



# Language Teaching Research Quarterly

2025, Vol. 48, 10–29



## A Tangled Web: Learner Autonomy as a Predictor of Learner Emotions, Willingness to Communicate and Academic Achievement in Online Language Learning

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Received 14 May 2024 Accepted 15 June 2025

### Abstract

Learner autonomy is widely acknowledged as playing a crucial role in successful language learning. However, less is known about how it functions and interacts with other key variables specifically in online settings where its role may potentially be even more significant. This study investigates the role of learner autonomy in learners' experience of positive and negative emotions, willingness to communicate (WTC), and their academic achievement in online English as a Foreign Language (EFL) classes at the secondary level. Data were collected from 490 learners in an Austrian vocational school during 29 online EFL lessons using a web survey. The data were analysed using structural equation modeling. The results revealed that the level of learner autonomy predicted both foreign language enjoyment (FLE) (positively) and foreign language classroom anxiety (FLCA) (negatively), as well as learners' WTC and grades (positively). Both positive and negative emotions predicted learners' academic achievement, but only FLCA negatively predicted WTC. A mediation analysis revealed that the relationship between learner autonomy and academic achievement is mediated by learner emotions, while its relationship with WTC is mediated by FLCA. Overall, the study demonstrates the value of learner autonomy in predicting language learning success, reflected in learners' grades and their readiness to communicate in the FL language.

**Keywords:** *Foreign Language Anxiety, Foreign Language Enjoyment, Learner Autonomy, Willingness to Communicate*

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<https://doi.org/10.32038/ltrq.2025.48.02>

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**How to cite this article (APA 7<sup>th</sup> Edition):**

Botes, E., Resnik, P., Moskowitz, S., Dewaele, J.-M., Mercer, S., & Greiff, S. (2025). A tangled web: Learner autonomy as a predictor of learner emotions, willingness to communicate and academic achievement in online language learning. *Language Teaching Research Quarterly*, 48, 10-29. <https://doi.org/10.32038/ltrq.2025.48.02>

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## **<sup>1</sup>Introduction**

According to self-determination theory (see, e.g., Deci & Ryan, 1985; Ryan & Deci, 2000), people are inherently proactive in nature, continuously seeking new challenges and new experiences (Ryan & Deci, 2022), implying a tendency to continuously strive for psychological growth. To feel empowered to do this, certain basic psychological needs need to be satisfied. Basic needs theory suggests three main needs: To feel a sense of autonomy, a sense of belonging, and a sense of competence. Autonomy involves “acting with a full sense of volition, endorsement, and choice” (Ryan & Deci, 2022, p. 1). Relatedness refers to feeling “connected with others” (Deci & Flaste, 1996, p. 88), and perceived competence is concerned with feeling able to tackle challenges and meet goals (Deci & Flaste, 1996, p. 66). When these needs are met, they usually lead to increased self-motivation (Ryan & Deci, 2000) and are prerequisites for people’s positive functioning and performance (see, e.g., Ryan & Deci, 2017), their continuous experience of growth and development, as well as their wellbeing (Ryan & Deci, 2022). All these needs are relevant in language learning specifically, but one which has been the focus of considerable inquiry in research and practice has been autonomy. According to Little (2007), in the context of FL learning, “learner autonomy and the growth of target language [TL] proficiency are not only mutually supporting but fully integrated with each other” (p. 15). This means that, for educators, if they can foster a sense of autonomy among their learners, it will have positive consequences for how their students approach their learning and their ultimate success in using and acquiring the language.

Ultimately, in the language classroom, teachers want their learners to be willing to communicate (WTC) in the FL, not only as the ultimate goal and aim of their language education but also as a critical feature of and determinant of the process. As Gregersen and MacIntyre (2014) state: “When considering TL communication and the importance of ‘talking to learn’ in order to ‘learn to talk,’ WTC becomes critical as both a means and as an end – as a conduit and a culmination in language learning.” (p. 215). Research to date has provided a deeper understanding of the role of WTC in FL trajectories by identifying a number of influential learner-internal and -external variables with which it interacts. For instance, previous research has identified a negative relationship with foreign language classroom anxiety (FLCA) and a positive one with foreign language enjoyment (FLE) in regular face-to-face FL classes (e.g., Dewaele, 2019; Dewaele & Dewaele, 2018; see also the meta-analysis by Botes et al., 2020).

Indeed, learner emotions have also become the focus of attention in research and studies have consistently demonstrated the broadening and facilitative function of positive emotions, as well as the inhibiting and hindering function of negative ones for language learning success

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<sup>1</sup> This paper is part of a special issue (2025, 48) entitled: In Honour of Peter D. MacIntyre’s Contributions to Psychology of Language and Communication and Second Language Research Methodology (edited by Mirosław Pawlak, Zhisheng (Edward) Wen, and Hassan Mohebbi).

(MacIntyre & Gregersen, 2012; see also the meta-analyses by Botes et al., 2020 and Botes et al., 2022a). More recently, studies have pointed to the context-sensitivity of emotions in the FL class. For instance, both foreign language enjoyment (FLE) and foreign language classroom anxiety (FLCA) seem to decrease in online FL classes and they no longer seem to be linked in this teaching modality (see, e.g., Resnik & Dewaele, 2023). The online mode, in particular, is known to require a high degree of learner autonomy (Daniels & Stupniski, 2012) and so the role of autonomy and how it interacts with other core variables such as learner emotions and WTC may differ to regular classrooms.

In general education research, autonomy has been linked to academic achievement and academic progress (Mammadov & Schroeder, 2023). In addition, autonomy has been associated with emotional responses in the classroom (Bordbar, 2021) and emotions towards learning (Patrick et al., 1993; Simonton et al., 2021). As such, greater autonomy has been linked to a stronger willingness to learn (Pulfrey et al., 2013), higher academic achievement (León et al., 2015), and increased positive emotions towards learning (Black & Deci, 2000). However, these findings are within the broader field of education and have not been tested in conjunction within the specific field of FL learning, where the aim of FL learning is not only achievement in the language class, but also the production of language in the form of being willing to communicate. In addition, emotional responses in the language classes can manifest as positive (FLE) and negative emotion (FLA). As such, the present study sets out to explore if learner autonomy predicts secondary-level FL learners' FLE and FLCA in their online EFL classes, as well as their academic achievement and willingness to communicate in the FL. Additionally, to untangle the nature of these relationships, it will examine a possible mediating role of learner emotions in the relationship between learners' autonomy, their grades and WTC. The aim of the study would be thus to cast light specifically on how learner autonomy relates to other key variables which are known to impact on learner achievement and ongoing use of the language in the unique online language learning context.

## **Literature Review**

### *The Role of Learner Autonomy in Foreign Language Learning*

In the context of foreign language learning, Holec (1981) originally defined learner autonomy as “the ability to take charge of one’s learning” (p. 3). In self-determination theory, learner autonomy refers to the “psychological need to experience behaviour as self-determined” (Lamb, 2007, cited in Ushioda, 2011, p. 223). When learners feel a sense of control and agency over their learning, this is likely to enhance their intrinsic motivation to study the FL (Ushioda, 2011). To become autonomous when learning another language, learners need to develop the “cognitive, metacognitive, and social strategies” (Ruelens, 2019, p. 373; see also Cohen & Macaro, 2009; Oxford, 2002) needed to “plan, implement, monitor, and evaluate their own learning” (Little, 2022, p. 64). Importantly, language learning requires the willingness to act (Littlewood, 1996) alone or socially with others to use or learn the language (Dam, 1995). Thus, learner autonomy is a complex, multifaceted construct, which plays a central role in how learners approach language learning in the classroom and beyond formal teaching (Benson, 2013), but should be initiated and fostered in it, too (Borg & Al-Busaidi, 2012).

In contemporary language learning, the role of contexts beyond the formalized, traditional classroom have taken on a greater significance than ever before. The era of digitalization and

commensurate technological innovations have opened up new possibilities for FL learning and teaching and have further increased the relevance of learner autonomy (Palfreyman, 2021). These developments require teachers to reconsider their learners' autonomy to establish an effective balance between learning in the classroom and beyond (Lamb, 2008). Research has shown that well designed online classes, for instance, require a significant degree of learner autonomy, which often comes with increased flexibility but also increased responsibility for learners (Daniels & Stupniski, 2012). This became especially apparent at the beginning of the Covid-19 pandemic, when education was abruptly moved online. All of a sudden, students were required to take more control of their learning than had typically been the case in regular in-person classes (e.g., Müller & Goldenberg, 2021). Research among tertiary-level English as a Foreign Language (EFL) learners in Austria revealed that students were very much aware of the increased autonomy in emergency remote teaching (ERT) (Resnik & Dewaele, 2023), which was generally perceived in a positive way by them but could also make students feel uncertain and amplify their feelings of isolation (Resnik et al., 2023a).

Following this line of argumentation and considering the increased relevance of learner autonomy in the online EFL classroom, the current study sets out to explore the links between learner autonomy and learners' achievement in online EFL classes, as measured by grades. While we acknowledge that grades do not necessarily reflect learners' true, full competence in the target language, they can still represent a valuable proxy for learners' proficiency and performance in the FL classroom (Brown et al., 2018). In addition, we feel that success in language learning can also be evaluated by their willingness to communicate as a key determinant and outcome of successful language learning. Thus, this study seeks to explore the complex web of relationships that affect language learner success and the critical role played by learner autonomy in those processes.

### *The Role of Willingness to Communicate in Foreign Language Learning*

Communication is generally understood as both the vehicle by which language learning develops as well as the goal of the endeavor itself. In other words, language learners need to communicate to learn the target language, and often have improved communication as an end goal to the learning process. Larsen-Freeman (2007) notes that the learning and using of the language are inseparable. As such, the desire to communicate is a crucial variable in understanding the FL learning process. WTC, broadly defined as "readiness to enter into discourse at a particular time with a specific person or persons" (MacIntyre et al., 1998, p. 547), is influenced by a constellation of both learner-internal psychological and external variables.

Originally established in communication literature in the United States in a monolingual setting (McCroskey & Richmond, 1991), WTC was only later applied to Second Language Acquisition (SLA) research by MacIntyre et al. (1998) who proposed a pyramid model to explain the phenomenon, taking into account contextual factors such as opportunity for communication, who is available to speak with, the import of what needs to be said, and learner-internal variables such as confidence and extraversion. The application of WTC to SLA was both innovative and natural, as "all the factors relevant to WTC in a first language -plus many more- are also relevant to L2 [second language] WTC" (Henry & MacIntyre, 2023, p. 11). For example, original research showed that the probability for WTC is higher in smaller, more familiar settings than in larger, more formal settings (McCroskey & Richmond, 1991),

similar to what one might expect in FL settings; however, unlike first language (L1) WTC, L2 WTC involves an inherent uncertainty as one might not be as comfortable or proficient in the L2 as they would be in the L1. Moreover, WTC is a unique variable in that it encompasses both stable variables and more unstable qualities, having "trait-like properties, yet [it] can also be highly dynamic, depending on the context." (Henry & MacIntyre, 2023, p. xi).

At the foundation of the pyramid model of WTC lie the more stable aspects of social and individual context, taking into account personality and inter-group climate (MacIntyre et al., 1998), while the layers above reflect the more mutable context-dependent variables including affective factors. Although the pyramid model was a cutting-edge proposition in the field of SLA, it was still meant to be "more of a starting point, than a final product" (Henry & MacIntyre, 2023, p. 248). In this vein, Dewaele and Dewaele (2018) noted that components of WTC could not always be neatly partitioned and that the pyramid model does not take into account the overlapping nature of the factors that affect WTC. They instead suggested a model of concentric circles which gradually expanded from learner-internal variables at the center to inter-group variables in the outer circles.

While WTC in classroom settings had been given a fair amount of attention, the topic of WTC as experienced in real life situations beyond the classroom has recently gained increased attention with the understanding that WTC often manifests in community settings where multiple languages are at the user's disposal and that "in contexts of migration, communication extends beyond formal learning in language classrooms. A part of daily life, it can be central to processes of adaptation." (Henry & MacIntyre, 2023, p. 3). In light of this realization, a new 3-D pyramid model of WTC has been developed.

The original pyramid model put forth two types of motivation: control, meaning how a person might affect the actions of another, and affiliation, which deals more with integration and community factors. Building from the original model, Henry and MacIntyre proposed a newly re-conceptualized 3-D model, which "emphasizes the complex inner workings of learner psychology in settings that can involve multilingual communication" (2003, p. 251). A key difference of the 3-D model lies in its use of corridors connecting LEFT-side pathways with RIGHT-side pathways. LEFT-side pathways represent the desire to communicate with one particular individual or a person considered representative of a particular group, while RIGHT-side pathways deal more with individual-specific factors such as confidence in the target language (Henry & MacIntyre, 2023, p. 270).

In reconceptualizing the original pyramid, Henry and MacIntyre (2023) wanted to represent the nuances of social and psychological factors that affect WTC in multilingual contexts more accurately. They represented them visually by changing color shades "intended to illustrate how the assembly of WTC can change in a communication event where code-switching has the potential to occur" (pp. 261-262). Additionally, the 3-D pyramid reflects self-related conceptions, taking into consideration the development of such research in the years following the original model's conception. Through the thicket of factors that affect WTC in various settings, both bilingual and multilingual, emotion can be considered the current charging through the whole system, fueling the learner's decisions, affecting their self-perception, and coloring their social interactions.

### *The Role of Learner Emotions in Foreign Language Learning*

With their seminal work on foreign language classroom anxiety (FLCA), Horwitz et al. (1986) raised researchers' awareness of the crucial role negative emotions play in FL learning. MacIntyre (1999) defines FLCA as "the worry and negative emotional reaction aroused when learning or using a second language" (p. 27), which shows that FLCA is a specific kind of anxiety (see, e.g., also Horwitz, 1986, 2017) which is associated with language-specific apprehension when, for instance, "speaking, listening, and learning [another language]" (MacIntyre & Gardner, 1994, p. 284). To measure FLCA, Horwitz et al. (1986) developed the 33-item Foreign Language Classroom Anxiety Scale (FLCAS). MacIntyre (1992) later shortened it to an 8-item short-form scale (S-FLCAS), which has since been psychometrically validated, and exploratory and confirmatory factor analysis confirmed its unidimensional structure (Botes et al., 2022b). Research into FLCA has demonstrated its narrowing function in FL learning (MacIntyre & Gregersen, 2012), which means experiencing it hinders progress and weakens performance, which in turn, can further amplify a learner's FLCA. This led MacIntyre (2017) to conclude that FLCA has solely negative functions.

The introduction of Positive Psychology to the field (MacIntyre & Gregersen, 2012; MacIntyre et al., 2016; Mercer & MacIntyre, 2014) led to the realization that holistic approaches to researching emotions in FL learning are needed, which offer an understanding of the role of both positive and negative emotions (MacIntyre & Gregersen, 2012; Dewaele & MacIntyre, 2014). This shifting focus towards positivity in the context of language learning led to Dewaele and MacIntyre (2014) to introduce the construct of foreign language enjoyment (FLE). They defined it as "a complex emotion, capturing interacting dimensions of challenge and perceived ability that reflect the human drive for success in the face of difficult tasks [...] [ , which] occurs when people not only meet their needs, but exceed them to accomplish something new or even unexpected" (Dewaele & MacIntyre, 2016, pp. 216–217). They originally developed a scale with 21 items to capture FLE, which was later shortened into a widely used, psychometrically validated 9-item short form (Botes et al., 2021), with a three-factor structure covering social enjoyment, personal enjoyment, and teacher appreciation.

For in-person FL classes, research has shown that learners generally tend to perceive higher levels of FLE than FLCA and that FLE and FLCA share a moderate negative relationship, i.e., they are not opposites on the same dimension (Dewaele & MacIntyre, 2016; see also the meta-analysis by Botes et al., 2022a). Additionally, FLE seems to be more strongly linked to teacher characteristics and is more fleeting, while FLCA depends more on the individual learner and is more stable (e.g., Dewaele & Dewaele, 2020).

### *The Relationship between Learner Emotions, Academic Achievement, Autonomy and WTC in In-person Versus Online FL Classes*

Studies have consistently demonstrated a positive link between FLE and performance in face-to-face FL classes (see, e.g., the meta-analysis by Botes et al., 2022a) and a negative one between academic achievement and FLCA (see, e.g., see also meta-analyses by Botes et al., 2020). The finding of a negative relationship between anxiety and academic achievement was not surprising as it had already been established in first language contexts (Alpert & Haber, 1960). Thematic analysis of an open-ended question in Dewaele and MacIntyre's (2014) seminal web-based survey study in the field revealed that when learners were invited to

describe particularly enjoyable episodes freely, several of the activities mentioned involved a certain degree of learner autonomy (Dewaele & MacIntyre, 2016). Resnik and Dewaele's (2023) study into 510 European tertiary-level learners furthermore demonstrated highly significant, yet weak positive links between learner autonomy and FLE, meaning more autonomous learners tended to enjoy their in-person EFL classes more. However, they did not establish a link between FLCA and learner autonomy in that study for in-person classes.

Within the theoretical framework of the concentric circles model of WTC in which learner-internal variables overlap with intergroup dynamics, Dewaele (2019) looked at the extent to which learner-internal and learner-external variables predict WTC among Spanish learners of English in a classroom context. Interestingly, his findings revealed that learners' attitudes toward English were not a significant predictor of WTC, which he argues may be due to a weak cultural identification with English-speaking cultures, and rather simply a desire to know English for its utility as a global language (Dewaele, 2019, p. 9). Aligning with previous research, the strongest negative predictor of WTC in the study turned out to be FLCA, which accounted for 30% of the variance. As such, learners with lower levels of FLA are expected to have greater academic achievement and vice versa. A study in an Iranian context found that while classroom environment was linked to WTC, learners' lower anxiety and higher enjoyment were also linked to higher WTC levels (Khajavy et al., 2018). Finally, a meta-analysis summarizing research into FLE and WTC by Botes et al. (2022a) showed a moderate positive correlation between the two variables.

The COVID-19 pandemic and its abrupt shift of teaching modality led to increased interest in exploring learner emotions in different contexts. Dewaele et al. (2024) compared levels of FLE, FLCA and FL boredom (FLB) of 168 Arab and Kurdish EFL learners in ERT and face-to-face classes during the pandemic. Learners were found to experience significantly less FLE, slightly less FLCA, and significantly more FLB in their ERT classes. Participants complained about feeling socially isolated and under-stimulated following the class from their bedroom. Yet, some pointed out that ERT made them less socially anxious and forced them to develop alternative coping strategies. FLCA in ERT was mainly linked with technical issues like internet connection. Participants attributed their increased FLB in ERT classes to monotonous teacher presentations and the inability to interact with peers. Similarly, Resnik and Dewaele (2023) revealed that while learners still tended to experience higher levels of FLE than FLCA in ERT, both positive and negative emotions seemed to be dulled in it and the well-established moderate negative relationship between the two broke in this context. Additionally, the quantitative analysis in this study suggests that learner autonomy plays a bigger role in ERT, where it displayed a slightly stronger link to FLE than in in-person classes and a significant, yet weak negative correlation with FLCA could be identified, too. The thematic analysis of 21 in-depth interviews on sources of tertiary-level learners' FLE in both teaching modalities furthermore demonstrated that the increased autonomy in ERT was greatly appreciated by a majority of the interviewees (Resnik et al., 2023b) but also increased the uncertainty and feelings of isolation of some (Resnik et al., 2022).

Alqarni's (2021) research into 106 Saudi tertiary-level students' emotions and WTC in online and in-person classes revealed that learners reported higher levels of WTC in online classes. While FLE was a positive predictor of WTC, foreign language speaking anxiety (FLSA) negatively predicted WTC. Fattahi et al. (2023) also identified a weak positive

correlation between FLE and L2 WTC in online FL classes. Alqarni's (2021) study furthermore showed that in online contexts, high course grades were positive predictors of learners' WTC. As learners seem to experience online FL classes as less anxiety-provoking (Dewaele et al., 2024; Resnik & Dewaele, 2023), this might well have an impact on their WTC, too.

As shown above, previous research has so far only focused on pieces of the puzzle about how learner autonomy, emotions, achievement and WTC interact in online and on-site FL classes. However, in order to gain a deeper understanding of the bigger picture, we will explore the following research questions looking at the network of relationships between all these critical variables:

**RQ1:** Does learner autonomy directly predict foreign language emotions, academic achievement, and WTC in the online EFL classroom?

**RQ2:** Do foreign language emotions mediate the relationships between learner autonomy as predictor and academic achievement and WTC as outcomes in the online EFL classroom?

## Method

### *Participants*

A total of  $n = 490$  Austrian secondary school students were recruited from 25th January until 29th January 2021 in 29 EFL classes, during the third COVID-19 lockdown in Austria, which started on 26th December 2020 and lasted until 7th February 2021 (n.a., 2021, 12th January). All participants were taking online English courses via Teams at an Austrian vocational school. The sample is predominantly male ( $n = 400$ ), as reflects the typical composition of vocational schools, with  $n = 87$  female and  $n = 3$  non-binary participants. The average age of the participants was 16.34 years old ( $SD = 1.619$ ). The majority had German as an L1 ( $n = 476$ ), followed by Croatian ( $n = 6$ ), and Polish ( $n = 5$ )<sup>2</sup>. All participants were learning English as an L2 or a L3.

### *Instruments*

All instruments were translated from English to German using forward-backward translation. The following instruments were used:

#### *Online Foreign Language Classroom Anxiety* ( $\alpha = .836$ ; $\omega = .833$ )

The 8-item Short-form Foreign Language Classroom Anxiety scale (MacIntyre, 1992; Botes et al., 2022b) was adapted in order to assess online anxiety in the English class. Items such as "I get nervous and confused when I speak in my English class" were adapted to "I get nervous and confused when I speak in my online English class". All items were measured on a 5-point Likert scale from 'strongly disagree' to 'strongly agree'.

#### *Online Foreign Language Enjoyment* ( $\alpha = .857$ ; $\omega = .852$ )

The 9-item Short-form Foreign Language Enjoyment Scale (S-FLES; Botes et al., 2021) was utilised to measure positive emotion in the online English classroom. The S-FLES contains three subscales, namely Personal Enjoyment ( $\alpha = .689$ ;  $\omega = .704$ ; e.g. "I enjoy English class"), Social Enjoyment ( $\alpha = .746$ ;  $\omega = .747$ ; e.g. "We laugh a lot"), and Teacher Appreciation ( $\alpha =$

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<sup>2</sup> A total of 20 different L1's were reported, with  $n = 28$  participants listing two or more first languages.

.893;  $\omega = .883$ ; e.g. “The teacher is supportive”). Items were similarly anchored as with the S-FLCAS to ensure that the online context was made clear to participants. All items were measured on a 5-point Likert scale from ‘strongly disagree’ to ‘strongly agree’.

*Willingness to Communicate* ( $\alpha = .892$ ;  $\omega = .900$ )

The willingness to communicate in English was examined via the unidimensional, 6-item measure (Dewaele, 2019). Items included were “I can imagine myself living abroad and having a discussion in English” and “I can imagine myself speaking English as if I were a native speaker of English”. All items were measured on a 5-point Likert scale from ‘strongly agree’ to ‘strongly disagree’.

*Learner Autonomy* ( $\alpha = .837$ ;  $\omega = .842$ )

The two-dimensional, 12-item scale from Macaskill and Taylor (2010) was utilized to capture autonomy in learning English. The scale consists of two subscales, namely the 5-item study habits subscale ( $\alpha = .746$ ;  $\omega = .777$ ; e.g. “I am happy working on my own”) and the 7-item learning experiences subscale ( $\alpha = .761$ ;  $\omega = .765$ ; e.g. “I am good at searching new topics out on my own”). All items were measured on a 5-point Likert scale from “strongly disagree” to “strongly agree”.

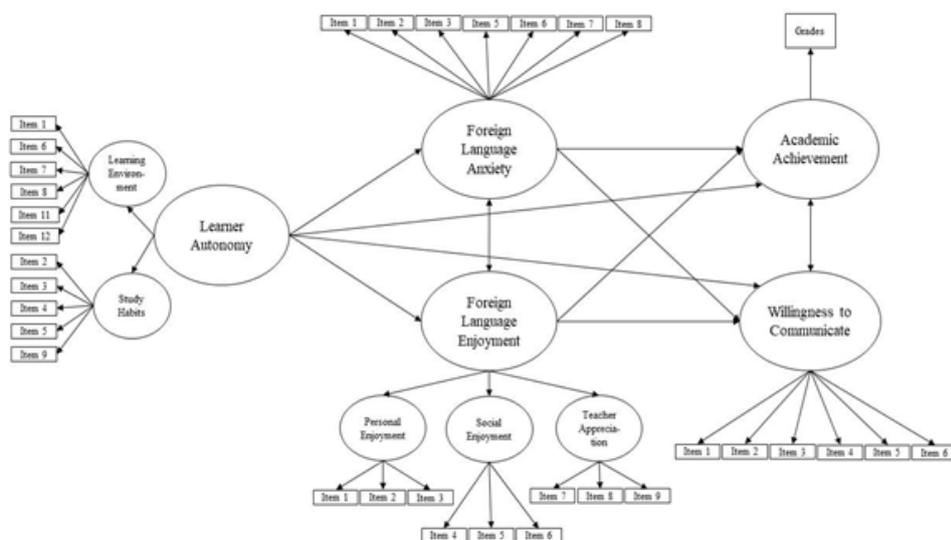
*Academic Achievement*

The previous grade received in the EFL class was used to measure academic achievement. Grades in the Austrian school system are assigned from 1 (excellent) to 5 (failed). Grades were reverse-coded in order to simplify statistical interpretations (i.e. higher grades interpreted as higher achievement).

*Data Analysis*

Descriptive statistics, correlation coefficients, measurement models, and structural equation models were calculated in JASP (version 0.17.2.1; JASP Team, 2023). The first research question was explored via the theoretical SEM as presented in Figure 1. All latent models were modeled using Diagonally Weighted Least Squares (DWLS) estimation with standard errors as this has been found to be more robust in the modelling of ordinal data (Li, 2016). FLA and WTC were specified as unidimensional measurement models, with all items indicating a single latent construct. FLE was modeled as a higher-order factor, indicated by three latent lower-order factors as validated by Botes et al. (2021). In turn, learner autonomy was modelled as a higher order factor with two lower order latent factors. Academic achievement was modeled as a latent variable with a single indicator variable, namely, English grades. As such, the error terms were fixed to zero and the factor loading set to 1 in order to accommodate a single indicator (Kline, 2023). Model fit for measurement and structural equation models were assessed via the recommendations set by Kenny (2020), with the Root Mean Square Error of Approximation (RMSEA; reasonable fit  $\leq .08$ ; close fit  $\leq .05$ ), the Standardised Root Mean Square Residual (SRMR; reasonable fit  $\leq .08$ ; close fit  $\leq .05$ ), Comparative Fit Index (CFI; reasonable fit  $\geq .90$ ; close fit  $\geq .95$ ), and the Tucker-Lewis Index (TLI; reasonable fit  $\geq .90$ ; close fit  $\geq .95$ ) used to assess model fit.

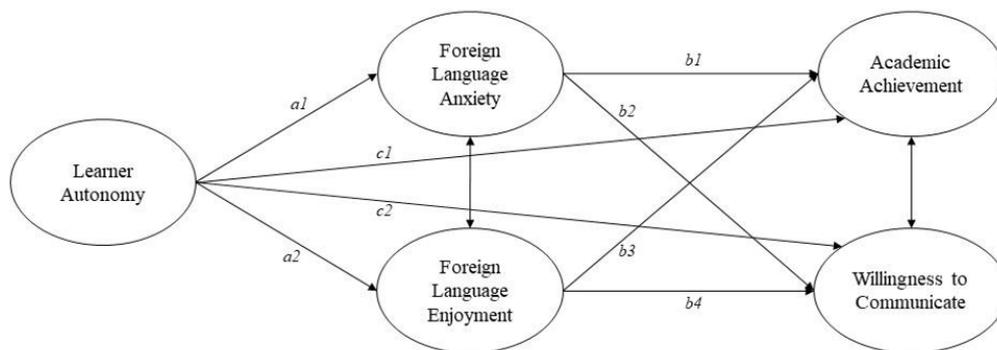
**Figure 1**  
*Theoretical Structural Equation Model*



The second research question was examined via a latent mediation model with a bias-corrected bootstrap of 1000 samples used in the error calculation (Biesanz et al., 2010). The mediation model followed the recommendations set by Kline (2015; see Figure 2), via the following steps:

1. The predictor (Learner Autonomy) had a statistically significant effect on the outcome variables (Academic Achievement and WTC).
2. The predictor (Learner Autonomy) had a statistically significant effect on both mediators (FLA and FLE). Paths  $a_1$  and  $a_2$  were not zero.
3. The mediators (FLA and FLE) had a statistically significant effect on the outcome variables (WTC). Thus, paths  $b_1$ ,  $b_2$ ,  $b_3$ , and  $b_4$  were not zero.
4. If the mediator variables (FLA and FLE) were responsible for all variance explained between the predictor (Learner Autonomy) and outcome variables (Academic Achievement and WTC), a full mediation was found. If the mediators were only responsible for a partial amount of the variance, a partial mediation was declared. Full mediation was therefore dependent on paths  $c_1$  and  $c_2$  being zero.

**Figure 2**  
*Theoretical Mediation Model*



## Results

### *Descriptive Statistics and Correlation Coefficients*

The descriptive statistics and correlation matrix of the five higher-order latent variables modeled in Figure 1 can be found in Tables 1 and 2 respectively. Descriptively, students experienced greater levels of enjoyment ( $M = 3.94$ ) than anxiety ( $M = 2.09$ ) in their online language classes. All manifest variables included in the study correlated significantly ( $p < .001$ ), providing a further basis for the testing of the latent model presented in Figure 1. Within the manifest correlation matrix, all correlations were moderate (Botes et al., 2025), with the exception of a large, negative correlation between FLA and WTC ( $r = -.419$ ;  $p < .001$ ). No normality or multicollinearity concerns were found.

**Table 1**

### *Descriptive Statistics*

	M	SD	Min	Max	Skewness	Kurtosis
Learner Autonomy	3.62	.68	1.75	5	-.177	-.444
FLA	2.09	.76	1	4.25	.478	-.477
FLE	3.94	.68	2	5	-.420	-.623
Academic Achievement	3.56	.98	1	5	-.194	-.697
WTC	3.68	.83	1	5	-.536	-.463

**Table 2**

### *Manifest Correlation Matrix*

	1.	2.	3.	4.	5.
1. Learner Autonomy	-	-.171**	.339**	.207**	.150**
2. FLA		-	-.327**	-.271**	-.419**
3. FLE			-	.276**	.200**
4. Academic Achievement				-	.372**
5. WTC					-

Note. \*\*  $p < .001$

### Measurement Model Results

Each of the individual measurement models were tested for fit (see Table 3). The measurement models of FLE, and WTC all achieved adequate fit with acceptable factor loadings. In terms of FLA, item 4 (“I don’t worry about making mistakes in my online English class”, reverse-coded) had a very low factor loading (.208) and low inter-item correlations. Item 4 of the S-FLCAS was therefore removed and a second measurement model assessed. The adapted FLA measurement model exhibited acceptable fit. Similarly, the initial measurement model of learner autonomy initially showed poor fit. Upon closer examination, item 10 (“I tend to be motivated to work by assessment deadlines”) was found to have a low factor loading (.388) and poor inter-item correlations. The adapted learner autonomy measurement model, with item 10 removed, achieved reasonable fit.

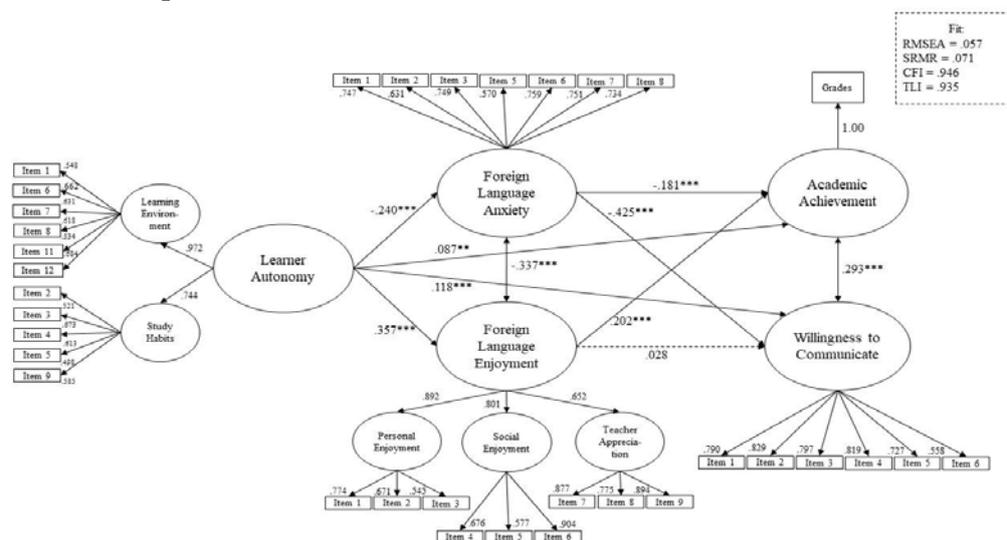
**Table 3**  
*Fit Indices of Measurement Models*

	$\chi^2$	df	RMSEA	SRMR	CFI	TLI
Learner Autonomy	296.025	51	.099	.075	.861	.821
Learner Autonomy (adapted)	138.044	41	.070	.069	.964	.952
FLA	100.971	20	.091	.049	.952	.932
FLA (adapted)	64.484	14	.086	.039	.969	.953
FLE	103.572	24	.082	.039	.962	.942
WTC	10.264	8	.024	.038	.998	.998

**Structural Equation Model**

The full structural equation model (see Figure 3) exhibited reasonable fit ( $\chi^2(511) = 1327.658$ ;  $p < .001$ ), with the CFI (.946), TLI (.935), RMSEA (.057), and SRMR (.071) all meeting the required cut-offs proposed by Kenny (2020). All factor loadings were sufficiently large (Field, 2013). In terms of the hypothesized relationships, all beta coefficients were statistically significant with the exception of learner FLE predicting WTC ( $\beta = .028$ ;  $p = .198$ ). As such, FLE did not predict WTC in the online English classroom. In answer to the first research question, learner autonomy did predict FLE ( $\beta = .357$ ;  $p < .001$ ), FLA ( $\beta = -.240$ ;  $p < .001$ ), academic achievement ( $\beta = .087$ ;  $p < .01$ ), and WTC ( $\beta = .118$ ;  $p < .001$ ). In addition, with the exception of FLE predicting WTC, the emotion variables did have a significant effect on the outcome variables of academic achievement and WTC. As such, a mediation model could be tested to examine the possible indirect effects associated with learner autonomy.

**Figure 3**  
*Structural Equation Model*



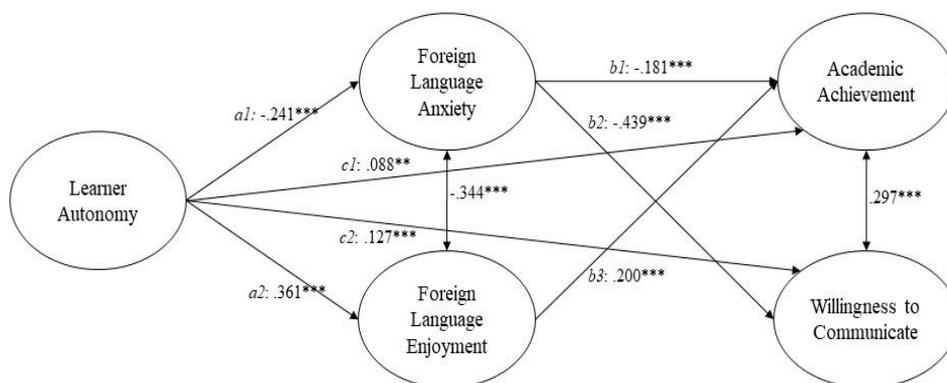
Note. All factor loadings significant at a  $p < .001$  level.  $***p < .001$ ,  $**p < .01$ ,  $*p < .05$

**Mediation Model**

Based on the results of the structural equation model, a latent mediation model was tested with FLA mediating the relationships between learner autonomy as the predictor and academic achievement and WTC as the outcome variables. In addition, FLE was tested as a mediator for

the relationship between learner autonomy and academic achievement. As FLE did not significantly predict WTC, the possible mediation effect of FLE on WTC could not be tested.

**Figure 4**  
*Mediation Model*



Note. \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

The latent mediation model also exhibited reasonable fit ( $\chi^2(512) = 1329.275$ ;  $p < .001$ ), with the CFI (.946), TLI (.941), RMSEA (.057), and SRMR (.071) all meeting the required cut-offs proposed by Kenny (2020). The indirect and total effects can be found in Table 4. As such, FLA partially mediated the relationships between learner autonomy and the outcome variables of academic achievement and WTC (see Figure 4). In turn, FLE partially mediated the effect of learner autonomy on academic achievement. As such, learner autonomy was shown to directly predict foreign language emotions, academic achievement, and WTC in the online classroom, as well as indirectly predict academic achievement and WTC through the mediating effect of foreign language emotions.

**Table 4**  
*Mediation Effects*

	Std. Estimate	Std. Error	z-value	p-value	95% Confidence Interval	
					Lower	Upper
Indirect Effect 1: Learner autonomy → FLA → Academic achievement	-.463	.051	-9.137	<.001	-.563	-.364
Indirect Effect 2: Learner autonomy → FLA → WTC	-.819	.036	-	<.001	-.890	-.747
Indirect Effect 3: Learner autonomy → FLE → Academic achievement	.587	.059	9.863	<.001	.470	.703
Total Effect 1: Learner autonomy → Academic achievement	.243	.031	7.785	<.001	.182	.305
Total Effect 2: Learner autonomy → WTC	.266	.026	10.178	<.001	.215	.317

## Discussion

This study set out to explore the relationships between autonomy, foreign language emotions, WTC, and achievement in the context of online FL classes. The first research question sought to explore whether learner autonomy directly predicts FL emotions, academic achievement and WTC in the online FL classroom. The results indicated that learner autonomy does indeed directly predict FL emotions with higher autonomy resulting in lower anxiety and higher enjoyment. These results are in line with previous findings in the literature (Resnik & Dewaele, 2023; Ushioda, 2011). However, an even greater sense of autonomy is required of learners in online classes as they must take more control over their learning (Daniel & Stupnisky, 2012; Müller & Goldenberg, 2021; Resnik et al., 2023b). In other words, enhancing learner autonomy can support language learning by enhancing facilitative emotions, reducing inhibitive ones, and strengthening a general willingness to use the language; all of which are known to contribute positively to learner achievement (Gregersen & MacIntyre, 2014; Larsen-Freeman, 2007). It suggests that language teachers working in online settings could support learners by finding ways to strengthen learners' autonomy and sense of agency over their language learning experiences, which might in turn enhance learners' positive emotions, as the findings show that autonomy positively predicts enjoyment and negatively predicts anxiety. The findings also reinforce the expectation for research and theory of the centrality played by learner autonomy in successful language learning and use.

The inter-relationships between FL emotions, academic achievement, and WTC have also been established in past research (e.g., Botes et al., 2022a), and indeed in the current study the negative relationship between FLCA and the outcome variables was again confirmed. However, an unforeseen result in the current study was that FLE positively predicted academic achievement but not WTC in the online setting, which contrasts with Botes et al.'s (2022a) meta-analysis which showed a large positive effect size between WTC and FLE ( $r = .48$ ;  $N = 4556$ ;  $k = 13$ ). One possible explanation for this unexpected finding may lie in the fundamental difference between emotions in online classes versus in-person classes. As Resnik and Dewaele (2023) and Dewaele et al. (2024) have pointed out online learning weighs on both valence and activation levels of learner emotions. The peaks and dips experienced in face-to-face classes are less pronounced in online classes, which might explain this unusual finding; perhaps WTC simply functions differently in online classes. Equally important in explaining this finding is perhaps the uniqueness of the WTC which can vary considerably depending on the context (Henry & MacIntyre, 2023). As online classes may be less interactive than in-person classes, learners who might be afraid of being put on the spot in a physical classroom surrounded by peers might be able to more easily remain out of view and uncommunicative in the online classroom (Dewaele et al., 2024; Resnik & Dewaele, 2023). Another possible explanation for this unexpected finding is that, as previously mentioned, the role of learner autonomy may be different in online learning as the learner needs to take on more responsibility for their learning and engage differently with the learning material. This sense of autonomy may be experienced differently depending on the individual learner: some might find the increased autonomy liberating, while others might find it burdensome.

The second research question dealt with the role of FL emotions in mediating the relationships between learner autonomy as the predictor of academic achievement and WTC in online classes. The mediation effects again demonstrated that emotion can mediate the

relationships between individual difference predictors and proficiency proxy outcome variables, as has been previously confirmed in the literature (see Fathi & Hejazi, 2023; Lee et al., 2024; Liu & Wang, 2021). Within our model, FLA negatively partially mediated the positive direct relationship between learner autonomy and academic achievement, as well as between learner autonomy and WTC. Therefore, even though greater levels of learner autonomy are linked to better academic achievement and WTC in our model, FLA can indirectly negatively affect these relationships. An EFL learner may therefore be prevented from reaping the benefits associated with higher learner autonomy if they experience elevated FLA. This finding links to previous research establishing the dominance of anxiety in predicting academic achievement (see Dewaele et al., 2023a), in contrast to the more minor role that positive emotion plays (see Dewaele et al., 2023b). Indeed, FLE was found to only positively mediate the relationship between learner autonomy and academic achievement, with no mediation possible in the prediction of WTC. As such, online learners who have higher levels of autonomy may have better EFL academic achievement through the mechanism of the positive emotions they are experiencing. Overall, the inclusion of indirect effects in the model also further demonstrated the complexity regarding the nomological network of emotions in language learning, where effects estimated using multivariate statistics do not always capture possible reciprocal, indirect, or even spiral effects that may be present (Botes et al., 2020). Future research examining complex directionality of emotions in language learning is a much needed avenue to explore.

The results of the current study also confirm that learner autonomy lies at the heart of FL learning regardless of modality whether online or in person, reminding us that a sense of agency is a core psychological need of learners (Lamb, 2007; Ushioda, 2011). Overall, the study emphasizes the value of learner autonomy in predicting successful language learning as measured through the proxy of academic achievement and the learner's actual production of the language as measured through WTC. The current study highlights the centrality of autonomy in FL learning and underlines the need to provide learners with guidance in order to achieve this (Ruelens, 2019). Future research might explore effective methods for actively cultivating autonomy in online classes as unique from in-person classes. The current study has also demonstrated the crucial role that emotions play in mediating the effects of autonomy on achievement and WTC. Given that online learning tends to be less emotional than in-person learning (Resnik & Dewaele, 2023), future research might also explore ways of engaging learners emotionally more in online teaching settings. It may also be worthwhile seeking to understand individual learner responses to autonomy-centered teaching approaches and the extent to which individual affective responses may vary and reasons for this.

Language learning has always been a process linked to a “tangled web” of complex factors and interactions between learner-internal and contextual variables, but online learning added a whole new level of complexity which we are still seeking to understand and which is changing as learners and teachers adapt to and gain familiarity with working in this modality. The current study found that FLE positively predicted achievement but not WTC in online environments, which was unexpected. Further research could explore the particular challenges for increasing WTC in online language learning, which like all language learning is inherently communicative and social by nature. It may indeed be true that shifting from in-person to online learning takes the “buzz” out of the experience, but considering the crucial role of emotions in language

learning, future research efforts could focus on the emotional aspects of online language learning with particular regard to autonomy and WTC.

### *Limitations*

There are a number of limitations that ought to be kept in mind when interpreting the results of our study. The data were gathered within the specific context and emotionally charged time of the COVID-19 lockdowns in Austria. It is likely that the global and national context of the pandemic affected learner emotions in online classrooms and lack of familiarity may have impacted learner WTC. Furthermore, the research design did not allow for causal inferences and the mediation model does not contain a temporal order (Kline, 2015). As such, the mediation results ought to be interpreted with caution and with no specific causality implications. It should be noted that grades as measure of language attainment is merely a proxy variable and can be problematic in terms of inferring actual proficiency (see Brown et al., 2018). Future research examining the relationship between learner autonomy and learning proficiency as measured by proficiency tests may provide further insight into the role of learner autonomy in the development of FL proficiency. Furthermore, the study was conducted on a specific sample of Austrian vocational EFL learners. Extrapolating results to broader populations ought to be done with caution. Lastly, the study only included two emotion variables, namely FLE and FLA. However, given the recent expansion in FL emotion research, additional emotions have entered the research landscape, such as boredom (Pawlak et al., 2020), curiosity (Mahmoodzadeh & Khajavy, 2019), or pride (Khajavy & Lüftenegger, 2024). It is not a given that these emotions will necessarily have a similar association with autonomy as was found for FLE and FLA in the current study. As such, a fruitful avenue for future research may be to expand the model presented in this paper to include further emotions. Furthermore, future research is needed to examine the web of relationships between learner autonomy, classroom emotions, achievement, and WTC in diverse cultural and language contexts; however, these initial findings suggest this will be a fruitful area to explore with interesting practical implications.

### **Conclusion**

The current study set out to disentangle the complex relationships between some well-established variables in the field of language education such as learner autonomy (Holec, 1981), learner emotions such as FLCA (Horwitz et al. 1986) and FLE (Dewaele & MacIntyre, 2014) as well as Willingness to Communicate (MacIntyre et al., 1998) and academic achievement (Alpert & Haber, 1960). The COVID pandemic changed the nature of language teaching not just instantly in that moment of ERT but with lasting consequences for instruction processes moving forward. Understanding how language learning is experienced online and in-person is a key agenda for research in the field. The findings of this study on Austrian vocational EFL learners confirm and expand earlier studies on the possible consequences of participating in an EFL class online. Being physically present and fully immersed in classroom interactions causes stronger emotions than watching the interactions from afar when one is perhaps less engaged and active in contributing and using the language. While learners online may have far more control over the frequency and intensity of their participation, this may not be as enjoyable and as satisfying over time compared to when learners can communicate with

others in more emotionally stimulating interpersonal settings. Online teaching is certain to remain a key language learning context in the future and so understanding how learners experience that and what teachers can do to optimize the experience for all learners will comprise a central research agenda.

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### Acknowledgements

Not applicable.

### Funding

Not applicable.

### Ethics Declarations

### Competing Interests

No, there are no conflicting interests.

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