

Exploring the role of personality in L2 speech perception

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BACKGROUND

- Second language (L2) learning is not a one-size-fits-all process (Dörnyei & Skehan, 2003; Ellis, 2004)
- Individual factors (e.g. age, amount of input, motivation, etc.) play a considerable role in L2 learning, especially in the speech perception domain (Akahane-Yamada, 1995; Flege et al., 1997; Flege & Liu, 2001; inter alia)
- Some individual factors have received a lot of attention, while others, like personality, have not

Main Research Question

How does personality, as assessed by the Big Five Inventory (John et al., 1991) and the Autism Spectrum Quotient (Baron-Cohen et al., 2001), affect French nasal vowel identification by intermediate/advanced American learners of French?

Table 1. Personality traits assessed by the Big Five Inventory and the Autism Spectrum Quotient and the description of each trait (represented by a high score in that trait)

	Trait	Description
Big Five Inventory	Openness	broadly defined as encompassing dimensions like imagination, adventurousness, curiosity, unconventionality, perceptiveness, higher communicative competence, and aesthetic sensitivity
	Conscientiousness	personality trait of being careful or diligent
	Extraversion	describes people who gain energy from being around others, are often talkative, gregarious, assertive, and easily excitable
	Agreeableness	describes those who are perceived as kind, sympathetic, cooperative, warm and considerate
	Neuroticism	describes one who is more likely to feel anxiety, fear, anger, frustration, loneliness, etc.
Autism Spectrum Quotient	Social Skill	describes people who find social situations easy, prefer to do things with others, and enjoy social situations and meeting new people
	Attention Switching	describes people who are good multi-taskers, enjoy doing things spontaneously, and can return to a task easily after being interrupted
	Attention to Detail	describes people who concentrate on small details rather than the whole picture and tend to notice details that others may not
	Communication	describes people who enjoy communicating with others and can keep a conversation going
	Imagination	describes people who find making up stories easily, enjoy pretending, and can easily picture things they imagine in their minds

METHODS

Participants

- 24 native speakers of American English (10 male, 14 female; mean age 35.83 y.o, SD=13.01) recruited on Prolific
- All participants indicated via Prolific that they had knowledge of French and scored in the 49th percentile on the LexTALE-FR (Brysaert, 2013)

Materials

Nasal identification stimuli (Inceoglu, 2019)

- Recorded by a native speaker of French (female, 31 y.o.)
- 108 CVC items with one of three French nasal vowels: /ɔ̃/, /ɑ̃/, or /ɛ̃/
- Initial and final consonants were distributed between manner and place of articulation (six items per manner/place, 108 stimuli total)
 - ex: *pompe* [pɔ̃p] and *singe* [sɛ̃ʒ]

METHODS CONT.

Materials cont.

Personality surveys

- Participants were asked to respond with how much they agree to 100 Likert scale statements (50 questions/survey)
- Likert scale ratings were tabulated and centered in order to acquire a score for each trait

Procedures

- All participants were pre-screened prior to participation where they completed the LexTALE-FR and provided information about demographics and their L2 experience

Nasal identification procedures (Inceoglu, 2019)

- Participants were presented a stimulus item orally and were asked to select one of the three nasal vowels: /ɔ̃/, /ɑ̃/, or /ɛ̃/
 - Nasal vowels were presented orthographically as “on”, “an”, or “un”
 - Screen automatically progressed after 4,000 ms

Personality survey procedures

- Participants were presented with a statement and asked to rate how much they agreed with it
- Screen automatically progressed after 10,000 ms

Analysis

- Mixed effects binomial logistic regression
- **Dependent variable:** Response (Correct vs. Incorrect)
- **Fixed effects:** L2 percentile (as determined by the LexTALE-FR), Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism, Social Skill, Attention Switching, Attention to Detail, Communication, and Imagination
- **Random effects:** Subject, Item, Vowel

DATA VISUALIZATIONS

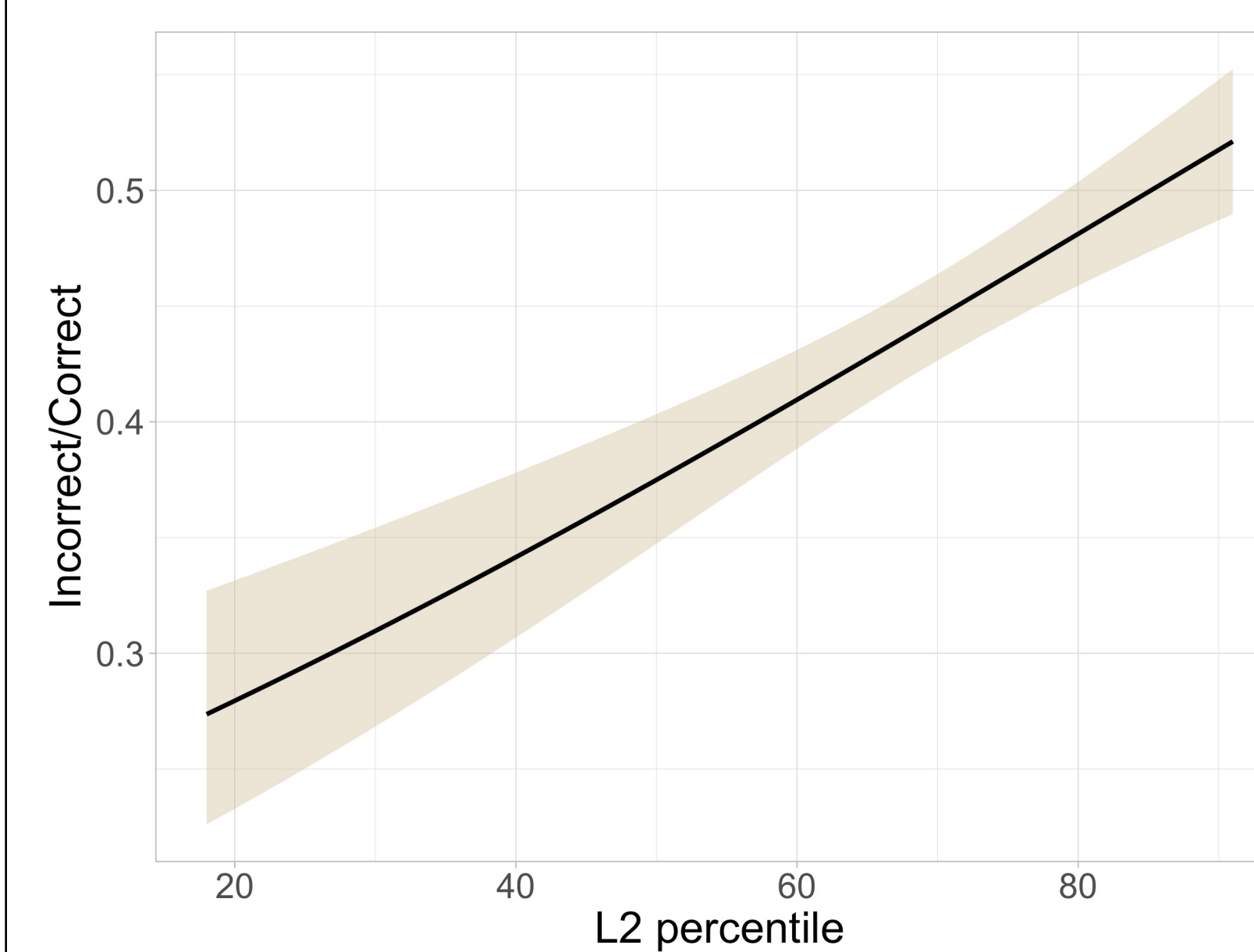


Fig 1. Correct nasal vowel identification as a function of participant L2 percentile (as determined by the LexTALE-FR)

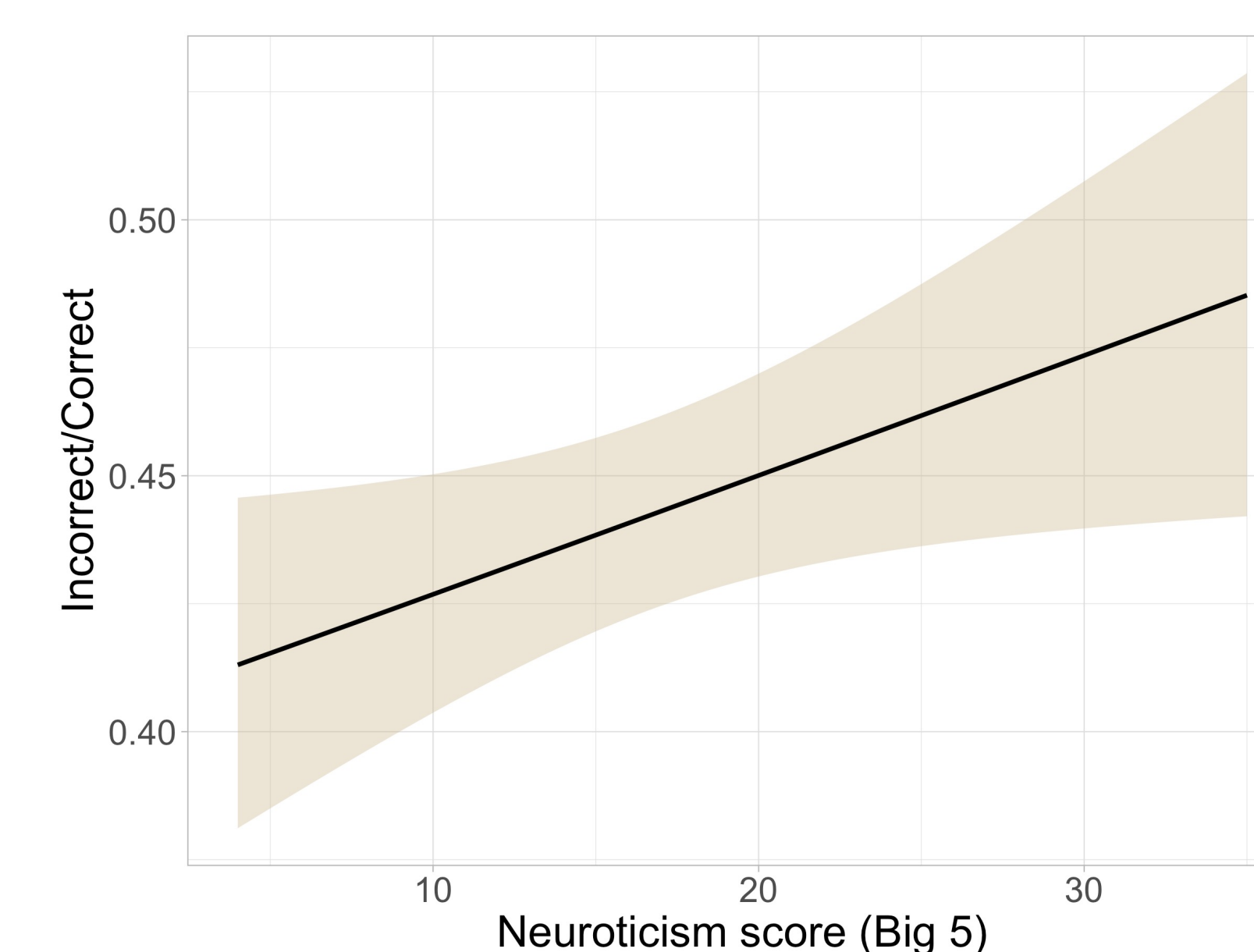


Fig 2. Correct nasal vowel identification as a function of participant Neuroticism score (Big 5)

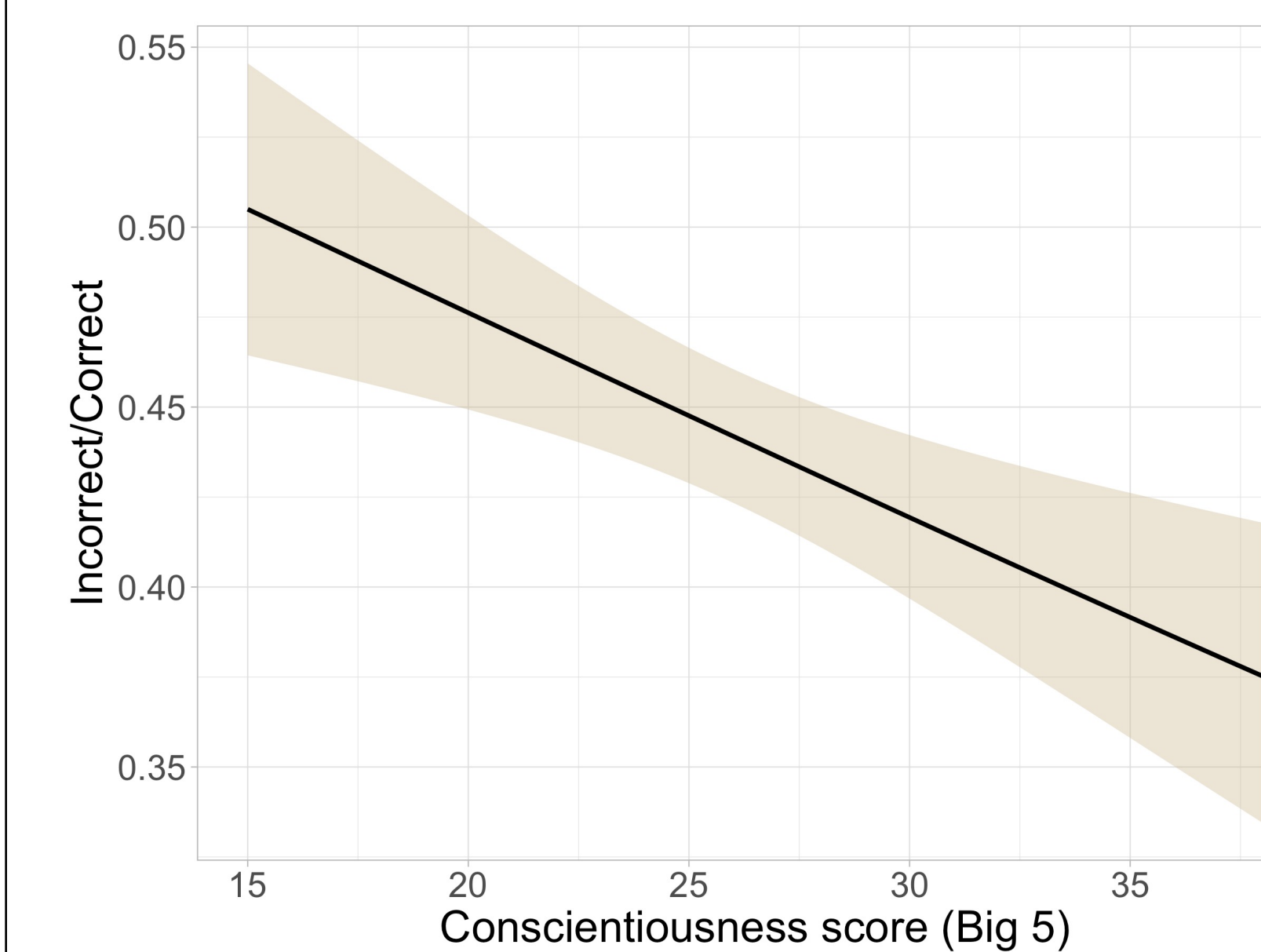


Fig 3. Correct nasal vowel identification as a function of participant Conscientiousness score (Big 5)

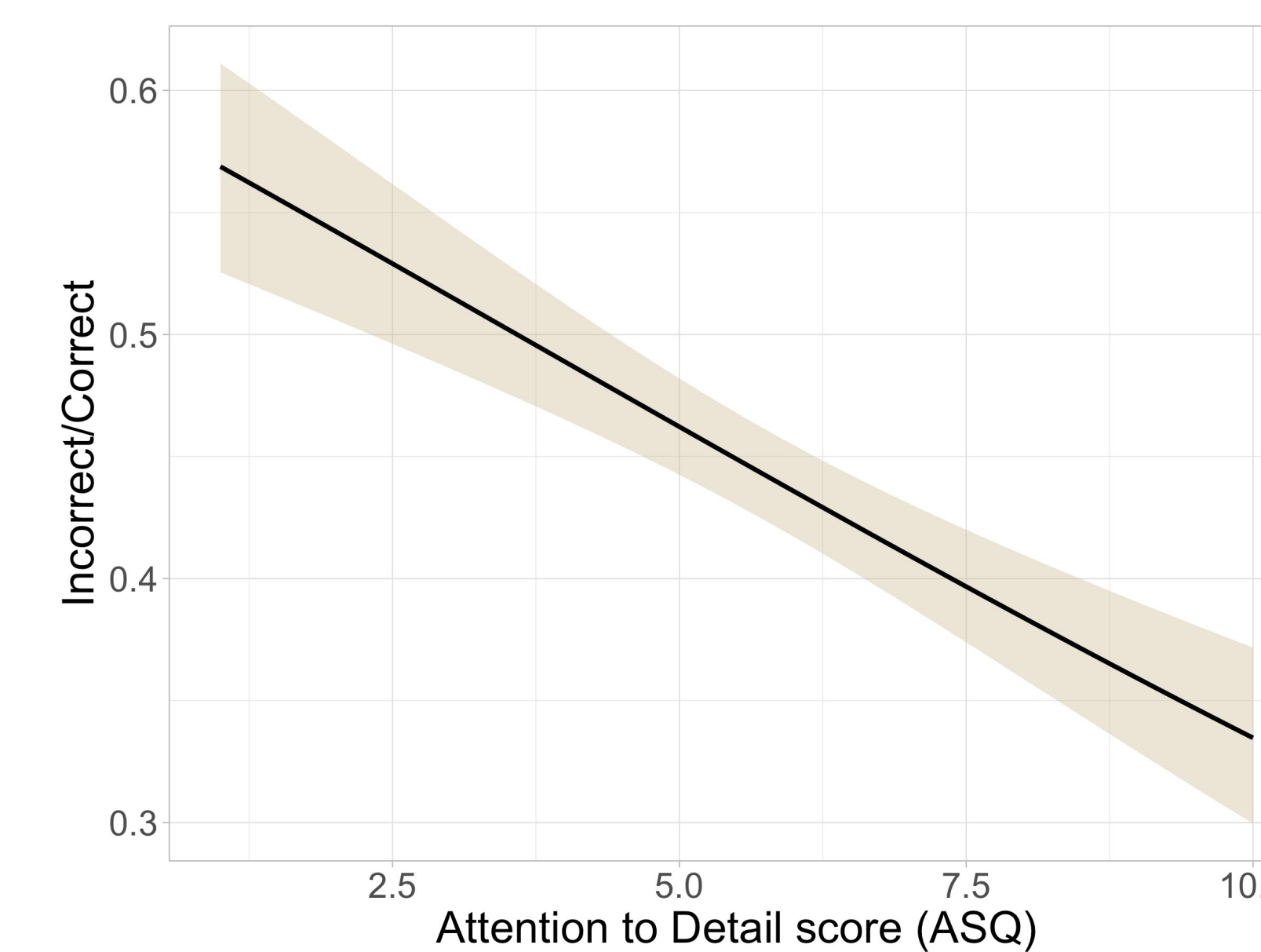


Fig 4. Correct nasal vowel identification as a function of participant Attention to Detail score (ASQ)

RESULTS

- Results revealed a significant effect of L2 percentile, suggesting that the higher a participants' proficiency was in French, the better they performed on the nasal identification task (Fig. 1)
- A significant effect of Neuroticism was revealed; the higher a participant scored in Neuroticism, the more likely they were to identify the correct French nasal vowel (Fig. 2)
- Participants who scored higher in Conscientiousness were significantly less likely to respond with the correct French nasal vowel (Fig. 3)
- High Attention to Detail significantly corresponded to fewer correct responses (Fig. 4)

Table 2. Table of fixed effects for the mixed effects binomial logistic regression of French vowel identification

Predictors	Odds Ratios	Standard Error	CI	Statistic	p-value
(Intercept)	0.10	0.09	0.02- 0.58	-2.57	0.010
L2 percentile	1.03	0.01	1.01- 1.05	2.90	0.004
Openness	1.03	0.03	0.98- 1.08	1.30	0.194
Conscientiousness	0.90	0.03	0.85- 0.96	-3.18	0.001
Extraversion	0.96	0.04	0.89- 1.03	-1.06	0.291
Agreeableness	1.05	0.03	0.99- 1.10	1.67	0.094
Neuroticism	1.06	0.03	1.01- 1.12	2.42	0.015
Social Skill	0.89	0.11	0.70- 1.14	-0.92	0.359
Attention Switching	1.15	0.10	0.97- 1.36	1.65	0.098
Attention to Detail	0.82	0.07	0.70- 0.96	-2.44	0.015
Communication	0.90	0.13	0.68- 1.19	-0.75	0.453
Imagination	1.15	0.12	0.95- 1.40	1.41	0.158

DISCUSSION

- Unsurprisingly, L2 learners who were more proficient in French performed better at the nasal identification task than those who were less proficient, suggesting that they are more target-like in their L2 perception
- The trait Neuroticism (likeliness to feel anxiety and respond worse to stressors) significantly contributed to target-like perception
 - L2 learners with high scores in Neuroticism are more sensitive to stressors and may try to answer accurately in order to maximize social comfort
- L2 learners who were more careful, attentive, and diligent (represented by high scores in Conscientiousness and/or Attention to Detail) were significantly less target-like in their perception
 - These L2 learners might be more likely to get caught up in a task and focus on details not relevant for categorical speech perception
- Future research should expand on these results by including surveys that further unpack the traits revealed to be significant predictors of target-like perception in order to determine what aspects of these traits are beneficial/disadvantageous

ACKNOWLEDGEMENTS

We would like to thank Dr. Solène Inceoglu (Australian National University) for allowing us to use the nasal identification stimuli and procedures developed for a previous study (Inceoglu, 2019). We would also like to thank Dr. Alexander Francis (Purdue University) for his guidance during the experimental design phase of this study.