaker read their answer out, rather than as in a impromptu conversation.*
German	*They speak way too fast to be comfortable to listen to for international students. Students who are not at a C1 English level would have trouble following the pace*
English	*The speaker's voice in my opinion was quite monotone. Although, their English was really clear. Regarding their accent, I wouldn't say that a strong foreign*

Participant L1	*Free text comment responses to the question 'what stood out to you about the speaker's accent?'*
	accent came through whilst listening to the audio. I might have a different opinion if I was to hear the audio again.
English	*Excellent English with accent*
English	*They have a clear non-native English speaking accent. But English is spoken clearly and the accent does not negatively effect ability to understand them.*
English	*It's noticeable*
English	*Foreign accent but still follow what sheâ€™s saying*
English	*Certain words made the accent stand out more but generally speaking she was easy to understand. You can tell it's foreign but hard to pinpoint where from and the accent doesn't make her hard to understand*
English	*some words sounded less easy to pronounce*
Dutch	*the 'th' pronunciation, skipping some vowels.*
Dutch	*nothing stood out to me*
Dutch	*The vowel sounds are very typical of a Dutch person speaking English.*
Dutch	*Everything was pronounced in such a horrible Dutch way.... She says the words like they're Dutch instead of English*
Dutch	*Somewhat of a challenge to understand sometimes.*
Dutch	*It was very clearly a Dutch person, sometimes trying to sound American*
Dutch	*It was there but not very strong*
Dutch	*It's a classic Dutch accent that immediately stands out that is hard to explain. Maybe native Dutch speakers start words differently comapred to native English speakers. Like the word 'theorem' is pronounced starting with a hard 'T' instead of flowing naturally.*
Dutch	*For me it sounded typically like a Dutch speaker speaking English*
Dutch	*It was a pretty strong Dutch accent, but it was clear to me that there was a great english comprehension in terms of vocab and confidence*
Dutch	*Not much, but I feel I recognized a Dutch accent.*
Dutch	*For me it sounds like a Ducth woman Who spaaks English very well but has the typical Dutch accent*
Dutch	*Fluent understandable*
Dutch	*A regular Dutch accent*

Participant L1	*Free text comment responses to the question 'what stood out to you about the speaker's accent?'*
Dutch	*I know it's not a native english speaker because se had some sort of accent but she came very close and it was hard to hear*
Dutch	*It felt familiar since I communicate in English with a lot of people from The Netherlands.*
Dutch	*i had to focus to understand her, she sounded a bit posh*
Dutch	*It sounded european*
Dutch	*The pronounciation of certain words made it quite obvious that the speaker wasn't a native speaker. Also certain words were slurred.*
English	*The words were all accented and the emphasis was not that of a native speaker.*
English	*Sounded quite clipped and unsympathetic*
English	*It was clearly none English as first language, but the standard of English was excellent*
Dutch	*Sometimes overcompensating to sound American.*
English	*I didnâ€™t think they were English but they spoke the language extremely well*
English	*I think candidate speaks more than one language. Command of English is good - 'Americanised.' Accent ?*
Polish	*Nothing stood out for me*
English	*You had to listen carefully to understand everything the speaker said*
Greek	*not so clear accent and mispronounces the sounds â€œsâ€ and â€œpâ€*
English	*It sound like it was from Northern Europe*
English	*I really had to concentrate when listening to her*
English	*Engaging*
Filipino (Tagalog)	*She talks too fast. Some words are not clearly pronounced.*
English	*Clarity*
English	*The speaker doesn't sound English but they're accent is clear and understandable*
English	*nothing worth noting*
English	*American English*
English	*Pronunciation of certain words*
English	*Easy to understand*

Participant L1	*Free text comment responses to the question 'what stood out to you about the speaker's accent?'*
Hungarian	*Her accent was great*
Dutch	*The pronounciation of â€˜culturesâ€™ that sounded more like â€˜cultjusâ€™. A bit annoying.*
English	*Slightly hard to understand*
	Hard 'R' sound (e.g. "cultuRes")
	Hard 'D' sound - inappropriately placed in an English word (e.g. "De" in place of 'The') - possibly stemming from the Dutch word 'de' - is this leakage of native tongue?
	Possible slight leakage of "she" sound - as in the Dutch word "geZellig" in "I always START the course..."
English	*Clarity*
English	*Accent was sometimes difficult to 'lock into' speaking slightly slower would help.*
English	*Words were very well pronounced and paced, without a clear/strong accent.*
English	*It was nice to listen to*
English	*Sharp tones*
English	*Somewhat Americanised.*
English	*I was aware she was not English.*
Dutch	*it reminded me of someone but i dont know who*
English	*She was clear but needed to slip down because of the accent.*
Dutch	*It was hard to follow what she was saying*
Dutch	*There isn't really an accent that shows, but as a Dutch person I felt like there was a slight bit of Dutch-ness in it.*
English	*Mild*
English	*UK accent - specific way of enunciating words*
English	*Soft*
Dutch	*Just a good English accent.*

C4: Full ANOVA (Effects of Accent Strength and Intervention on Listener Evaluations Across Six Attitude Dimensions) Results

Table 17

Means, Standard Deviations, and ANOVA Results for Effects of Accent Strength and Intervention on Listener Evaluations Across Six Attitude Dimensions

Dimension	Moderate Accent *M (SD)*	*n*	Weak Accent *M (SD)*	*n*	Intervention *F*	*p*	η^2_p	Accent *F*	*p*	η^2_p	Interaction *F*	*p*	η^2_p
Hirability	4.7 (1.0)	73	5.4 (1.1)	75	0.53	.467	.004	16.59	<.001	.103	1.63	.204	.011
Competence	5.41 (0.9)	73	5.9 (0.8)	75	2.78	.097	.019	12.15	<.001	.078	0.66	.420	.005
Status	4.71 (1.0)	73	4.9 (1.0)	75	1.23	.270	.008	1.99	.161	.014	0.06	.808	<.001
Likeability	4.68 (0.8)	73	5.0 (0.9)	75	3.38	.068	.023	5.07	.026	.034	0.86	.356	.006
Affect	4.79 (1.2)	73	5.4 (0.9)	75	1.45	.230	.010	11.49	<.001	.074	0.37	.544	.003
Dynamism	5.22 (0.82)	73	4.9 (1.0)	75	0.006	.940	<.001	3.84	.052	.026	1.80	.182	.012