

Enjoyment begets enjoyment: An experience sampling study on the impact of L2 teacher enjoyment on EFL learners' learning enjoyment and willingness to communicate

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ARTICLE INFO

Keywords:

FLTE

FLE

WTC

Experience sampling method

ABSTRACT

While previous studies have separately explored learner and teacher emotions in the context of second or foreign language (L2) learning, their dynamic associations over time remain under-explored. Additionally, the impact of these reciprocal interplays on learners' communication intention has not been taken into scrutiny in L2 research. The present study investigated the relationships between trajectories of foreign language teaching enjoyment (FLTE), foreign language learning enjoyment (FLE), and L2 willingness to communicate (WTC). Using an experience sampling method, data were collected from 9 English instructors and 162 students over two weeks. The dynamic structural equation modeling analysis revealed significant positive changes in actual and perceived FLTE, FLE, and L2 WTC. Specifically, a reciprocal relationship was found between teacher and student enjoyment, with L2 students' high FLE levels correlating with higher L2 WTC. Although student-perceived FLTE remained stable, L2 teachers' actual enjoyment fluctuated, being influenced by FLE and L2 WTC. Additionally, L2 WTC significantly impacted teacher enjoyment. On average, teachers with more development in FLTE had students with more development in their FLE and L2 WTC. Overall, the findings underscore the dynamic interplay between teacher and student emotions in L2 learning context and its consequent positive impact on learners' communication intentions. In closing, the findings are discussed in connection with educational theories, and implications are drawn for L2 teaching.

1. Introduction

Emotions abound in second or foreign language (L2) learning classes (Pawlak, Solhi, Elahi Shirvan, Kruk, & Taherian, 2023). From instances of enjoyment and enthusiasm to moments of boredom and anxiety, L2 teachers and learners jointly shape the emotional roller-coaster that characterizes the journey of L2 learning (Dewaele, 2020; Li, Dewaele, Pawlak, & Kruk, 2022). Indeed, the emotional climate of an L2 class is shaped not only by individual students and teachers' emotional experiences, but also by reciprocal exchange of feelings during interactions (Joe, Hiver, & Al-Hoorie, 2017; Lazarides & Schiefele, 2024; Shao & Parkinson, 2024; Zhou, Hiver, & Al-Hoorie, 2023). In other words, in congruence with emotional crossover theory, which highlights the transfer of emotions between

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individuals within the same social environment (Härtel & Page, 2009), emotional experiences of L2 teachers and learners can reciprocally impact psychological well-being of each participant and overall classroom environment. The feeling of enjoyment is an emotional disposition that is highly prone to external influences such as teacher and learner behavior and classroom dynamics (Li, Jiang, & Dewaele, 2018; Solhi & Elahi Shirvan, 2023).

Research has recently explored the enjoyment experiences of L2 learners, often referred to as foreign language learning enjoyment (FLE) (Botes, Dewaele, & Greiff, 2021; Dewaele & Alfawzan, 2018; Dewaele & MacIntyre, 2014) as well as the enjoyment experienced by teachers in the context of L2 instruction, known as foreign language teaching enjoyment (FLTE) (e.g., Proietti Ergün & Dewaele, 2021; Solhi & Elahi Shirvan, 2023). This emotional disposition is highly contagious in the class (Dewaele & MacIntyre, 2014; Kong, 2022), and educational studies have demonstrated reciprocal link between teacher enjoyment and learner enjoyment (e.g., Frenzel, Goetz, Lüdtke, Pekrun, & Sutton, 2009, 2018). It has even been indicated that students' perceptions on how teacher experience enjoyment can reciprocally impact their own emotional experiences (Tam et al., 2020). Indeed, the susceptibility of this emotional disposition to interpersonal dynamics of classes has been acknowledged in L2 research (see Botes et al., 2021; Dewaele, Witney, Saito, & Dewaele, 2018).

A factor closely linked to L2 enjoyment is how learners reveal WTC in the class (Dewaele & Dewaele, 2020; Lan, Zhao, & Gong, 2023; Lee, 2022). Simply put, L2 learners with higher levels of FLE are more likely to demonstrate communication willingness. Considering the major impact of L2 teachers in shaping learners' FLE (Botes et al., 2021; Dewaele, Botes, & Greiff, 2023; Dewaele, Botes, & Meftah, 2023) and the close association between FLE and L2 WTC (Alrabai, 2022; Cao, 2022), L2 teachers have the potential to elevate English as a foreign language (EFL) learners' L2 WTC and possibly enhance their tendencies in English communication through fostering a favorable classroom environment (Lee, 2022).

The intergroup climate and affective context constitute the fundamental layers of L2 WTC in MacIntyre et al.'s (1998) heuristic model of communication willingness. In other words, the model highlights the prominence of social factors such as L2 teachers and peers in promoting positive intergroup climate, ultimately shaping behavioral intentions of L2 learners including L2 WTC. Given that positive emotional experiences are closely interwoven with engagement and flow experiences of L2 learners (Dewaele & MacIntyre, 2022), understanding the dynamics of enjoyment is crucial for enhancing EFL learners' motivational disposition and L2 WTC in the class (Fathi, Zhang, & Arefian, 2023).

In the current study, aligned with the insights of emotional crossover theory, the interplay between teachers and learners' positive emotional experiences was assumed to reciprocally impact L2 learners' enjoyment experiences at within- and between-individual levels, and this significantly influences WTC in L2 classes. Using an experience sampling method (ESM), the present research explored the association between EFL teachers' actual and perceived FLTE, students' FLE, and WTC in L2 learning context. The current study is significant in the context of L2 education because it addresses a critical gap in understanding the dynamic interplay between teacher and learner emotions and their impact on the communication intentions of EFL learners. While previous research has individually explored FLTE, FLE, and WTC, this study is novel in its longitudinal approach, examining these constructs over time to uncover the reciprocal influences of positive teacher-student emotions on EFL learners' communication willingness.

2. Literature review

2.1. Foreign language learning enjoyment

The feeling of enjoyment is generally characterized as "the sense of satisfaction and reward generated from the activity and/or the outcome of the activity" (Ainley & Hidi, 2014, p. 206). Specifically, conceptualized as "good feelings" of satisfaction experienced in L2 learning (Li et al., 2018, p. 184), enjoyment in L2 education (FLE hereafter) is a positive emotional experience when the psychological needs of learners are fulfilled (Dewaele & MacIntyre, 2014). This multifaceted positive emotional disposition constitutes three components: FLE-atmosphere, FLE-teacher, and FLE-private (Botes et al., 2021; Li et al., 2018) and is related to a range of learner-internal and learner-external factors including teachers and peers (Dewaele & MacIntyre, 2019). Indeed, FLE has been acknowledged to be highly susceptible to teacher behaviors and attitudes in the social dynamics of L2 class (Dewaele, Botes, & Meftah, 2023; Dewaele et al., 2018; Moskowitz & Dewaele, 2021).

A study by De Ruiter, Elahi Shirvan, and Talebzadeh (2019) indicated that emotional support provided by L2 teachers significantly influences FLE. The findings highlight the major impact of teacher support in fostering EFL learners' sense of enjoyment in the class. In a similar vein, Li et al.'s (2022) research demonstrated that teacher friendliness is the most significant predictor of L2 learning enjoyment, emphasizing the crucial role of teacher-student relationships in enhancing a positive and motivating L2 learning environment. Along with the positive influence of teacher behaviors in cultivating FLE, studies also highlight the prominence of instructional practices on promoting enjoyment experiences of L2 learners. For example, Jin et al.'s (2023) research on the impact of teaching methods on FLE unraveled the substantial effect of teaching practices on FLE. Indeed, these studies underline the influential role of L2 teachers' positive emotional and instructional dispositions in cultivating L2 learning enjoyment in the class. In a different study, Dewaele and Li (2021) indicated the mediating impact of FLE on the association between teacher enthusiasm and learner engagement. In other words, EFL learners' positive evaluation of their teachers' enthusiasm is most likely to impact their own positive feelings, which ultimately contributes to L2 learning engagement. This study underscores the contagiousness of emotions in L2 learning and how it can positively contribute to learners' behavior in L2 learning. Indeed, aligned with emotional crossover theories, EFL learners' positive emotional experiences can be reciprocally influenced by the positive emotional dynamics of the class fostered by L2 teachers (Li et al., 2022). Thus, a factor intricately associated with FLE is L2 teachers' positive emotional disposition including foreign language teaching enjoyment (FLTE) (Solhi & Elahi Shirvan, 2023).

2.2. Foreign language teaching enjoyment

FLTE refers to teachers' sense of satisfaction and fulfillment in L2 teaching derived from a range of internal and external factors, including social enjoyment, student appreciation, and personal enjoyment (Proietti Ergün & Dewaele, 2021). The first factor is mainly related to the social relationships with colleagues. Student appreciation signifies L2 learners' positive attitudes and appreciating behaviors perceived by L2 teachers. Personal enjoyment underscores the intrinsic value of the profession and a feeling of pleasure that may stem from the satisfaction of sharing knowledge and witnessing the growth of L2 learners. Although most L2 research on enjoyment has been relatively conducted on FLE, L2 teachers' professional enjoyment has lately witnessed a surge of rising attention (Liu, Yüce, Solhi, Şahin, & Azari Noughabi, 2024; Solhi & Elahi Shirvan, 2023). Specifically, FLTE has been scrutinized in association with L2 teachers' resilience (Proietti Ergün & Dewaele, 2021), work engagement (Zhang, Fathi, & Naderi, 2023), job satisfaction (Liu et al., 2024), humor styles (Solhi & Elahi Shirvan, 2023), motivation (Onodera, 2023), grit (Derakhshan, Dewaele, & Azari Noughabi, 2022), and emotion regulation (Azari Noughabi, Fekri, & Kazemkhah Hasankiadeh, 2022).

Proietti Ergün and Dewaele (2021) conducted a study on the impact of Italian teachers' resilience and well-being on FLTE. The findings indicated that both variables significantly predict L2 teaching enjoyment. Derakhshan et al.'s (2022) study similarly revealed the positive influence of EFL teachers' psychological well-being on FLTE. The results highlight how L2 teachers' psychological well-being can contribute to teachers' joyous moments and learners' positive emotional experiences in the class. In a recent study, Azari Noughabi, Yüce, and Fekri (2024) compared cross-cultural FLTE experiences of EFL teachers. The findings demonstrated that student motivation is the common factor that contributes to FLTE of both Iranian and Turkish teachers. The finding underscores that L2 teacher enjoyment is highly susceptible to learners' motivational disposition in L2 contexts. Overall, these studies have indicated how L2 teachers' positive emotional experiences, specifically FLTE, are intricately associated with teachers' psychological well-being and learners' motivational tendencies.

The close relationship between teacher enjoyment and student enjoyment has also been confirmed by educational research. For instance, Frenzel et al.'s (2009) study with a large number of participants indicated that student and teacher enjoyment levels are positively associated. The findings also revealed that perceived teacher enthusiasm positively impacts the relationship between learner and teacher enjoyment. In a different study, Frenzel and colleagues' (2018) longitudinal research with a large proportion of participants similarly demonstrated a reciprocal transmission of emotions including enjoyment between learners and teacher in the class. These studies highlight the contagious nature of enjoyment and how teacher and student enjoyment levels reciprocally shape the emotional dynamics of the class. Specifically, given L2 emotions can reciprocally influence each other (Pawlak, Chengchen, Zawodniak, & Kruk, 2024), they have the potential to significantly impact the overall L2 learning environment (Solhi, 2024). Thus, L2 teachers' actual and perceived feelings of enjoyment in the class can significantly contribute to learners' positive affective dispositions and consequently their behavioral intentions including communication willingness in class.

2.3. L2 willingness to communicate

L2 Willingness to Communicate (WTC) was firstly introduced by MacIntyre, Baker, Clément, and Conrod (2001) as "the intention to initiate communication, given a choice" (p. 369). While L2 WTC is characterized as a personality trait, it is "a dynamic situational variable" (Cao, 2014, p. 789) that is highly susceptible to changes in contextual factors (MacIntyre & Ayers-Glassey, 2021). L2 WTC has recently been conceptualized as "L2 learners' dynamic predispositions to initiate or engage, mostly verbal, conversations in both in-person and online classroom contexts" (Solhi, 2024, p. 8).

Research has indicated a close association between L2 WTC and motivational self-system (Lee & Lu, 2023; Zhang, Saeedian, & Fathi, 2022), academic achievement (Al-Murtadha, 2021; Qu, 2023), L2 competence (Jin & Lee, 2022), and FLE (Alrabai, 2022; Zhang & Huang, 2023). For example, Zhang and Huang's (2023) study demonstrated that L2 learners' perception of teacher enthusiasm can foster their L2 learning enjoyment and consequently WTC in the class. The study indeed unraveled the major impact of L2 teachers' emotional disposition on communication willingness of EFL learners. In a different study, Khajavy, MacIntyre, and Barabadi (2017) indicated that a positive class atmosphere is closely linked with higher levels of FLE and L2 WTC. In their study, FLE significantly contributed to L2 WTC at individual and class levels. Alrabai (2022) likewise indicated that FLE plays a major influence on the association between motivational disposition and L2 WTC. Inevitably, the studies highlight the major influences of interpersonal factors on fostering a positive class environment and consequently L2 WTC of EFL learners.

In a recent study, Yang, Cui, and Yao (2024) demonstrated that teacher support and grit influence L2 learners' WTC through the mediating impact of FLE. The finding provides valuable insights into the major impact of L2 teachers in fostering FLE and consequently impacting communication willingness of L2 learners. The study demonstrated that emotional and motivational aspects of L2 learning are closely interconnected. Specifically, when L2 teachers create a supportive learning environment, it fosters a sense of enjoyment in L2 learning and thereby enhances their communication willingness in the target language. The major impact of teacher emotion on FLE and L2 WTC has also been acknowledged in Fallah et al.'s (2024) study, where perceived teacher enthusiasm positively predicted EFL learners' FLE and communication willingness. Overall, while existing studies have provided valuable insights into emotional and motivational antecedents of L2 WTC, they often overlook the complex emotional dynamics between teachers and students which influence this communication intention in the context of L2 education. In the following sections, the associations between FLTE, FLE, and WTC have been theorized, elaborating on how these constructs dynamically interact within the L2 class environment.

2.4. Theorizing the model of the study

The model of the study based on the association between FLTE, FLE, and L2 WTC can be firstly explained through the insights from the emotional crossover theory, which puts social interaction as the medium of the transfer of positive and negative emotions (Härtel & Page, 2009). Simply put, when L2 learners perceive their teachers as highly enjoying their profession, they are more likely to feel a greater sense of enjoyment themselves due to emotional contagion. In general, empirical research confirms that individuals' perceptions of partners' emotions in the social context can significantly influence their affective dispositions (Keller & Becker, 2021; Tam et al., 2020). Even though there might be a discrepancy between L2 learners' evaluation of teachers' emotions and teachers' actual feelings, the positive or negative perception and evaluation of L2 teachers' feelings can contribute to L2 learners' own emotional dispositions. Indeed, the reciprocal interplay between actual and perceived teachers and students' emotional dispositions results from the "unconscious emotional contagion" (Tam et al., 2020, p. 127). Additionally, rooted in (Fredrickson, 2001, p. 219) broaden-and-build (BB) theory in positive psychology, which underscores the prominent role of positive emotions in broadening "momentary thought-action repertoires," L2 teachers' professional enjoyment is more likely to contribute to learners' FLE and subsequently impact their L2 behavioral action to communicate. The theory suggests that positive emotions enable individuals to expand their immediate, momentary thoughts which consequently contributes to psychological well-being and greater coping ability. Aligned with the tenets of emotional crossover and BB theories, in the present study, it was hypothesized that the reciprocal and dynamic interplay between FLTE and FLE can firstly broaden EFL learners' psychological well-being and consequently build their communication willingness in the class.

The model of the study can also be explained through the lens of Bandura's (1971) social cognitive theory, which highlights the role of observational learning in behavior. The theory explains how the interplay between environmental and cognitive factors influences learning. Specifically, L2 teachers' FLTE as an environmental factor can positively contribute to students' observational learning and attitudes in L2 learning, and thereby impact their behavioral intentions including L2 WTC in the class. Indeed, the major influence of teachers' FLTE on developing L2 WTC is highlighted by Xie and Derakhshan (2021), asserting that L2 teachers' professional enjoyment and interpersonal communication behaviors can enhance L2 learners' FLE and facilitate L2 WTC.

Although teachers' professional enjoyment has been indicated to be reciprocally linked with learner enjoyment in educational studies (e.g., Frenzel et al., 2009, 2018), the relationship between the constructs has not been thoroughly scrutinized in L2 research. Specifically, there is a dearth of research on how the hypothesized interplay between FLTE and FLE can impact EFL learners' behavioral intentions, including communication willingness. Additionally, given the dynamic nature of enjoyment in the class (Elahi Shirvan & Talebzadeh, 2018; Li et al., 2018; Talebzadeh, Elahi Shirvan, & Khajavy, 2020), exploring the construct using a dynamic research method to measure within-individual and between-individual trajectories would provide more invaluable insights into the complex nature of this emotional disposition. Indeed, there is a need to investigate the intricate interplay of emotions from various perspectives and methodologies that enable us to capture fluctuations and subtle changes in mediation with each other (Wang, Derakhshan, & Zhang, 2021; Yu, 2022). Furthermore, since there is a paucity of exploration on the transmission of L2 enjoyment and its interplay with other positive emotions in the context of L2 learning (Guo & Qiu, 2022), investigating the associations between actual and perceived FLTE, FLE, and L2 WTC using a robust statistical analysis such as dynamic structural equation modeling (DSEM) would offer insights into the variations of emotion and behavior in L2 learning. In doing so, in the present study, we explored the interplay between perceived and actual FLTE, FLE, and L2 WTC over time. To address the research gap, the following research question (RQ) was addressed:

RQ. What are the relationships between trajectories of FLTE, perceived FLTE, FLE, and L2WTC at within- and between-individual levels?

3. Methodology

3.1. Participants and setting

The study was conducted at a prominent language school in Iran, which has multiple branches across various regions of the country. The participants were 162 EFL (58 males and 104 females) students and 9 of their teachers (2 males and 7 females) at a language school in Iran. The participants were selected using convenience sampling based on their availability and willingness to participate. The mean age of the students was 16.7, and they were enrolled in oral communication classes, with proficiency levels ranging from elementary (A2) to pre-intermediate (B1). There were six classes in total, and each class comprised 25 to 30 students. Their teachers were Iranian English language instructors. The school is renowned for its comprehensive language programs, with a particular emphasis on English language instruction. This institution offers a range of English courses aimed at different proficiency levels, and places a strong emphasis on communicative competence, aiming to equip L2 learners with the ability to effectively engage in meaningful communication in real-world contexts. This focus on communicative competence is reflected in the instructional approaches to not only improve learners' L2 proficiency but also to enhance their WTC through task-based learning, interactive activities, and group discussions. The English classes are structured to foster both receptive and productive language skills. Oral communication classes are specifically designed to improve students' speaking abilities. These classes emphasize interactive learning, discussions, and presentations, which are aimed at boosting students' fluency in the English language. In this school, English language students practice oral communication and speaking for 4 hours per week.

3.2. Instruments and data collection procedure

Before the study commenced, the participants were instructed to complete a section on demographic details. During the 10-day teaching period, teachers were required to access a specific web link, which directed them to a Google Form designed for the study. All teachers submitted their questionnaires online. Actual FLTE was evaluated using a self-reported single item (i.e., *I enjoyed today's oral communication class*). Each teacher received a notification email with the web link at the end of the teaching hours, along with a reminder in the evening. Student enjoyment during L2 class was evaluated using the identical single item (i.e., *I enjoyed today's oral communication class*). Both items were on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). L2 WTC was measured by asking the question *How much were you willing to communicate in oral communication class today when you had a chance to talk freely?* The item was adapted from Lee and Hsieh's (2019) L2 WTC scale. The responses were collected using a 5-point Likert scale, with options ranging from 1 (Definitely not willing) to 5 (Definitely willing). L2 learners also reported their perceived FLTE through a single-item scale (i.e., *The teacher enjoyed today's oral communication class*).

To ensure that all the students answered the items, the class representatives reminded them daily in their group on a social media platform. These assessments occurred once daily, immediately following each teacher's last class. The four-session evaluation framework allowed each participant to complete up to four ESM assessments, resulting in a cumulative total of 732 observations from 162 students. Additionally, there were 36 observations recorded from 9 English language instructors and the same students. The optimal timeframe for collecting data should be based on the characteristics of the phenomena under investigation (Gabriel et al., 2018). The implementation of a four-session design facilitated the acquisition of adequate data to capture significant variability in L2 emotions and L2 WTC without placing excessive pressure on participants or unnecessarily lengthening the duration of the study. Moreover, the average sample size for Level 1 in experimental design studies is approximately 835, while for Level 2, it is about 83 (Gabriel et al., 2018). Although the Level 1 sample size of our study is somewhat smaller than the average, it remains within a reasonable range to guarantee appropriate statistical power for detecting significant effects. Gabriel et al. (2018) emphasize the need for prioritizing effect size sensitivity above the mere augmentation of sample size. In our study, the sample size was carefully considered to balance the need for power while avoiding the potential pitfalls of "overpowered samples," where large sample sizes might detect statistically significant but practically trivial effects.

Minimizing burden on participants in ESM studies is crucial for sustaining high participation rates and reducing missing data (Arndt, Granfeldt, & Gullberg, 2021). The inclusion of single-item measures in the study simplifies the reporting process, reducing the need for participants to provide frequent responses. Furthermore, participants are more inclined to consistently complete single-item measures due to their less time and effort requirements in comparison to multi-item scales (Arndt et al., 2021). Implementing this method is especially efficient in minimizing the probability of participant fatigue which can result in higher dropout rates and incomplete data (Arndt et al., 2021).

3.3. Research design

An experience sampling method is a research technique that involves gathering real-time longitudinal data through repeated assessments from participants (Goetz et al., 2024). In this method, repeated sampling of experiences, feelings, or behaviors occurs in a natural environment such as an L2 class. In the present study, this method was chosen because it allows for the real-time capture of subjective experiences and fluctuations in emotions and communication intentions, providing a more dynamic and detailed examination of the dynamicity of the constructs in the context of L2 learning (Derakhshan & Shakki, 2024). The study lasted for two weeks (four hours per week), and the participants were instructed to report their experiences at specific intervals.

3.4. Data analysis

We used DSEM to trace and compare within-person and between-person variations in actual and perceived FLTE, FLE, and L2 WTC over time. This statistical analysis was chosen for its adequacy in examining dynamic longitudinal associations between several psychological constructs (Asparouhov, Hamaker, & Muthén, 2018; Elahi Shirvan, Taherian, Pawlak, & Kruk, 2024; Goetz et al., 2024; Hamaker, Asparouhov, & Muthén, 2023). In DSEM, it is essential to separate data into within-person (Level 1) and between-person (Level 2) components, and this enables understanding both individual and collective variations over time.

At within-person level, longitudinal changes within an individual are explored, with a specific emphasis on autoregression and cross-lagged regressions. The autoregressive parameter, or carry-over effect, signifies the predictive connection between a psychological construct's previous level and its subsequent level (Hamaker, Asparouhov, Brose, Schmiedek, & Muthén, 2018). Cross-lagged parameters, indicating predictive associations among different constructs, could unveil causal pathways and are known as spill-overs, illustrating the ripple effects of actions or behaviors from one factor to another (Hamaker et al., 2018).

The analysis was executed on Mplus v8.6, and we employed Bayesian estimation with noninformative priors (Asparouhov et al., 2018). Each participant's data was individually assessed using the Monte Carlo option in Mplus, and the outcomes were then averaged across all four clusters (Hamaker et al., 2023). The convergence of the models was evaluated through three techniques (Schultzberg & Muthén, 2017). Initial observations indicated that potential scale reduction (PSR) values were proximal to 1. Additionally, examination of the posterior distributions of the four constructs at the between-person level revealed that their ranges were narrower than the original scale, with no notable anomalies detected. The posterior distributions of the four constructs at both Level 1 and Level 2 exhibited a close approximation to the normal distribution. During the analysis phase in Level 2, the data were also examined within the two proficiency groups of elementary (A2) to pre-intermediate (B1). This approach allowed us to identify and interpret any

variations in responses that could be attributed to proficiency differences.

4. Results

4.1. Level 1: Within-individual trajectories

To account for variation within individuals for the autoregressive and cross-regressive parameters, we allowed the regression parameters to be individual-specific. In Fig. 1, we present the mean point estimate alongside the CIs (credibility intervals) for these point estimates.

4.1.1. Changes in variables

The analysis of average means indicated a significant positive enhancement in teacher enjoyment ($M = 0.318$, 95% CI = [0.278, 0.327]), perceived teachers' enjoyment ($M = 0.417$, 95% CI = [0.402, 0.433]), students' FLE ($M = 0.314$, 95% CI = [0.280, 0.302]), and students' L2 WTC ($M = 0.314$, 95% CI = [0.192, 0.214]).

4.2. The carry-overs (autoregressive effects)

The average unstandardized autoregression of teacher enjoyment was statistically insignificant, with the 95% confidence interval encompassing zero. This result implies that the fluctuations in teacher enjoyment may not be reliably predicted based on their initial levels of enjoyment. The autoregressive correlation for perceived teacher enjoyment exhibited a negative and significantly non-zero value ($r_{PTE} = -0.33$, 95% CI = [-0.35, -0.31]), indicating that students who initially rated higher levels of perceived teacher enjoyment experienced less variations in their perceived teacher enjoyment assessments over time. Additionally, the negative significant autoregressions for students' FLE ($r_{FLE} = -0.42$, 95% CI = [-0.45, -0.39]), and L2 WTC ($r_{WTC} = -0.38$, 95% CI = [-0.41, -0.28]) suggest that the students who started off with lower levels of FLE and L2 WTC had more improvements in their FLE and L2 WTC over time. The results of the carry-overs are summarized in Fig. 1.

4.3. The spill-overs (cross-lagged effects)

The results of the carry-overs are summarized in Fig. 1.

First, considering the relationship between FLTE and perceived FLTE, the result indicated that the average unstandardized cross-lagged effect from teacher enjoyment to perceived teacher enjoyment, as well as from perceived teacher enjoyment to teacher enjoyment, was insignificant. This indicated that the prior levels of teacher enjoyment did not account for students' ratings of perceived teacher enjoyment and vice versa.

Second, regarding the association between FLTE and student FLE, the results indicated that the cross-lagged effect from teacher enjoyment to student FLE was positive and did not include zero ($\beta = 0.54$, 95% CI = [0.49, 0.59]). Additionally, the average cross-lagged effect from student FLE to teacher enjoyment was positive and significant ($\beta = 0.34$, 95% CI = [0.30, 0.38]). This finding supports the reciprocal relationship between teacher enjoyment and student FLE. In other words, the prior levels of teacher enjoyment could positively influence the subsequent enhancement of students' FLE, which in turn could boost the teacher's level of enjoyment.

Third, exploring the relationship between FLTE and students' L2 WTC, the results indicated that the average unstandardized cross-lagged effect from teacher enjoyment to L2 WTC included zero, which means that the link between teacher enjoyment and L2 WTC was

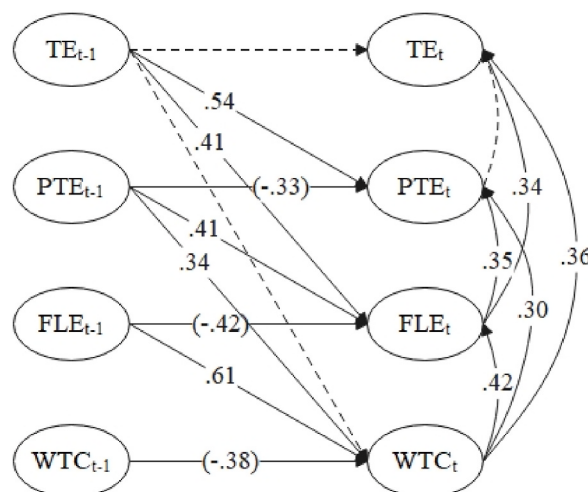


Fig. 1. The relationships between trajectories of TE, PTE, FLE, and L2WTC at within-individual level.

not significant. However, the average cross-lagged effect from L2 WTC to teacher enjoyment was positive and significant ($\beta = 0.36$, 95% CI = [0.30, 0.41]). These results suggest that prior levels of teacher enjoyment could not influence further levels of students' L2 WTC. However, the current levels of L2 WTC can have a positive influence on teacher enjoyment.

Fourth, analyzing the link between perceived teacher enjoyment and FLE, the results demonstrated that there was a significant average unstandardized cross-lagged effect from perceived teacher enjoyment to FLE ($\beta = 0.41$, 95% CI = [0.37, 0.48]). The average cross-lagged effect from FLE to perceived teacher enjoyment was also positive and significant ($\beta = 0.35$, 95% CI = [0.27, 0.38]). This finding provides evidence for the reciprocal relationship between perceived teacher enjoyment and FLE. That is, students who had rated their teacher's enjoyment higher at Time t-1 had experienced more enjoyment at Time t. Further improvement in FLE can positively influence the rate of perceived teacher enjoyment at that time point.

Fifth, looking at the link between students' perceived FLTE and their L2 WTC, the findings showed that the average unstandardized cross-lagged effect from perceived teacher enjoyment to L2 WTC was positive and significant (0.34, 95% CI = [0.30, 0.36]). Moreover, the average cross-lagged effect from L2 WTC to perceived teacher enjoyment was also positive and significant ($\beta = 0.30$, 95% CI = [0.27, 0.33]). This result suggests that there was a reciprocal relationship between changes in perceived teacher enjoyment and changes in L2 WTC.

Ultimately, we looked at the link between students' FLE and L2 WTC. The average unstandardized cross-lagged effect from FLE to L2 WTC was positive and significant ($\beta = 0.61$, 95% CI = [0.59, 0.64]), and the average cross-lagged effect from L2 WTC to FLE was also positive and significant ($\beta = 0.42$, 95% CI = [0.37, 0.47]). This indicates that the association between FLE and L2 WTC was also reciprocal, as the higher prior levels of FLE increased subsequent levels of L2 WTC, and this increase in L2 WTC could enhance the learners' FLE.

4.4. Level 2: Between-individual trajectories

The Level 1 analyses have provided insights into the dynamics within individual students, yet they still need to facilitate an examination of the connections between various random parameters, such as means and cross-lagged regressions, across students. A multi-level methodology was utilized to further enhance our comprehension of these associations. Fig. 2 displays the estimated correlations between random parameters and covariates of Level 2.

As shown in Fig. 2, out of 47 possible paths among parameters, 14 have CIs that did not contain zero. More specifically, students who had teachers with high perceived enjoyment on average tended to have high levels of mean FLE ($M_{TE} \rightarrow M_{FLE} = 0.46$, 95% CI = [0.39, 0.51]) and mean WTC ($M_{TE} \rightarrow M_{WTC} = 0.46$, 95% CI = [0.39, 0.51]) on average. They also tended to have a higher rate of growth in their FLE ($M_{TE} \rightarrow r_{FLE} = 0.46$, 95% CI = [0.39, 0.51]) and WTC ($M_{TE} \rightarrow r_{WTC} = 0.46$, 95% CI = [0.39, 0.51]).

Moreover, students who had teachers with more development in their enjoyment on average tended to have more development in their FLE ($r_{TE \rightarrow r_{FLE}} = 0.46$, 95% CI = [0.39, 0.51]). Additionally, students who rated higher levels of average perceived teacher

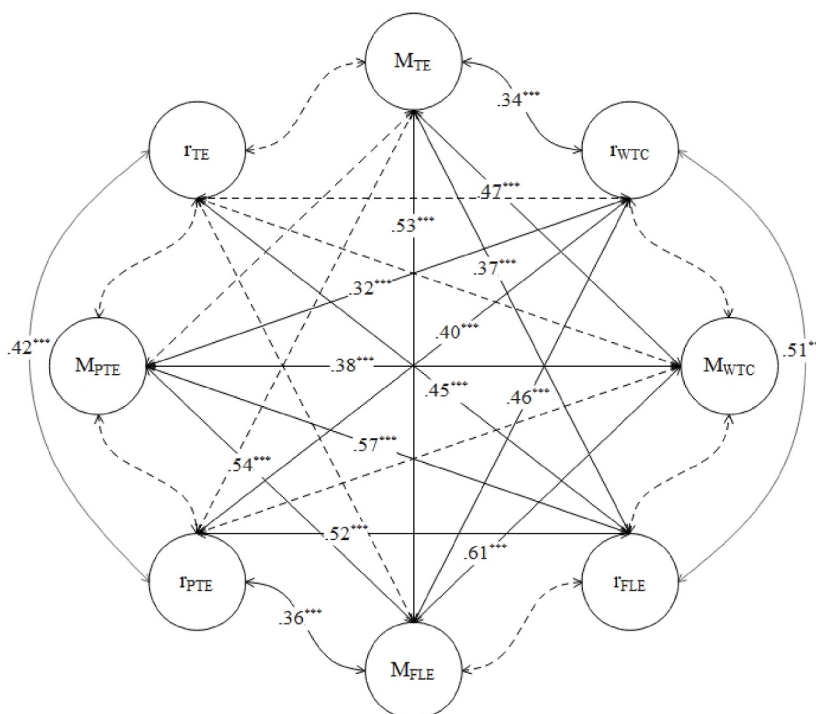


Fig. 2. The relationships between trajectories of TE, PTE, FLE, and L2WTC at between-individual level.

enjoyment had a high level of mean FLE ($M_{PTE \rightarrow M_{FLE}} = 0.46$, 95% CI = [0.39, 0.51]) and mean WTC ($M_{PTE \rightarrow M_{WTC}} = 0.46$, 95% CI = [0.39, 0.51]). They also tended to have more improvement in their FLE ($M_{PTE \rightarrow r_{FLE}} = 0.46$, 95% CI = [0.39, 0.51]) and WTC ($M_{PTE \rightarrow r_{WTC}} = 0.46$, 95% CI = [0.39, 0.51]). Students who had more development in perceived teacher enjoyment tended to have more development in their FLE ($r_{PTE \rightarrow r_{FLE}} = 0.46$, 95% CI = [0.39, 0.51]) and WTC ($r_{PTE \rightarrow r_{WTC}} = 0.46$, 95% CI = [0.39, 0.51]). Students who had high levels of FLE on average tended to have high levels of mean WTC ($M_{FLE \rightarrow M_{WTC}} = 0.46$, 95% CI = [0.39, 0.51]). They also tended to have more improvement in their WTC ($M_{FLE \rightarrow r_{WTC}} = 0.46$, 95% CI = [0.39, 0.51]). Finally, more FLE growth is associated with more WTC improvement ($r_{FLE \rightarrow r_{WTC}} = 0.46$, 95% CI = [0.39, 0.51]). It is noteworthy that we analyzed whether the changes in FLTE, FLE, and WTC differed significantly between elementary (A2) and pre-intermediate (B1) learners. The results indicated that changes in FLTE, FLE, and WTC did not significantly differ in these two groups.

5. Discussion

The purpose of the current research was to scrutinize the association between trajectories of the actual and perceived L2 teacher enjoyment, learner enjoyment, and communication willingness over time and to compare these changes within and between individuals. Results firstly indicated the reciprocal relationship between actual and perceived FLTE and FLE. Specifically, the initial levels of teacher enjoyment positively influenced the subsequent increase in learners' FLE, which in turn elevated the teacher's L2 teaching enjoyment. The students who initially rated their teacher's enjoyment higher experienced more enjoyment over time, and further enhancement in FLE positively impacted the level of perceived teacher enjoyment at that point in time. Furthermore, the association between L2 WTC and perceived teacher enjoyment was also positive and significant, suggesting that L2 learners who show higher levels of willingness to communicate tend to perceive their teachers' level of teaching enjoyment as higher. The findings can be firstly discussed through the lens of the emotional crossover theory (Härtel & Page, 2009), which highlights the transmission of emotions between individuals within a shared social environment. Specifically, FLTE can positively and reciprocally affect learners' FLE in the context of L2 class, and this close association can thereby create a positive emotional loop (see Frenzel, Becker-Kurz, Pekrun, Goetz, & Lüdtke, 2018). The findings are mirrored in Frenzel et al.'s (2018) study, where teacher and student enjoyment levels were positively correlated. The study also indicated that the sense of enjoyment was reciprocally transmitted between teachers and learners. Aligned with our findings, the studies by Frenzel et al. (2009) and Tam et al. (2020) showed that even learners' perception of their teacher's emotions, despite discrepancies, can significantly impact learners' emotional and motivational disposition. These studies underscore the contagious nature of emotions, including both actual and perceived enjoyment, between teachers and learners within the class context (Pawlak et al., 2024) and how they can significantly impact behavioral intentions including L2 WTC.

The findings can also be unveiled through the insights of the BB theory of positive emotions (see Fredrickson, 1998, 2001). As aforementioned, the theory suggests that positive emotions such as enjoyment broaden thought-action repertoires and scope of attention. Specifically, teacher enjoyment can foster an enjoyable L2 learning environment, which can ultimately enhance FLE. In such enjoyable classes, L2 learners are more likely to broaden their actions, such as their willingness to communicate, as confirmed by our study results. The close interplay between FLE and L2 WTC has been acknowledged in Dewaele (2019) and Lee's (2022) studies, where L2 enjoyment was predictive of L2 WTC. Results also indicated that when learners initially perceive their L2 teacher's enjoyment at a high level, this perception does not change from the beginning to the end of the class. However, although L2 learners' initial perception of their teachers' FLTE remained consistent over time, there were fluctuations in actual teacher enjoyment over time being influenced by FLE and L2 WTC. Aligned with the tenets of the BB theory of positive emotions, L2 learners' engagement and heightened levels of communication willingness can reinforce teacher enjoyment through observing their students' positivity and active involvement in L2 learning.

The results also indicated a reciprocal link between FLE and L2 WTC. Put simply, higher initial levels of FLE led to increased subsequent levels of L2 WTC, and this rise in L2 WTC could subsequently enhance FLE. Although the significant impact of FLE on L2 WTC has been established in L2 research, the finding that L2 WTC positively contributes to FLE is remarkably novel and, to our knowledge, has not been previously explored in L2 research. The major impact of L2 WTC on FLE can be examined through the insights of several theoretical underpinnings. Firstly, Deci and Ryan's (2000) self-determination theory posits competence as a basic psychological need for fostering intrinsic motivation. Consistent with the tenets of the theory, learners who demonstrate higher levels of communication competence are more likely to exhibit heightened WTC (Burroughs, Marie, & McCroskey, 2003). In situations where L2 learners positively evaluate their competence, their L2 WTC tends to increase, enhancing their overall motivation and favorably influencing FLE. Dewaele and MacIntyre (2014) similarly associate FLE with L2 learners' satisfaction of psychological needs. Additionally, a greater communication willingness can pave the way for more opportunities for intrinsic reinforcement as a type of internal reward, including satisfaction, pride, and a sense of achievement, thereby it is more likely to increase FLE in the class (see social learning theory; Bandura, 1971, 1988). Furthermore, in congruence with flow theory (Csikszentmihalyi, 2014), which is closely linked with FLE (Dewaele & MacIntyre, 2014), L2 WTC can positively contribute to the state of complete absorption and consequently FLE by facilitating active participation and engagement.

Moreover, the analysis revealed another intriguing and relatively novel finding: current levels of L2 learners' L2 WTC can positively influence teacher enjoyment. This indicates that the behavioral intention of L2 learners to communicate can lead teachers to perceive their efforts in the class as meaningful and may enhance teachers' sense of accomplishment and satisfaction with their teaching endeavors, ultimately fostering FLTE. This is echoed in Azari Noughabi et al.'s (2024) recent study, where student motivation played a major role in shaping FLTE of teachers from different cultural contexts. The finding highlights the major influence of students' engagement and communication willingness on EFL teachers' experiences of fulfillment and enjoyment in their profession. The analysis also demonstrated that L2 teachers with more development in FLTE had students with more development in their FLE and L2

WTC. The finding underlines the prominence of teacher well-being in fostering an enjoyable L2 learning environment and eventually improving consistent behavioral intention, including L2 WTC, among EFL learners. Previous studies have also indicated that in classes where a positive teacher-student relationship is prioritized, L2 learners' engagement and L2 WTC are more likely to develop (Shakki, 2022; Song, Luo, & Zhan, 2022). Indeed, a positive L2 teaching atmosphere can not only facilitate EFL teachers' psychological growth but also result in learners' mental well-being (Derakhshan et al., 2022; Yüce, 2023).

6. Implications and limitations

Several pedagogical implications can be drawn from the findings. Firstly, considering the reciprocal association between L2 teacher and learner enjoyment, it is essential to foster a positive intergroup climate in the class where both learners and teacher can benefit from positive interactions. This can be firstly achieved by providing regular feedback on experiences of enjoyment at specific intervals, such as at the end of the day. This would enable both L2 teachers and learners to reflect on positive moments, identify areas for improvement, and maintain a positive L2 learning environment. In classrooms where L2 learners feel that their voices are valued, they are more likely to become motivated and, thereby more actively participate in communicative activities (Solhi, 2023). Furthermore, given that the L2 teacher is a major contributor to FLE (Li et al., 2018) and, in turn, L2 learner plays a key role in FLTE (Proietti Ergün & Dewaele, 2021), creating a collaborative and supportive L2 learning environment can reciprocally cultivate pleasant experiences for both teachers and learners. To achieve this, enthusiastic EFL teachers' personal support, such as expressions of caring and empathy, coupled with academic support, such as providing feedback sessions, can enhance students' engagement and consequently enjoyment in L2 learning (Derakhshan, Solhi, & Azari Noughabi, 2023; Solhi, 2023). Since learners' L2 WTC is highly susceptible to how they feel (Lee, 2022; Solhi, 2024), addressing their emotional needs and fostering a sense of confidence through teachers' personal and academic support can significantly contribute to their willingness to engage in communication opportunities in the class. Additionally, the choice of EFL materials is closely intertwined with both L2 learners' and teachers' enjoyment (Tomlinson, 2023). Thus, selecting interesting, engaging, and relevant content can significantly enhance the overall learning and teaching experiences of both EFL learners and teachers, contributing to higher levels of motivation and enjoyment in the class. In other words, engaging and enjoyable materials can positively impact communication willingness and speaking motivation of L2 learners in the class (Tomlinson, 2023; Tomlinson & Masuhara, 2013). Lastly, building a positive teacher-student relationship through the 'magic of rapport' (Harmer, 2007) can not only boost teachers' enthusiasm and learners' engagement (Archambault, Vandenbossche-Makombo, & Fraser, 2017; Cui, 2022), but also plant the seeds for both stakeholders' reciprocal enjoyment experiences in L2 classes.

The findings need to be considered with several shortcomings. Firstly, a notable limitation is the relatively small sample of teachers ($N = 9$), which might undermine generalizability of the findings. Our study can be considered a preliminary examination of the associations between teacher and learner emotions in the context of L2 learning. Thus, future replications with a larger sample size are recommended to confirm and extend the findings. Secondly, we designed the questionnaires to minimize disruption to daily teaching. While students completed the measures after each class, teachers reported their FLTE levels daily. However, we were unable to record the exact times when teachers filled out the daily questionnaires, which could result in recall errors. In other words, there may have been a time lag between the classroom experiences and the teachers' self-reports of emotions, potentially affecting the validity of our measures. Third, we measured FLTE, FLE, L2 WTC solely at the end of each class, although they may vary throughout the class. Future research could utilize personal digital assistant devices to capture fluctuations in these emotions and communication willingness at different points during the class. Fourth, it is possible that students might infer their teachers' emotions based on their own emotional state when they report their perceived FLTE and their own FLE level. In other words, given both teacher and student enjoyment were measured simultaneously, students may have conflated their own emotions with those of their teachers. Consequently, when students experienced enjoyment, they might have also perceived their teachers as being joyful. Future research should also explore how students' developmental levels of emotional awareness might influence the relationship between perceived teacher and student emotions (Tam et al., 2020). Finally, exploring the impact of other contextual factors such as varying instructional approaches on the association between teacher and learner enjoyment would offer further insights into discerning the specific elements that enhance or hinder this emotional dynamic in different educational settings.

7. Conclusion

This research examined the association between the trajectories of teacher enjoyment, learner enjoyment, and willingness to communicate in L2 learning context. The findings indicated significant and reciprocal changes in enjoyment levels of both teachers and learners. Both teachers and learners' enjoyment levels were also significantly intertwined with communication willingness of EFL learners. It can be concluded that the growth in L2 teacher enjoyment not only contributes to student enjoyment and L2 WTC, but it is also reciprocally impacted by enjoyment levels of EFL learners and their communication willingness. Thus, fostering a positive and enjoyable L2 learning environment will create affective and behavioral loop experiences in L2 classes.

Funding

This research received no funding

Informed consent statement

All participants in this study provided informed consent.

CRedit authorship contribution statement

Mehdi Solhi: Writing – review & editing, Writing – original draft, Methodology, Investigation, Conceptualization. **Majid Elahi Shirvan:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation. **Belkıs Benlioglu:** Writing – review & editing, Writing – original draft, Investigation, Conceptualization.

Declaration of competing interest

No conflict of interest to be declared.

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