

Research Article

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Exploring the interplay of trait-like L2 willingness to communicate, international posture, language anxiety and fluency in monologue L2 speech

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Abstract: Willingness to communicate in a second language (L2 WTC) refers to the readiness to initiate speech and is influenced by psychological, linguistic, and contextual factors contributing to both stable and dynamic states in L2 WTC. The present study investigates the relationship between L2 utterance fluency and trait-like L2 WTC with its selected antecedents: international posture (IP) and language anxiety (LA). L2 speech samples ($n = 102$) were examined for speech rate (SR), articulation rate (AR), frequency of silent and filled pauses and repetitions. Trait-like L2 WTC and IP were determined using the Willingness to Communicate Inventory (Mystkowska-Wiertelak, Anna & Mirosław Pawlak. 2017. *Willingness to communicate in instructed second language acquisition: Combining a macro- and micro-perspective*. Bristol: Multilingual Matters), whereas LA was measured with the Foreign Language Classroom Anxiety Scale (Horwitz, Elaine K., Michael B. Horwitz & Joann Cope. 1986. Foreign language classroom anxiety. *The Modern Language Journal* 70(2). 125–132). Correlational analyses were conducted between the fluency measures, unplanned in-class L2 WTC, planned in-class L2 WTC, L2 WTC outside the classroom and practice-seeking L2 WTC, as well as IP-openness to experience, IP-interest in international affairs and LA. The study revealed positive correlations between SR, AR and practice-seeking L2 WTC, as well as AR and L2 WTC outside the classroom. Negative relationships were found between SR, AR and LA. Higher levels of LA were linked to an increased use of filled pauses.

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1 Introduction

Speech fluency, a central learning objective in a second or foreign (L2) language, is a manifestation of cognitive speech production processes that are associated with automatic and on-line processing (Kormos 2006). However, fluent L2 speech is difficult to achieve without consistent and frequent involvement in L2 communicative practice, leading to automatization (Lyster and Sato 2013). Yet, L2 learners must first be willing to engage in this practice. In essence, the likelihood of L2 learners seeking opportunities to speak is contingent on their willingness to communicate in L2 (L2 WTC).

The readiness of L2 learners to initiate speaking is shaped by a combination of enduring traits and momentary states (Peng and Woodrow 2010). Therefore, L2 WTC can be approached as a complex construct, involving the relative stability of this readiness within an individual, but sensitive to changes in specific contexts. For example, an L2 learner who is generally ready to engage in L2 communication in the classroom may not be ready to do so when faced with a challenging situation. Psychological, linguistic and contextual factors explain the stable, trait-like predisposition and the dynamic, state-like nature of L2 WTC (MacIntyre 2020). While trait-like and state-like L2 WTC are complementary, the trait-like L2 WTC explored in the present study is, theoretically, more likely to account for systematic variation in speech fluency (Piechurska-Kuciel 2018). Trait-like L2 WTC is usually researched from a macro-perspective, which “focuses on linear relationships between trait WTC and other relevant dispositions” (Zhang et al. 2022: 506), such as international posture (IP) (Yashima et al. 2004) and language anxiety (LA) (Elahi Shirvan et al. 2019). Studies on state-like L2 WTC, in turn, are examined from a micro-perspective, which is more suited to follow the ebbs and flows of L2 WTC on a moment-to-moment basis.

Overall, little has been done to explore the relationship between speech fluency and L2 WTC from either of these perspectives. Additionally, previous research has yielded inconclusive findings regarding the impact of L2 WTC on L2 speaking outcomes, including speech fluency. In some investigations, L2 WTC has been found to be a significant predictor of fluency (e.g., Nematizadeh 2021). In other research, the link between L2 WTC and speaking performance evaluated with temporal fluency measures has not been established (e.g., Kim et al. 2022). These inconclusive findings call for further research to gain more insight into the complex interplay between L2 speech fluency and L2 WTC. Furthermore, although research has consistently indicated the role of IP in the frequency of communicative behaviour (Yashima 2002,

2009; Yashima et al. 2004), this antecedent of L2 WTC has rarely been studied from the perspective of L2 speech fluency. Similarly, LA has been documented to inhibit L2 WTC (Elahi Shirvan et al. 2019), but how this negative emotion relates to L2 speech fluency is not well understood. The present study aims to investigate the relationship between L2 speech fluency and stable trait-like L2 WTC along with its selected antecedents, namely IP and LA, which can also exhibit a relative trait-like stability over time and situations.

2 Literature review

2.1 L2 willingness to communicate and its antecedents

L2 WTC has been defined as “a readiness to enter into discourse at a particular time with a specific person or persons, using an L2” (MacIntyre et al. 1998: 547). In literature, L2 WTC is described as a behavioural intention determining L2 use (MacIntyre and Wang 2021). According to the classic conceptualisation of L2 WTC (MacIntyre et al. 1998; see Table 1) and its recent reconceptualization adapted to multilingual contexts (Henry and MacIntyre 2023), L2 WTC (Layer II in Table 1) is an L2 learner’s desire that precedes actual communicative behaviour (Layer I). However, there are numerous mutually interacting factors, presented in MacIntyre et al.’s (1998) heuristic model of L2 WTC in the form of more or less proximal layers that underlie the behavioural intention.

The immediate precursors of L2 WTC involve situated, individual and contextual aspects (Layer III), which trigger an L2 learner’s transient desires to initiate communication with a particular person, on a specific topic and in a defined context. Zhang et al. (2018) classified these antecedents into situational cues, such as the task, teacher and classmates, situational characteristics, including support, cooperation and objectives, and psychologically determined characteristics, like duty, positivity and negativity. These precursors of L2 WTC have frequently been investigated following a dynamic research design, whose findings generally support the role of these aspects in L2 WTC fluctuations (Zhang et al. 2022).

Further down in Layer IV, an L2 learner’s own view of their linguistic abilities and beliefs in communicative capabilities create a relatively stable set of propensities. This self-assessment, addressed in research as linguistic self-confidence, has been reported to be positively related to L2 WTC (Piechurska-Kuciel 2018). An examination into linguistic self-confidence and L2 communication confidence with the same participant group as reported in this study (Szyszka et al. under review) revealed how linguistic self-confidence is related to such measures of L2 speech fluency as speech rate (SR; the number of syllables per production time unit

Table 1: MacIntyre et al.'s (1998) model of L2 willingness to communicate.

Layer I	1 L2 use			Communication behaviour Behavioural intention (L2WTC) Situational antecedents Motivational propensities
Layer II	2 Willingness to communicate			
Layer III	3 Desire to speak with a specific person	4 State communicative self-confidence		
Layer IV	5 Interpersonal motivation	6 Intergroup motivation	7 L2 self-confidence	
Layer V	8 Intergroup attitudes	9 Social situation	10 Communicative competence	Affective-cognitive context (LA)
Layer VI	11 Intergroup climate			Social and individual context (IP)
			12 Personality	

including pauses) and mean length of run (MLR; the average number of syllables between pauses), and L2 communication confidence, in turn, correlates positively with such measures of fluency as SR and articulation rate (AR; the number of syllables per production time unit excluding pauses), demonstrating the important role that these relatively stable characteristics may have in L2 speech fluency.

Affective-cognitive contexts, categorised as Layer V, encompass enduring factors such as intergroup attitudes and social situations. Among these factors, LA has been found to be one of the consistent predictors of L2 WTC (Elahi Shirvan et al. 2019), in the sense that higher levels of LA reduce L2 WTC. This is one of the reasons why we have decided to include LA in the present study. This negative emotion is often defined as “a distinct complex of self-perceptions, beliefs, feelings, and behaviours related to classroom language learning and arising from the uniqueness of the language learning process” (Horwitz et al. 1986: 128). LA has been reported not only to be inversely related to L2 WTC, but also to in-class participation (Das 2020) and L2 output (Cheng et al. 1999). MacIntyre and Charos (1996) confirmed that high LA was strongly associated with avoidance behaviour. These findings imply a link between LA levels and L2 speech fluency resulting from consistent engagement in L2 communicative practice (Lyster and Sato 2013).

Due to this potential connection, LA has recently attracted the attention of researchers aiming to investigate its relationship with L2 speech fluency (Aubrey 2022; Bielak 2022; Szyszka and Lintunen 2023; Szyszka et al. 2024; Zuniga and Simard 2022). For instance, with a subset of participants ($n = 59$) from the present study, Szyszka et al. (2024) revealed how LA, measured with the Input, Processing and Output Anxiety Scale and a task-specific post-session survey, was linked with speech fluency: participants with higher levels of internal processing and output anxiety used more filled pauses (FPs; such as ‘erm’), and high output and task-specific anxiety seemed to lead to lower SR and AR. A closer extreme case sampling analysis of six participants (Szyszka and Lintunen 2023), chosen based on the Foreign Language Classroom Anxiety Scale (FLCAS; Horwitz et al. 1986), showed how highly anxious individuals have slower SR and AR and more FPs than the least anxious participants. In Bielak’s (2022) study, task specific LA levels were inversely related to MLR ($r = -0.5$) and AR ($r = -0.67$), whereas Aubrey’s (2022) results revealed moderate to strong positive correlations between momentary LA changes and the mean length of pauses per second. Generally, further research is necessary due to inconclusive results from studies that have applied different methodologies and measuring tools. Compared to the above-mentioned research on LA and L2 speech fluency, the present study provides evidence on LA as a trait-like characteristic measured with the FLCAS (Horwitz et al. 1986) from a large sample ($n = 102$) to complement previous findings.

Finally, personality and intergroup climate, entailing, for instance, IP (Yashima 2002; Yashima et al. 2004) form the most distal Layer VI. In the present study, we

investigate IP understood as “the general attitude toward international community and foreign language learning” (Yashima 2002: 54). This psychological tendency comprises interest in international affairs, unfolding how far a learner is interested in international events and news (IP-interest), as well as openness to other cultures and intercultural communication, which usually involves the use of L2 (IP-openness). IP impacts, among others, L2 WTC (Yashima et al. 2004). Thus, both of the dimensions of IP may also indirectly relate to fluency, but, to our knowledge, these relatively stable L2 learner characteristics have not been examined in connection with L2 speech fluency prior to the present study.

Generally, the heuristic model accounts for both transient and trait-like precursors of L2 WTC (Henry and MacIntyre 2023; MacIntyre et al. 1998). While situated factors determine fluctuating desires to engage in L2 communication on a moment-to-moment basis (Kang 2005), trait-like factors contribute to a consistent propensity to communicate across different situations, help learners actively seek opportunities for L2 interaction (Yashima et al. 2004), and predict the trait-level of L2 WTC (Elahi Shirvan et al. 2019). This consistent inclination for communication in an L2 increases chances for activation of automatization processes, which are indispensable for fluent speech (Segalowitz 2010). Therefore, the trait-like L2 WTC perspective is followed in the current study with the aim to explore the connection between “a stable tendency for some people to speak more than others over a long period of time” (MacIntyre and Ayers-Glassey 2020: 187) and selected aspects of utterance fluency, which echo, to a degree, the efficiency of underlying cognitive processes (Segalowitz 2010).

In the present study, L2 WTC has been operationalised following Mystkowska-Wiertelak and Pawlak’s (2017) and Peng and Woodrow’s (2010) models. The former is a multi-factor model including eight trait-like facets of L2 WTC: 1. communication confidence, 2. ought-to self, 3. classroom environment, 4. planned in-class WTC, 5. unplanned in-class WTC, 6. practice-seeking WTC, 7. IP-openness and 8. IP-interest. The latter focuses on L2 WTC experienced outside the classroom. The focus of the present study is on individuals’ readiness to initiate communication inside (facet 4 and 5) and outside the classroom (facet 6 and Peng and Woodrow’s (2010) outside the class L2 WTC), and their propensity for intercultural encounters (facet 7 and 8), which might be limited by trait-like LA. Motivational (facet 2) and contextual (facet 3) factors are scrutinised in detail in Szyszka (in preparation), whereas for more on the link between communication confidence (facet 1) and speech fluency, see Szyszka et al. (under review).

In our study, being willing to engage in more and less controlled communication in the classroom is labelled as *planned in-class L2 WTC* and *unplanned in-class L2 WTC*, respectively. The motivation behind including them in the present research is related to the assumption that readiness to engage in more spontaneous classroom

interactions may be associated with greater reliance on implicit or highly automatised explicit L2 knowledge, whereas propensity to initiate planned in-class communication may not necessarily draw on this kind of knowledge (Pawlak 2012). *Practice-seeking L2 WTC* refers to the L2 learners' pursuit of participating in various forms of verbal practice both within and outside the classroom, including practising "either with their friends and peers (e.g. during breaks), also falling back on modern technologies (e.g. sending text messages), or modifying their utterances if someone makes them aware that an error has been made" (Mystkowska-Wiertelak and Pawlak 2017: 95). *Outside the class L2 WTC* concentrates on being ready to interact with interlocutors in out-of-class settings without any obligations frequently imposed on learners in classroom situations (Peng and Woodrow 2010), such as mandatory classroom performance for teacher evaluation. Although classroom factors might partially explain context-dependent differences in L2 WTC, research reports that in-class L2 WTC levels are related (Zarrinabadi and Abdi 2011) or even predict learners' readiness to communicate outside the classroom (Denies et al. 2015). IP (Yashima 2002), which determines an L2 learner's readiness to be involved in intercultural communication, has been approached in this study from two perspectives: IP-openness and IP-interest. The first is understood as "willingness to gain new experiences through contacts with foreigners" (Mystkowska-Wiertelak and Pawlak 2017: 5) and the second is an L2 learner's drive to expand knowledge regarding the target language culture in order to engage in intercultural communication. A higher level of IP was reported to be related to an increased communication frequency in L2 (Yashima et al. 2004). However, little is known whether this is reflected in L2 speech fluency.

2.2 L2 speech fluency and L2 WTC

Fluency is a complex phenomenon understood by Lennon (2000: 26) as "the rapid, smooth, accurate, lucid, and efficient translation of thought or communicative intention under the temporal constraints of on-line processing". A more recent approach to defining L2 fluency, proposed by Tavakoli and Hunter (2018), involves four levels of understanding the concept. First, in a very broad meaning, L2 fluency functions as a general language proficiency entailing all skills. Second, L2 fluency in a broad sense refers to an overall speaking proficiency. Next, in a narrow sense, it is associated with the flow and continuity of L2 performance, where fluency is often assessed alongside linguistic complexity and accuracy. Finally, in a very narrow perspective, adopted for the purposes of the present study, fluency is conceptualized in terms of objectively measurable temporal characteristics, such as speed, breakdown and repair features of L2 speech (Skehan 2009; see 3.2.2). According to

Segalowitz's (2010) fluency framework, these observable manifestations of the smoothness of speech refer to only the utterance fluency dimension, which partially reflects the underlying cognitive processes of an L2 speaker, known as cognitive fluency. Additionally, cognitive fluency forms the foundation for how listeners perceive the fluidity of L2 speech, that is, perceived fluency. Generally, the efficiency and speed of cognitive processes play a role in both measurable manifestation of speech fluency and impressions of fluency from a listener's standpoint. The present study takes the perspective of utterance fluency reflecting, to an extent, the underlying cognitive processes (Segalowitz 2010).

The conceptualisation of parallel and serial processing in the L2 speech production model provides a theoretical framework for understanding the role of trait-like L2 WTC in building L2 speech fluency. Briefly, in Levelt's (1989) model, later adapted to L2 speech by De Bot (1992) and Kormos (2006), speech production begins at the conceptualisation stage where micro- and macro-planning are activated at a conceptual level. Next, at the formulation stage, a pre-verbal message is formulated and encoded immediately before the third stage – articulation. Finally, speech can be monitored and modified at all of the aforementioned stages. The speed of these processes is determined by the level of L2 speech automatization (Segalowitz 2010). Therefore, high levels of readiness to communicate that lead to increased speaking practice (e.g., Kim et al. 2022), necessary for the automatization of speech production processes, can be, theoretically, related to L2 speech fluency. In other words, L2 learners with trait-like propensity to engage in L2 speech constantly and systematically increase their chances to automatize speech processes and augment efficiency of the underlying cognitive processes related to L2 speech fluency. As a result of automatization, for more proficient speakers, speech production processes may operate in parallel at conceptualisation, formulation and articulation stages, and are manifested in fluent speech with minimal undue repairs, such as repetitions (Duran-Karaoz and Tavakoli 2020). For instance, high values of SR and AR, as well as low frequencies of FPs and repetitions are expected when parallel processes are activated. However, if the processes are less automatic, serial or controlled processing takes place, which is typically marked by slower SR and signs of disfluency (Kormos 2006). Theoretically, high levels of trait-like L2 WTC create conditions for accelerated automatization of speech processes associated with L2 fluency. However, so far, results of scarce research investigating trait-like L2 WTC and L2 speech fluency have not been entirely consistent.

Contrasting findings have emerged from studies examining the relationship between L2 WTC, conceptualised as a trait-like characteristic, and L2 speech fluency. D'Amico's (2012) study explored the relationship between L2 WTC and speech fluency in two groups of study abroad (SA) and at home (AH) intermediate level learners (9 in SA, 14 in AH) of L2 Spanish. Data were collected using pre- and post-programme

interviews as well as pre- and post-programme WTC questionnaires. Although significant differences were found in SR, silent pauses (SPs), average length of fluent run and repairs between SA and AH after a six-week period, no significant correlations were identified between L2 WTC and L2 speech fluency markers in either group. Similarly, Kim et al. (2022) investigated this relationship in two groups of L2 learners who were short-term residents in Australia: students and workers. In their study, L2 speech fluency was measured with SR, phonation-time ratio (proportion of time spent speaking during the speech sample) and MLR. They collected speech samples based on an interview question about an unpleasant experience while communicating in English. Peng and Woodrow's (2010) scale was used to calculate the levels of L2 WTC. The outcomes did not show any significant links between L2 WTC and L2 speech fluency markers. However, Zabihi et al. (2021) found evidence of a positive correlation between trait-like L2 WTC and perceived fluency. They applied a questionnaire to measure the levels of L2 WTC and invited 26 experienced teachers to evaluate the fluency of speech samples of 100 learners of L2 English, who performed a picture narration task similar to the one used in the present study. In this study trait-like L2 WTC was found to be a predictor of the subjective evaluation of oral fluency.

More consistent results have emerged from L2 WTC research following the idiodynamic design, marking changes in variables on a moment-to-moment basis. A moderate positive relationship between dynamic WTC and speaking time was found in Nematizadeh and Cao (2024). Nematizadeh (2021), Nematizadeh and Wood (2019) and Wood (2016) have also demonstrated that heightened L2 WTC states align with fluent speech moments. Wood (2016) pioneered the investigation of the dynamics between L2 WTC and speech fluency. In his study, the analysis of the performance of four participants led to the conclusion that both variables influenced each other. The aim of Nematizadeh's (2021) study was to monitor per-second changes in L2 WTC and identify relatively stable states lasting longer than a few seconds, defined as attractors. These attractor states were later analysed along with speech fluency measures, such as SR, MLR, duration and number of SPs and FPs of 11 participants. The results showed that attractors emerged mostly when the participants reported having lexical resources, interest in the task content and confidence to continue speech. A lack of these led to extended pausing. In other words, high L2 WTC reflected in stable attractor states coincided with fluent speech. Similarly, Nematizadeh and Wood (2019) investigated dynamic interactions between L2 WTC and speech fluency measures, such as SR, AR, pausing patterns and MLR. They followed a stimulated recall research design to identify the L2 WTC levels of four participants, whose performance on a picture description task was also analysed from the perspective of fluency features. Higher than average MLR was found to be related to high L2 WTC, whereas frequent pausing was associated with lower levels of L2 WTC. These studies

confirm that the dynamic nature of L2 WTC can shape and be shaped by real-time speech fluency. However, research investigating trait-like L2 WTC and speech fluency provides less conclusive evidence, highlighting the importance of the present study.

Further research is needed to understand the intricate relationship between L2 WTC and L2 speech fluency at different proficiency levels and contexts. In search of this interplay, the present study follows the perspective of trait-like characteristics of planned in-class L2 WTC, unplanned in-class L2 WTC, outside the class L2 WTC, practice-seeking L2 WTC and two strong predictors of L2 WTC – LA and IP. The aim of the study is to assess the levels of different types of L2 WTC and the strength of their interrelationship in L2 learners to obtain a detailed picture of the individuals under investigation. Obtaining a precise group profile regarding trait-like characteristics provides a foundation for mapping complex relationships between affect and L2 speech fluency. The present study, thus, seeks to examine the interplay of the aforementioned types of L2 WTC, two trait-like antecedents of L2 WTC and temporal indices of L2 utterance fluency, including SR, AR, frequency of SPs, frequency of FPs and repetitions (R). The following two research questions (RQs) are addressed:

- 1) What are the levels and strengths of relationships between trait-like L2 WTC (Planned and Unplanned in-class L2 WTC, Outside the class L2 WTC and Practice-seeking L2 WTC) and trait-like antecedents of L2 WTC (LA, IP-openness and IP-interest) of L2 learners?
- 2) To what extent do selected temporal aspects of L2 utterance (dis)fluency (SR, AR, SP, FP, R) correlate with Planned and Unplanned in-class L2 WTC, Outside the class L2 WTC, Practice-seeking L2 WTC, LA, IP-openness and IP-interest in the whole sample and in the groups of the participants at B2 and C1/C2 levels?

3 Methods

3.1 Participants

The participants were 102 L1 Finnish university students learning English as a foreign language, taking part in a larger project focusing on L2 speech fluency from different perspectives. Within this cohort, 66 were females, 28 males, four chose not to disclose their gender and four marked the option ‘other’. Their mean age was 22.5 years (SD = 5.25). On average, they declared a 10.3 year exposure to English prior university (SD = 1.46). Their English language proficiency level was assessed with the Lexical Test for Advanced Learners of English (LexTALE), a validated measure of overall proficiency instrument (Lemhöfer and Broersma 2012). The mean score the participants obtained was 85.4 (SD = 8.8; scale 0–100), which corresponds to a C1 level

on the Common European Framework of Reference for Languages (CEFR, Council of Europe 2001). However, individual scores ranged from 62.5, indicating B2 level (60–80 %), to 98.75, matching the upper C1/C2 levels (80–100 %). There were 26 at B2 and 76 participants at C1/C2 levels.

3.2 Measurement

3.2.1 Instruments measuring L2 WTC and its selected antecedents

A battery of instruments was compiled in an online Affective Questionnaire as part of the *Fluency and Disfluency Features in L2 Speech* (FDF2) project, funded by the Research Council of Finland (decision number 331903). The questionnaire was administered as part of the project data collection and comprised a biographical part, the Willingness To Communicate Inventory (the WTCI) validated by Mystkowska-Wiertelak and Pawlak (2017) and measuring Planned and Unplanned in-class L2 WTC, Outside the class L2 WTC, Practice-seeking L2 WTC, IP-openness, and IP-interest, and the FLCAS by Horwitz et al. (1986), capturing LA levels.

Unplanned in-class L2 WTC was measured with a tool consisting of four items, such as *I am willing to ask the teacher in English about words or structures that he or she has just used* and *I am willing to ask the other students in English about ideas/arguments related to the topic of the course*. The internal consistency reliability for this scale reached Cronbach's alpha value of 0.91. Next, the scale measuring Planned in-class L2 WTC included three items, for instance, *I am willing to act out a dialogue in pairs* and *I am willing to give a presentation in front of the class*. This instrument also reached a high value of Cronbach's alpha (0.91). Outside the class L2 WTC was calculated on the basis of the responses to eight items, of which representative examples were as follows: *I am willing to speak about my summer holidays in English in a group outside the classroom* and *I am willing to talk to a Finnish friend in English outside the classroom*. Cronbach's alpha of 0.84 attested to acceptable reliability. Finally, Practice-seeking L2 WTC was measured with a tool comprising three items, such as *I am willing to modify what I have said in response to an indication of an error*, which exhibited a sufficiently high level of internal consistency reliability (Cronbach's alpha = 0.81). The responses to the items measuring different types of L2 WTC were provided on a six-point Likert scale, from 1 - *Not at all true about me*, to 6 - *Extremely true about me*.

The Affective Questionnaire also included two scales seeking to determine the participants' readiness to be involved in diverse forms of intercultural communication and experience. The first, measuring IP-openness, included nine items, such as the following: *I'm interested in an international career* and *I am willing to use English*

to speak to exchange students enrolled in my programme. The second, capturing participants' levels of IP-interest, was composed of six statements, such as *I often read and watch the news, short films and memes about life/events in foreign countries, I have a strong interest in what happens in other countries* or *On the internet, TV or newspapers, I don't look for information concerning only my hometown or my country*. The responses to the set of items in both scales were marked on a six-point Likert scale, from 1 – *Not at all true about me*, to 6 – *Extremely true about me*. The reliability of these scales reached a satisfactory level with Cronbach's alpha equalling 0.87 and 0.89, respectively.

For the present study, LA was measured with the FLCAS, an instrument recognised for its high reliability, validity and extensive application in research on LA (MacIntyre 2017). The participants responded to 33 items related to their repetitive experience of anxiety while learning and using L2 English. Their responses were recorded on a five-point Likert scale, from 1 – *I strongly disagree* to 5 – *I strongly agree*, and nine of them required reverse coding. The total score on the FLCAS ranged from 33 (minimum) to 165 (maximum), with higher values revealing higher levels of LA. The items referred to language learning situations evoking anxiety, such as *I am afraid that the other students will laugh at me when I speak English*, *I always feel that the other students speak better English than I do*, or *I feel confident when I speak English* (reverse coded). The calculated Cronbach's alpha coefficient (0.94) for this scale demonstrated high internal reliability of the instrument. For a more detailed extreme case analysis of six participants' responses and speech fluency measures, see Szyszka and Lintunen (2023). Average scores for the FLCAS, as well as correlations with a broader set of repair fluency measures compared to the present study, have been reported for a smaller subset of the FDF2 project participants in Peltonen et al. (2024).

3.2.2 L2 utterance fluency measures

A number of utterance fluency indices were selected to address speed, breakdown and repair fluency in speech (Skehan 2009). Speed fluency was measured with AR – a pure measure of speed, operationally defined as the total number of syllables per minute of speaking time excluding SPs. Additionally, SR – a widely used composite measure, providing information about speed and pausing – was selected and operationalised as the total number of syllables per minute of total time. Both AR and SR were applied to ensure comparability to previous studies (Kim et al. 2022; Nematzadeh and Wood 2019). Two pure breakdown fluency measures were chosen for the present study: frequency of FPs and frequency of SPs. The first was interpreted as the total number of FPs per minute of speaking time. This measure was found to play a role in speech fluency of anxious learners (Szyszka et al. 2024). Considering that LA

was identified as a strong predictor of L2 WTC (Elahi Shirvan et al. 2019), and following the assumption that FPs may function as mechanisms for buying time in the face of difficulties in retrieval (Tavakoli and Wright 2020), this measure was selected for the present study. The second breakdown fluency measure – SP – was understood as the total number of SPs, lasting more than 0.25 seconds (De Jong et al. 2021), per minute of speaking time. Since SP has been reported to influence perceptions of fluency (Préfontaine and Kormos 2016) and Zabihi et al. (2021) provided evidence for the relationship between trait-like L2 WTC and perceived fluency, this measure was included in the current study. Finally, repetitions per speaking time per minute were calculated to report one representative aspect of repair fluency. These were at least word-length stretches of speech repeated without modification, such as *blob (0.64) of (0.43) blob of a monster*. Repetitions are theorised to serve, among others, as strategies helping in managing processing time during planning stage, applied to maintain the smooth flow of speech (Götz 2013; Peltonen et al. 2024). This article focuses on the links between L2 WTC, IP, LA and fluency measures. SR, AR, SP and FP were also used in Szyszka and Lintunen (2023) and Szyszka et al. (2024) for a subset of project FDF2 participants to examine correlations between anxiety and fluency features. For a detailed analysis of the speech fluency measures in the FDF2 project participants' L1 and L2 monologic and dialogic productions, see Peltonen et al. (in preparation).

3.3 Procedure and materials

The data collection, taking place during the COVID-19 pandemic, was organised as part of the FDF2 project. The participants signed informed consents prior to the production of monologue speech samples in the language laboratory. A logically sequenced cartoon story was used as a stimulus material. The narrative was depicted in six linearly developed pictures without captions or subtitles. Picture descriptions have been widely used in fluency research (Kormos and Dénes 2004), mainly because they are a guarantee of comparability between samples and elicitation of free production (Peltonen 2018). Individuals were instructed in English to describe the story immediately after a two-minute preparation period given to familiarise themselves with the pictures and to plan before speaking. Participants were allowed to look at the pictures while they were being recorded to avoid memory overload. The average total time of speaking was 63.41 seconds (minimum 19.05, maximum 131.25, median 60.82). The speech samples were saved as MP3 files, later converted to .wav for further analysis. After the recordings, participants completed a battery of online questionnaires, including biographical information, the Affective Questionnaire (see Section 3.2.1) and the LexTALE (Lemhöfer and Broersma 2012). The Affective

Questionnaire was translated into Finnish before its distribution. Back translation was applied to ensure accuracy of the content. As the original tool was designed to suit Polish context (Mystkowska-Wiertelak and Pawlak 2017), minor adaptations were introduced. For instance, in Practice-seeking L2 WTC scale the word Finnish was added, as in *I am willing to use English to speak to/text my Finnish friend in my free time*.

3.4 Analysis

All recorded monologues were transcribed and double-checked. Repetitions were calculated manually. Speech analysis software Praat (Boersma and Weenink 2020) was used to manually annotate FPs. SPs were identified with a script but manually checked. Lennes's (2002) script was applied in Praat to calculate the total duration of labelled segments, while De Jong and Wempe's (2009) script, albeit with manual adjustments, was used to identify the number of syllables. Fluency measures in the study – AR, SR, SP, FP, R – were standardized per minute of speaking time.

Statistical analyses were performed in SPSS (version 27). Since the sample size was relatively small, determining the distribution of data was important for the selection of statistical tests. The Shapiro-Wilk's tests of normality indicated that the data for FPs ($W = 0.87, p < 0.001$), repetitions ($W = 0.90, p < 0.001$), Planned in-class L2 WTC ($W = 0.95, p < 0.001$), Practice-seeking L2 WTC ($W = 0.93, p < 0.001$) and IP-interest ($W = 0.86, p < 0.001$) were non-normally distributed, so non-parametric Spearman's correlation coefficients were used. A groupwise approach to correlations was applied to identify the correlation coefficients for the whole group of the participants, as well as for those at B2 and C1/C2 levels. The interpretation of effect sizes followed Plonsky and Oswald's (2014) recommendations – $r = 0.25$ small, $r = 0.40$ medium, $r = 0.60$ large effect size.

4 Results

Addressing the first part of RQ1 regarding the levels of different types of trait-like L2 WTC and its antecedents in the group of L2 learners, the descriptive statistics for measures of Planned and Unplanned in-class L2 WTC, Outside the class L2 WTC, Practice-seeking L2 WTC, LA, IP-openness and IP-interest for the whole sample are presented in Table 2. For an analysis that allows comparison of the levels of the selected L2 WTC types and precursors, a ratio between the mean and the maximum value on the scale was calculated for each variable ($\text{Mean/Scale}^{\text{Max}}$).

Table 2: Descriptive statistics for types of trait-like L2 WTC and its selected antecedents.

Variables (<i>n</i> = 102)	Mean	Min. (Scale ^{Min})	Max. (Scale ^{Max})	SD	Ratio Mean/Scale ^{Max}
Planned in-class L2 WTC	10.2	3 (3)	18 (18)	4.62	0.56
Unplanned in-class L2 WTC	14.2	4 (4)	24 (24)	5.04	0.59
Outside the class L2 WTC	35.9	18 (8)	48 (48)	7.46	0.75
Practice-seeking L2 WTC	13.4	6 (3)	18 (18)	3.60	0.74
LA	78.3	40 (33)	122 (165)	21.25	0.47
IP-openness	41.1	18 (9)	54 (54)	8.68	0.76
IP-interest	30.9	13 (6)	36 (36)	5.30	0.86

The participants scored high averages for IP-interest (Mean = 30.9, SD = 5.30, Mean/Scale^{Max} = 0.86) and IP-openness (Mean = 41.1, SD = 8.68, Mean/Scale^{Max} = 0.76). Concurrently, they exhibited a rather low level of LA (Mean = 78, SD = 21.25, Mean/Scale^{Max} = 0.47). Their levels of Outside the class L2 WTC (Mean = 35.9, SD = 7.46) and Practice-seeking L2 WTC (Mean = 13.4, SD = 3.60) were quite similar and relatively high, as visible in the ratio values (0.75 and 0.74, respectively). The moderate mean levels were obtained for Unplanned in-class L2 WTC (Mean = 14.2, SD = 5.04, Mean/Scale^{Max} = 0.59) and Planned in-class L2 WTC (Mean = 10.2, SD = 4.62, Mean/Scale^{Max} = 0.56). In other words, the L2 learners in the study were characterised by a high degree of openness to both intercultural knowledge and interaction. They were quite willing to engage in communication outside the classroom and for the purposes of L2 practice. Participants scored slightly lower, but still with moderate mean values, on both types of in-class L2 WTC. At the same time, they exhibited rather low levels of negative emotionality directed towards learning and using the L2.

The correlation coefficients between different types of trait-like L2 WTC (Planned and Unplanned in-class L2 WTC, Outside the class L2 WTC and Practice-seeking L2 WTC) and LA, IP-openness and IP-interest were calculated to address the second part of RQ1.

As visible in Table 3, most variables correlated significantly with either small or medium effect sizes. However, the coefficients between LA and three variables: Practice-seeking L2 WTC, IP-openness, IP-interest were close to 0, meaning that LA levels related neither to readiness to engage in communication for the purposes of practising L2 nor to international posture of any type. Nevertheless, LA inversely related to three types of L2 WTC – Unplanned in-class L2 WTC ($r = -0.35$, small effect size), Outside the class L2 WTC ($r = -0.51$, medium effect size) and Planned in-class L2 WTC ($r = -0.55$, medium effect size). The higher the level of LA the participants

Table 3: Correlations between types of trait-like L2 WTC and its selected antecedents.

Variables (<i>n</i> = 102)	1.	2.	3.	4.	5.	6.	7.
1. Planned in-class L2 WTC	1	0.42 ^b	0.48 ^b	0.26 ^a	−0.55 ^b	0.39 ^a	0.24
2. Unplanned in-class L2 WTC		1	0.55 ^b	0.35 ^a	−0.35 ^a	0.41 ^b	0.42 ^b
3. Outside the class L2 WTC			1	0.57 ^b	−0.51 ^b	0.56 ^b	0.39 ^a
4. Practice-seeking L2 WTC				1	−0.08	0.35 ^a	0.31 ^a
5. LA					1	−0.19	−0.12
6. IP-openness						1	0.55 ^b
7. IP-interest							1

^a*r* = 0.25 small effect size, ^b*r* = 0.40 medium.

exhibited, the lower was their readiness to enter communication both in and out of the classroom.

The highest values of coefficients were calculated between Outside the class L2 WTC and Practice-seeking L2 WTC ($r = 0.57$, medium size effect), between Outside the class L2 WTC and IP-openness ($r = 0.56$, medium size effect), and between IP-openness and IP-interest ($r = 0.55$, medium size effect). This means that those whose propensity to communicate outside the classroom was high were also eager to seek practice in L2 through communication and were relatively open to interact in intercultural contexts. Interestingly, Planned in-class L2 WTC was only weakly related to IP-openness ($r = 0.39$, small size effect), and not significantly related to IP-interest ($r = 0.24$). Slightly higher values of correlation coefficients were found between Unplanned in-class L2 WTC and both IP-openness and IP-interest ($r = 0.41$ and $r = 0.42$, respectively).

To answer RQ2, regarding the extent to which temporal aspects of L2 utterance (dis)fluency measures (SR, AR, SP, FP, R) correlate with Planned and Unplanned in-class L2 WTC, Outside the class L2 WTC, Practice-seeking L2 WTC, LA, IP-openness and IP-interest, correlation coefficients were calculated (see Table 4). In the whole participant group, a positive and significant value of the coefficient was calculated between FP and LA ($r = 0.289$). Similar values were found in the C1/C2 group ($r = 0.266$) and in B2 group ($r = 0.372$). However, the latter did not reach statistical significance, probably because of a small number of the participants in this group. LA was also significantly but inversely related to AR ($r = -0.270$) and SR ($r = -0.226$) in the whole group; however, the effect was small. Large effects were identified in the B2 level group, whose coefficients between LA and SR and AR were -0.660 and -0.510 , respectively. Interestingly, no significant relationships were found between LA and both SR and AR in the C1/C2 group. Weak but significant positive relationships were found between AR and Outside the class L2 WTC in the whole group ($r = 0.227$) and in the C1/C2 group ($r = 0.231$), as well as between AR and Practice-seeking L2 WTC in the

Table 4: Spearman’s rank-order correlation coefficients between types of trait-like L2 WTC, LA, IP-openness, IP-interest and L2 utterance fluency measures: AR, SR, SP, FP and R in the whole group of participants and those at B2 and C1/C2 levels (asterisks indicate significant correlations at $p < 0.05$).

Variables	Group (n)	AR	SR	SP	FP	R
Planned in-class L2 WTC	B2 (26)	0.373	0.175	0.169	−0.027	0.167
	C1-C2 (76)	0.037	0.030	0.041	−0.171	0.039
	Whole group (102)	0.139	0.062	0.077	−0.135	0.091
Unplanned in-class L2 WTC	B2 (26)	0.229	0.058	0.015	0.037	−0.134
	C1-C2 (76)	−0.121	−0.040	0.050	−0.005	0.079
	Whole group (102)	−0.066	−0.012	0.032	0.006	0.018
Outside the class L2 WTC	B2 (26)	0.159	0.051	0.012	−0.211	−0.238
	C1-C2 (76)	0.231*	0.175	0.034	−0.106	0.103
	Whole group (102)	0.227*	0.144	0.038	−0.142	0.018
Practice-seeking L2 WTC	B2 (26)	0.210	0.097	0.002	−0.252	−0.274
	C1-C2 (76)	0.239*	0.260*	0.038	−0.078	0.239*
	Whole group (102)	0.210*	0.214*	0.022	−0.116	0.108
LA	B2 (26)	−0.510*	−0.660*	0.290	0.372	0.227
	C1-C2 (76)	−0.141	−0.080	−0.054	0.266*	0.074
	Whole group (102)	−0.270*	−0.226*	0.033	0.289*	0.095
IP-openness	B2 (26)	0.089	−0.078	0.156	0.202	−0.143
	C1-C2 (76)	0.221	0.161	0.066	−0.041	0.038
	Whole group (102)	0.144	0.106	0.068	0.010	−0.018
IP-interest	B2 (26)	−0.072	−0.122	0.019	0.147	−0.126
	C1-C2 (76)	0.017	0.000	0.000	−0.063	0.051
	Whole group (102)	−0.046	−0.060	0.009	−0.013	0.006

whole group ($r = 0.210$) and C1/C2 group ($r = 0.239$). There were also weak positive relationships between SR and Practice-seeking L2 WTC in the whole group ($r = 0.214$) and in the C1/C2 group ($r = 0.260$). Only the advanced participants (C1/C2 group) who exhibited higher levels of Practice-seeking L2 WTC used repetitions more frequently ($r = 0.239$). Finally, the correlations between Planned and Unplanned in-class L2 WTC, IP-openness, IP-interest and all the fluency measures selected for the study were weak and not statistically significant in any of the researched groups.

Summarizing, the more willing the advanced L2 learners were to communicate outside the classroom, the faster was their AR. Similarly, those who were more eager to seek opportunities to practice via communicating in L2, produced speech at a faster rate (AR) with shorter pausing (SR). However, the participants at B2 level who exhibited higher levels of anxiety tended to speak slower (AR, SR), whereas the advanced more anxious individuals used FPs more frequently.

5 Discussion

The aim of the study was to identify the levels of four facets of L2 WTC and its precursors, LA, IP-openness and IP-interest, to understand the trait-like profile of L2 learners (RQ1), and to investigate how these characteristics relate to selected L2 speech fluency measures (RQ2). The findings shed more light on the relationship between the (dis)fluency features in a monologue performance and L2 learners' fairly stable propensity to engage in communication in different contexts (Planned in-class L2 WTC, Unplanned in-class L2 WTC, Outside the class L2 WTC) and for specific purposes (Practice-seeking L2 WTC).

Regarding RQ1, the results show that the levels of L2 WTC in the classroom, either planned or unplanned, are moderate; while the participants' readiness to communicate outside the classroom and for the purposes of practice is rather high. These findings are not fully consistent with the findings of Mystkowska-Wiertelak and Pawlak (2017). In their study, investigating participants at a similar linguistic proficiency level, the average levels of three different types of L2 WTC – Planned in-class WTC, Unplanned in-class WTC and Practice-seeking WTC – fell below the value of 4.00 on a six-point Likert scale, which is the equivalent of 0.66, calculated, as in the current study, by finding the ratio between the mean value and the maximum value on the scale. Their mean value for Planned in-class WTC was 3.64 ($\text{Mean/Scale}^{\text{Max}} = 0.61$), for Unplanned in-class WTC amounted to 3.94 ($\text{Mean/Scale}^{\text{Max}} = 0.65$) and for Practice-seeking WTC reached 3.77 ($\text{Mean/Scale}^{\text{Max}} = 0.63$). In general, L2 WTC levels regarding classroom context are only slightly lower among Finnish university students in the present study than those of English majors from Poland in Mystkowska-Wiertelak and Pawlak (2017). However, similar tendencies can be observed in both samples: the averages for Planned in-class L2 WTC are lower than the averages for Unplanned L2 WTC. Perhaps intermediate-to-advanced L2 learners tend to be more willing to engage in unpredictable or unplanned communication, so also in out-of-class interactions, because at higher L2 proficiency levels it is more challenging and enjoyable than the planned classroom communication. The high levels of Outside the class L2 WTC and Practice-seeking L2 WTC in the current study provide further evidence in favor of this assumption. However, further research is needed to draw comprehensive inferences regarding the reasons behind these behavioral intentions.

Furthermore, the participants exhibit a relatively low level of LA. This finding aligns with previous research, indicating that more proficient L2 learners tend to be less anxious (Jiang and Dewaele 2020) and more likely to engage in L2 communication (Elahi Shirvan et al. 2019). In terms of IP, the results support the notion that

learners who are open to intercultural interaction and interested in foreign affairs are more willing to communicate outside the classroom (Yashima et al. 2004).

The L2 learners in the current study can be described as generally eager to engage in L2 communication in an out-of-class setting. Moreover, those who report a stronger will to communicate in a natural setting are also more willing to practise an L2 via communication. They are moderately willing to initiate either planned or unplanned interaction in the classroom. Their LA levels are relatively low, but still, those who are more anxious are less willing to communicate, especially outside the classroom ($r = -0.51$). On average, the participants demonstrate a strong interest in intercultural issues and are generally open to using the L2 with interlocutors from other cultural backgrounds, which may be explained by the fact that they studied a foreign language at the university. These characteristics of the sample imply that their levels of automatization of speech processes may be relatively high, resulting in fairly fluent speech (Segalowitz 2010). However, even in this group of L2 learners, some variation in the levels of trait-like L2 WTC and its antecedents, such as LA and IP, may play a role in their disparate speech fluency.

In response to RQ2, despite the theoretically motivated potential for connections, no significant relationships were found between Planned and Unplanned in-class L2 WTC, IP – openness, IP – interest and the fluency measures, but some interesting findings emerged from the analysis of other variables. First, significant positive, but small in the effect size, coefficients were found between Outside the class L2 WTC and AR in the whole group. Moreover, a similar strength and direction of the relationship was found in the C1/C2 group, but not in the B2 group, which implies that L2 proficiency level is an important factor in the investigations of the interplay between L2 WTC and L2 speech fluency. More proficient individuals who are ready to engage more in real-life communication tend to speak with higher AR. Second, Practice-seeking L2 WTC relates positively, though weakly, to both AR and SR. In other words, pure and composite measures of speed of speech have higher values among those who are more eager to seek opportunities for using L2 for practice. Additionally, this relationship is stronger at higher proficiency levels. These results may imply that serial processing takes place (Kormos 2006) in the performance of those individuals who are less willing to communicate in a natural setting despite their high proficiency level. In other words, the findings support the theoretical assumption that, due to a lack of speaking practice, speech, as indicated in AR and SR values, is less automatised for those who are less willing to communicate in a natural setting.

Interestingly, the results confirm that those who experience higher anxiety levels while learning or using an L2, particularly those at intermediate levels, perform at a slower AR and produce slightly fewer syllables per minute of total speaking time than those who are less anxious, which is similar to the results of Szyszka et al.'s (2024) and Bielak's (2022) studies where other types of LA correlated

inversely with SR and AR. These findings are in line with Eysenck et al.'s (2007) Attentional Control Model explaining the impact of anxiety on cognitive processing. High levels of LA trigger task-irrelevant thoughts which redirect attentional resources, lower cognitive processing efficiency, and, consequently, limit the efficiency of speech production processes (Segalowitz 2010). This may be reflected in the value of SR, which has been theorized to echo the functioning of all stages of speech production (Götz 2013). However, coping strategies or stalling mechanisms, such as FPs, for instance, may compensate for this processing inefficiency (Eysenck et al. 2007). The findings of the current study confirm this line of thinking, as LA correlated positively with the frequency of FP. Similar results were reported in Szyszka et al. (2024) where higher levels of internal processing anxiety and output anxiety were correlated with a more frequent use of FPs.

Although the study reports some valuable insights into the relationship between trait-like L2 WTC and speech fluency, it is not devoid of limitations. Firstly, two out of an array of proximal and more distal antecedents of L2 WTC were selected. Further factors affecting L2 WTC could be included in future research to draft a more comprehensive picture of their interplay with L2 speech fluency. Next, utterance fluency was measured with five (dis)fluency indices. However, other measures, for instance, MLR (cf. Bielak 2022), might provide further nuanced insights. Generally, relatively high L2 proficiency of the participants can be a limitation because of a considerable degree of automatization of speech processes at this level. Moreover, in the study the participants at B2 level were somewhat underrepresented. Therefore, more data collected from L2 learners at lower proficiency levels may show correlations between L2 WTC, its antecedents and L2 speech fluency markers more clearly. Apart from language proficiency, future research may consider controlling several other variables, such as task-type (monologue vs. dialogue) and task difficulty, to mention a few. Additionally, this study's purely quantitative focus might be supplemented with a qualitative analysis to reveal individual profiles of L2 learners regarding affective factors and fluency-related phenomena (see also Szyszka and Lintunen 2023). Finally, the results might have been affected by the COVID-19 pandemic context during which face-to-face communication, therefore speaking practice in a classroom and natural setting, was limited.

6 Conclusions

Examining individual learner factors, including affect, and L2 speech fluency is a relatively new area of research. Therefore, mapping these connections in different contexts, languages and proficiency levels is crucial for insightful explanations of L2 speech development processes. This study aimed to investigate the relationship

between trait-like facets of L2 WTC (Planned and Unplanned in-class WTC, Practice-seeking WTC and Outside the class L2 WTC), LA, IP (IP-openness and IP-interest) and L2 utterance fluency, measured by AR, SP, frequency of SPs and FPs and repetitions. To this end, the profile of L2 learners participating in the study was identified in terms of their trait-like L2 WTC and its selected antecedents, showing generally high levels of IP, propensity to communicate in a real-life setting and for the purposes of L2 practice. These L2 learners also exhibited relatively low levels of LA and moderate readiness to interact in the classroom. The main findings revealed weak, positive relationships between Practice-seeking WTC, Outside the class L2 WTC and AR. A similar strength and direction of correlation was found between Practice-seeking WTC and SR. Negative weak coefficients were calculated between LA and both AR and SR, with a stronger effect at B2 level. Finally, the frequency of FPs increased along with the levels of LA.

The results of the study have several implications for L2 teachers and learners. Teachers should encourage their L2 learners to take advantage of speaking opportunities, particularly in more natural contexts, because this gives learners a greater chance for their L2 speech to become more automatic and, therefore, more fluent. This encouragement could take the form of introducing educational out-of-class linguistic projects, initiating international cooperations and motivating learners to use multimedia for more authentic input, thus extending the opportunities for L2 speaking beyond the classroom. However, the introduction of less structured and more authentic tasks in the classroom could also be important in creating conditions for fluency development. Next, based on the findings of this study, teachers can make learners aware of the use of FPs and discuss how this is related to their levels of LA. Moreover, the frequency of FPs in L2 speech can serve as a monitoring tool for teachers to detect the levels of LA and, if necessary, implement remedial emotion regulation activities in the classroom, like a greater focus on breathing as a form of relaxation before L2 performance.

Research ethics: The research complies with all relevant national regulations and institutional policies and has been approved by the authors' Institutional Review Board. Informed consent was obtained from all individuals included in this study.

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