Sources and effects of Foreign Language Enjoyment, Anxiety and Boredom: A Structural Equation Modelling Approach

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Abstract

The present study is among the first to investigate how three foreign language (FL) emotions (enjoyment (FLE), anxiety (FLCA) and boredom (FLB)) are related to each other. It is the first study to consider how the three FL emotions are shaped by one learner-internal variable (attitude towards the FL), by two perceived teacher behaviours (frequency of use of the FL in class and unpredictability) and how all these variables affect FL achievement. Participants were 332 learners from all over the world studying a wide variety of FLs who filled out an online questionnaire. A close-fitting structural equation model revealed associations between FLE, FLCA, and FLB. Teacher behaviours positively affected FLE, with no discernible effect on FLB or FLCA. Only FLCA was found to have a (negative) effect on academic achievement. The study confirms the complex relationship between teacher behaviours and positive emotions in the FL classroom.

INTRODUCTION

There is a famous passage in J.K. Rowling's *Harry Potter and the Order of the Phoenix* (2003) where Harry and his friend Ron tell their friend Hermione (all in their puberty at this point in the saga) that they don't understand the behaviour of Cho, who ran away in tears after kissing Harry. Hermione lays down her quill and proceeds to explain the emotional confusion of Cho who is grieving for the death of her former boyfriend, feels guilty for falling love with Harry, fears social disapproval when becoming his girlfriend and is also afraid for being thrown off the Ravenclaw Quidditch team because of weak performance. The boys are gobsmacked:

“A slightly stunned silence greeted the end of this speech, then Ron said, “One person can't feel all that at once, they'd explode.” “Just because you've got the emotional range of a teaspoon doesn't mean we all have,” said Hermione nastily, picking up her quill again.” (p. 406).

There is a parallel to be made with the recent explosion of interest in the emotions of foreign language (FL) learners. For many decades, research focused on a single negative emotion (anxiety) and only recently did the range expand when Dewaele and MacIntyre (2014) juxtaposed FL anxiety with one positive emotion (FL enjoyment) with the aim of understanding to what extent they were related to each other, and whether they were linked to similar learner-internal and learner-external variables. The initial study and follow-up research of these two emotions provided plenty of evidence of complex dynamic interactions with a wide range of psychological, attitudinal, motivational, sociobiographical and linguistic variables shaped by the classroom context, the school and even the larger societal context (for overviews, see Dewaele, Chen, Padilla & Lake, 2019; Wang, Derakhshan & Zhang, 2021). One crucial insight was just how messy and changeable the relationship between enjoyment and anxiety can be. The absence

of one does not automatically imply the presence of the other and vice versa. Researchers soon pointed out that learners may experience other emotions simultaneously. Moreover, some emotions might be defined as negative in terms of valence but they could also be described in terms of activation/arousal. One such emotion is FL boredom (Li, Dewaele & Hu, 2020; Pawlak, Zawodniak & Kruk, 2020). Given the prevalence of boredom in FL classes and its negative effects on FL performance and progress, researchers have started exploring how it relates to enjoyment and anxiety, and to both learner-internal and learner-external variables (Li & Han, 2022). This research is led by the belief that a better understanding of the complex emotions of FL learners can lead to improved pedagogical practices which in turn will boost performance and progress of FL learners. The current study follows this avenue of research and expands the emotional range through structural equation modelling, which allows researchers to explore relationships between different variables in one single structure.

LITERATURE REVIEW

The field of emotions in FL learning and teaching has been strongly influenced by an influential paradigm shift in the last decade, namely complex dynamic systems theory (Larsen-Freeman & Cameron, 2008; MacIntyre, Dörnyei & Henry, 2015). The default assumption of researchers working in this paradigm is that emotions that seem stable on a relatively long timescale (months, years) may in fact be fluctuating more strongly on shorter timescales (seconds, minutes, days, weeks) and that not all learners follow the average patterns for the group (Elahi Shirvan, Taherian & Yazdanmehr, 2020, 2021; Li, 2021). A second assumption is that dependent and independent variables are constantly interacting, shaped by the context and by variables lurking in the background. In other words, learner-internal variables interact with contextual variables

resulting in unique patterns that change over time. A simple illustration of this phenomenon is the classroom observation of Denisa, a Romanian EFL participant in Dewaele and Pavelescu (2021), who reported low FLCA, high FLE and who usually participated actively in class, except on the day the regular teacher was absent and a cover teacher took over. She reported later disliking the teacher, not enjoying the class and preferring to remain silent throughout the class. What this suggests is that while how learners feel about their FL classes is partly determined by relatively longer-term dispositions linked to attitudes, motivation and recent classroom experiences, it is also very much determined by local, transient, unpredictable factors that can lead to spikes or drops in enjoyment, anxiety and boredom.

Finally, it must be emphasized that positive and negative emotions are not opposites but are best conceptualized as independent, interacting experiences with specific functions and physiological consequences running in different directions (Dewaele & MacIntyre, 2014).

FOREIGN LANGUAGE ENJOYMENT

The concept of Foreign Language Enjoyment (FLE) as presented in Dewaele and MacIntyre (2014) draws on Positive Psychology, and more specifically on Csíkszentmihályi's (1990) concept of Flow. Dewaele and MacIntyre (2016) defined FLE 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, pleasure is considered simply an agreeable feeling. On the one hand, enjoyments occur when people not only meet their needs, but exceed them to accomplish something new or even unexpected; on the other hand, pleasure is a simpler feeling that something likable is happening” (pp. 216-217). In other words, enjoyment goes deeper than mere pleasure and it is less ephemeral. This definition situates FLE on a valence dimension,

ranging from mid-way (low to mild enjoyment) to the top, positive end of the scale where FLE becomes an experience of flow. It is worth pointing out that the authors did not add any information about the separate dimension of arousal/activation. They assumed that FLE could emerge in low-arousal activities such as silent reading or writing, as well as in high-arousal situations such as debates in the classroom or public speech.

The finding of significant positive relationships between FLE and various measures of FL performance had authors compare FLE with the fuel needed to power FL acquisition and production (Dewaele & Dewaele, 2017). Several studies reported significant positive relationships between FLE and both actual and perceived FL proficiency measures (Botes et al., 2020; Dewaele et al., 2018; Dewaele & Proietti Ergün, 2020; Li, 2020; Piechurska-Kuciel, 2017; Wei et al., 2019). Zhang, Dai and Wang (2020) found that Chinese EFL students' motivation and self-evaluated language proficiency was mediated by their FLE. A meta-analysis of studies that linked FLE and academic achievement in the FL found a moderate positive correlation between both variables (Botes et al., 2021).

A number of studies identified multiple sources for FLE. Research on sources of FLE revealed that a range of learner-internal variables were linked with FLE (age, gender, multilingualism, level in the FL, relative standing in class, attitude toward the FL, attitude towards the FL teacher (for an extensive overview, see Dewaele, 2022). A study by Dewaele and Proietti Ergün (2020) on the relationships between FLE, FLCA and Attitudes/Motivation among Turkish learners of English and Italian revealed a very strong relationship between FLE and Attitudes/Motivation in both FLs and a weaker negative relationship between FLCA and Attitudes/Motivation in both FLs. Moreover, FL academic achievement was not significantly linked with FLE, although it was significantly positively linked with Attitudes/Motivation and negatively with FLCA.

Similar connections between emotions and Attitudes/Motivation emerged in a longitudinal study with four data collection points of Kuwaiti university FL learners (Dewaele, Saito & Halimi, 2021a). The authors focused on the change of classroom emotions and Attitudes/Motivation as well as the changing relationships between FLE (including its three sub-dimensions: FLE Personal, FLE Social and FLE Teacher), FLCA and Attitudes/Motivation (including its four sub-dimensions: Integrativeness, Attitudes toward the Learning Situation, Motivation and Instrumental orientation). FLE (and the dimensions FLE Personal and FLE Social) and FLCA remained stable over the course of the semester but FLE Teacher decreased significantly. Students' Attitudes/Motivation also decreased significantly. Mixed effects modeling analyses revealed a continuing strong positive relationship between FLE and the Attitudes/Motivation dimensions. FLE Personal and FLE Social were found to have a significant positive effect on the four Attitudes/Motivation across the semester. In contrast, FLE Teacher was only positively linked to Attitudes toward the Learning Situation. Significant interaction effects for FLE Teacher and Time for the four Attitudes/Motivation dimensions were interpreted as an indication that high FLE acts as a buoy for decreasing levels of Attitudes/Motivation, possibly caused by disenchantment with the course or the effort required.

FLE has also been linked to personality traits such as Cultural Empathy, Trait Emotional Intelligence and grit (Dewaele & MacIntyre, 2019; Li, Huang & Li, 2021; Wei, Gao & Wang, 2019). The finding that learner-external variables are strong predictors of FLE has important pedagogical implications. FLE is shaped by the peer group (solidarity and support), general classroom environment and teaching content (e.g., novelty and difficulty of tasks) as well as teacher characteristics and behaviours. The first study to focus on the effect of teacher characteristics on FLE was Dewaele, Witney, Saito and Dewaele (2018). The authors found that

the pupils from two secondary schools in London with the highest level of FLE reported more positive attitudes toward the FL and the FL teacher. More specifically, pupils liked teachers who used the FL frequently in class, who were unpredictable in class and who gave students the opportunity to speak up in class. A follow-up study by Dewaele and Dewaele (2020) on a subsample of pupils in the same database who had two different teachers for the same FL revealed that FLE was significantly higher with the main teacher than with the second teacher and that scores for attitude toward the teacher, teacher's frequency of use of the FL in class, and unpredictability were significantly higher for the former. The pattern was confirmed in Dewaele, Franco Magdalena et al. (2019) who found that teachers' characteristics predicted twice the amount of variance in FLE than in FLCA among Spanish EFL learners. Teacher's friendliness and skill (i.e. a not too strong foreign accent) emerged as the strongest predictors of FLE. A broadly similar pattern emerged among Chinese undergraduate EFL learners in Jiang and Dewaele (2019). Attitudes towards the teacher, teacher's joking and friendliness – but not teachers' un/predictability were strong predictors of FLE. This was backed up by students' narratives who mentioned the teacher more frequently when discussing FLE compared to FLCA, confirming previous research on an international sample of FL learners (Dewaele & MacIntyre, 2019). Jiang (2020) pursued this path using the focused essay technique with Chinese EFL students. She found that FLE was positively related with teacher friendliness, patience, kindness, happiness and regular use of humor. Similarly, Elahi Shirvan et al. (2020), who used Ecological momentary assessment (EMA), combining idiodynamic and enjoymeter data with journal and interview data, found that the teacher was the typical cause of spikes in FLE among individual learners by giving positive feedback, using humour and creating a pleasant and supportive classroom atmosphere. Dewaele, Saito and Halimi (2021b), in a follow-up study based on the

same database of Kuwaiti FL learners, investigated the changing effect of teachers' frequency of using the FL in class, predictability and frequency of joking on the FLE. All three perceived teachers' behaviours were linked with FLE. The authors speculate that the unexpected finding of students reporting higher FLE with more predictable teachers may be linked to the specific cultural-religious profile of the learners. Multiple comparison analyses revealed that students whose teacher joked infrequently reported the sharpest drop in FLE over the semester. It seems that the absence of teacher jokes had a delayed cumulative effect on FLE.

FOREIGN LANGUAGE CLASSROOM ANXIETY

The second emotion to be included in Dewaele and MacIntyre's (2014) design was Foreign Language Classroom Anxiety (FLCA) such as it had been conceptualized by Horwitz, Horwitz and Cope (1986). According to them, FLCA is "a distinct complex of self-perceptions, beliefs, feelings and behaviors related to classroom learning arising from the uniqueness of the language learning process" (Horwitz et al., 1986, p. 128). In his overview of the history of anxiety research, MacIntyre (2017) pointed out that FLCA is both an internal state and a social construct. In other words, it is combines learner-internal and learner-external elements resulting in complex "internal psychological processes, cognition and emotional states along with the demands of the situation and the presence of other people" (p. 28). Horwitz (2017) argued that FLCA has characteristics of both traits and states: FLCA does not exist at birth but it can slowly emerge and strengthen among learners who tend to be anxious in the FL class, it can coalesce into state-like FLCA that rears its head every time the FL has to be used. Reflecting on the causes, Horwitz (2017) pointed to the fact that FL learners can experience a profound feeling of discomfort because they lack the proficiency to present themselves authentically, something they typically have no problem of doing in their first language. Indeed, "presenting yourself to the world

through an imperfectly controlled new language is inherently anxiety-provoking for some people” (p. 44). High levels of FLCA can be manifested by physical symptoms (sweating, quicker heart rate, dry mouth) that can leave learners paralysed and silent, disrupt concentration which limits absorption of new information (MacIntyre & Gregersen, 2012). It can also have longer-term effects such as undermining engagement and motivation. It is therefore not surprising that FLCA has been found to negatively affect learners’ performance and can be “highly detrimental to the learning process” (MacIntyre, 2017, p. 150). Meta-analytic studies have revealed comparable negative correlations between FLCA and a range of measures of academic FL performance (Botes, Greiff & Dewaele, 2020). While sources of FLCA and FLE can overlap to some extent, there are also unique sources of FLCA. Dewaele and MacIntyre (2014) found that FL learners who were older, male, multilingual, advanced, feeling above average in their FL class, and at university rather than in secondary education, reported lower levels of FLCA. Actual and perceived FL proficiency levels also predict FLCA (Botes, Dewaele & Greiff, 2020; Jiang & Dewaele, 2019; Jin, de Bot, & Keijzer, 2015; Jee, 2018; Liu, 2018). In addition, FLCA is linked to broad personality traits such as Neuroticism (Dewaele & MacIntyre, 2019), as well as lower-order personality dimensions such as lower Trait Emotional Intelligence (Li, Huang & Li, 2021; Resnik & Dewaele, 2020, 2021); self-esteem (Jin et al., 2015); grit (Li & Dewaele, 2021) and higher perfectionism (Gregersen & Horwitz, 2002). FLCA has also been linked to a range of learner-external variables such as the emotional atmosphere in the FL classroom (Effiong, 2016); the strictness, the younger age and the lower use of the FL by the teacher (Dewaele, Franco Magdalena et al., 2019); the target language and its perception in the school community (De Smet et al., 2018) and the modality of teaching (online or ‘in-person’) (Li & Dewaele, 2021; Resnik & Dewaele, 2021). Dewaele, Saito and Halimi (2021a) found that

compared to FLE, FCLA was a significant but weaker negative predictor of Integrativeness, Motivation, and Attitudes toward the Learning Situation. FLCA had no significant effect on Instrumental orientation.

FOREIGN LANGUAGE BOREDOM

The third classroom emotion to have attracted increasing attention recently is FL Boredom (FLB). It is an unpleasant psychological and emotional state that combines feelings of “dissatisfaction, disappointment, annoyance, inattention, lack of motivation to pursue previously set goals and impaired vitality” (Kruk & Zawodniak, 2018, p. 177). Li et al. (2020) defined FLB as “a negative emotion with extremely low degree of activation/arousal that arises from ongoing activities (...) (that) are typically over-challenging or under-challenging” (p. 12). The definition is based on Control–Value Theory of achievement emotions in educational psychology (Pekrun, 2006; Putwain et al., 2018). Achievement emotions include a wide range of positive and negative emotions including enjoyment, anxiety and boredom which emerge when learners are engaged in achievement activities such as specific tasks in class or in achievement outcomes, such as success or failure (Pekrun, 2006). The authors organise the emotions along three dimensions: valence, activation, and objective focus (Pekrun, 2006). Valence refers to un/pleasantness of the emotion. Activation reflects to what extent an emotion is physically de/activating. Focus distinguishes between “objective focus”, namely an emotion that arises from an ongoing activity and “outcome-related focus”, namely an emotion linked to future or past outcomes of these activities. In this framework enjoyment is a positive activating activity-related achievement emotion, anxiety is a negative activating outcome-related achievement emotion and boredom a negative deactivating activity-related achievement emotion (Pekrun & Perry, 2014). Li (2021) identified the antecedents of FLB in Chinese EFL students. Statistical analyses showed that

different control–value appraisals predicted FLB uniquely or interactively and that different types of appraisals occurred simultaneously and interacted in predicting FLB. Intrinsic value appraisal turned out to be a much stronger predictor of FLB than control and extrinsic value appraisals. Learners who felt competent (high control) and valued their English classes (reflecting higher engagement) tended to feel less bored. This finding was confirmed by interviews with students. Analysis of the qualitative data revealed a curvilinear relationship between control appraisal and FLB: “extremely high and low control were both antecedents of boredom. In other words, students got bored when they felt overwhelmingly challenged or underchallenged in English learning” (p. 329). Analysis of the qualitative data also showed that intrinsic value protected learners in boredom-inducing situations. Li (2021) concludes that to avoid FLB in their classrooms, teachers should be careful in designing tasks at the appropriate level of difficulty to boost learners’ sense of confidence, competence and control, while emphasising the intrinsic value of the activity. Creating a positive emotional classroom atmosphere is also a prerequisite for more FLE, less FLCA and an alleviation of FLB. The importance of the teacher was further highlighted in Dewaele and Li (2021) where mediation analysis showed that teacher enthusiasm strongly affected the learning engagement of Chinese EFL learners. It had both a direct and an indirect effect through both FLE and FLB, which were linked to teacher enthusiasm, positively for FLE, and negatively for FLB. Moreover, FLE and FLB were found to mediate the effect of participants’ perceived teacher enthusiasm on their own engagement (positive for FLE and negative for FLB).

Li and Han (2022) is the first study (published in Chinese) to include FLE, FLCA and FLB in a single research design to measure their effect on Chinese college freshmen’s EFL test scores and perceived achievement in an online teaching environment. The authors found significant

negative correlations between students' FLE and FLCA, between FLE and FLB, and a significant positive correlation between FLA and FLB. FLE was found to have independent positive predictive effects on actual English test scores and perceived online learning achievement, while FLB and FLCA had negative ones. However, a regression analyses revealed that FLCA was the only significant predictor for test scores, whereas FLE and FLB predicted perceived achievement.

The current study pursues this avenue of research, including FLE, FLCA, FLB and FL achievement measures in the research design but also adding a number of independent variables that have previously been identified in the literature as having an effect on FLE and/or FLCA (but not yet on FLB), namely teacher's frequency of use of the FL, teacher's unpredictability, and learner's attitude toward the FL. The current study is thus going to investigate the following research questions:

RQ1: What are the relations between FLE, FLCA, and FLB?

RQ2: How does teacher FL use affect FLE, FLCA, and FLB?

RQ3: How does teacher unpredictability affect FLE, FLCA and FLB?

RQ4: What is the relationship between FLE, FLCA, FLB and attitude of the FL learner towards the FL?

RQ5: To what extent are FLE, FLCA and FLB linked to achievement of the FL learner?

RQ6: To what extent is the attitude towards the FL linked to achievement of the FL learner?

Considering the literature review, we hypothesise that FLE, FLCA and FLB may be independent dimensions but that they are linked with each other to various degrees (cf. Li & Han, 2022). We

also hypothesise that teacher behaviour and teacher characteristics are strongly linked to FLE and FLB, and that they have a weaker link with FLCA. These three learners' emotions are hypothesised, in turn, to be linked to attitudes and all these variables are expected to predict achievement in the FL.

METHOD

PARTICIPANTS

Data were collected through snowball sampling, which is a form of nonprobability sampling (Ness Evans & Rooney, 2013). An open-access anonymous online questionnaire was used. Calls for participation were sent through emails to colleagues, students and friends all over the world, asking them to forward the link to their own colleagues and students. The call for participation was also put on social media platforms used by FL teachers. The questionnaire was anonymous. The research design and questionnaire obtained approval from the ethics committee in the first author's research institution. Participant's consent was obtained at the start of the survey that was posted online using Googledocs.

A total of 332 FL learners filled out the questionnaire completely. The average age of the sample was 25.46 ($SD = 12.08$), with the majority learning an FL in a university course ($n = 235$), followed by a secondary school class ($n = 97$). The sample contained 252 female participants and 73 male participants. The gender imbalance in the data was not unexpected as it has often been observed in previous FL learning research (see Dewaele & MacIntyre, 2014). The sample was highly diverse in terms of nationality, multilingualism, and target FL. The majority of participants were British nationals ($n = 95$), followed by Chinese ($n = 47$), and Italians ($n = 27$). The average number of languages in each participant's linguistic repertoire was 3.14 ($SD =$

1.25). English was the most reported target FL ($n = 116$), followed by French ($n = 85$), and Spanish ($n = 44$).

INSTRUMENTS

The following instruments were used to measure variables in this exploratory study:

Short-form Foreign Language Classroom Anxiety Scale ($\omega = .884$; $\alpha = .893$). An eight-item measure designed by MacIntyre (1992) that examines FL anxiety in the FL classroom with items such as “I get nervous and confused when I am speaking in my language class”. The measure is unidimensional with all items loading on a single FLCA latent variable. Items were measured on a five-point Likert scale from “strongly disagree” to “strongly agree”.

Short-Form Foreign Language Enjoyment Scale ($\omega = .895$; $\alpha = .875$). The nine-item scale was designed by Botes et al. (2021) and is a shortened version of the original 21-item scale (Dewaele & MacIntyre, 2014). The underlying factor structure of the scale contains one higher-order FLE factor and three lower-order factors, namely Personal Enjoyment (3 item, e.g. “I enjoy my FL class”), Social Enjoyment (3 items, e.g. “There is a good atmosphere in my FL classroom”), and Teacher Appreciation (3 items, e.g. “My FL teacher is encouraging”). Items were measured on a five-point Likert scale from “strongly disagree” to “strongly agree”.

Foreign Language Classroom Boredom Scale ($\omega = .944$; $\alpha = .943$). An eight-item scale aimed at examining FL boredom within a FL classroom setting, with items such as “My mind begins to wander in FL class” and “It is difficult for me to concentrate in the FL class” (Li et al., 2020). It should be noted that the eight-item measure is originally a subscale of the greater 32-item Foreign Language Boredom Scale (Li et al., 2020). However, as the emotion variables in this exploratory study are contextualised as specific to FL learning class, the decision was made to

only utilise the FL classroom boredom subscale and not the scale in its entirety. Items were measured on a five-point Likert scale from “strongly disagree” to “strongly agree”.

FL Attitude. Attitude towards the target FL was measured by a single item asking the participants: “What is your attitude towards your FL?”. Responses were measured on a five-point Likert scale ranging from “very unfavourable” to “very favourable”.

FL Academic Achievement. Achievement was measured through a single item asking FL learners to provide the last mark received for a test/exam in their FL class in percentage.

Teacher FL Use. The frequency of FL use by the teacher in the FL classroom was measured through a single item asking participants: “How often does your teacher use the FL in class?”. The item was measured on a five-point Likert scale ranging from “hardly ever” to “all the time”.

FL Teacher Predictability. The predictability of the FL teacher was measured through the single question of “How predictable are your FL teacher’s classes?”. Responses were measured on a five-point Likert scale ranging from “very unpredictable” to “very predictable”.

DATA ANALYSIS

Descriptive statistics and correlations between all variables were calculated in SPSS 25.0. An exploratory SEM was tested in JASP (version 0.11.1; JASP Team, 2019), utilising Lavaan (Rosseel, 2012). The exploratory SEM was developed based on the prevailing literature and hypotheses (see Figure 1).

It should be noted that as four variables were measured by only a single item (FL attitude, FL achievement, teacher FL use, teacher predictability), these variables had to be specified as latent in the model by constraining factor loadings and error variances (Fuchs & Diamantopoulos,

2009). The use of single indicator variables has often been avoided in past SEM research, as “the use of single-item measures in academic research is often considered a fatal error in the review process” (Wanous et al., 1997p. 247). However, single-item measures can be a valid, psychometrically sound alternative to multi-item measures (Fuchs & Diamantopoulos, 2009; Petrescu, 2013). In addition, several benefits can be provided by single-item measures such as flexibility, brevity, providing a global score, and the possibility of measuring a greater number of variables without overburdening the participant (Fuchs & Diamantopoulos, 2009). As the current study examines seven distinct variables, three of which were measured through multi-item psychometrically validated measures (FLE, FLCA, and FLB), the decision was made to measure the remaining four items through single-item measures. We are fully cognizant of the possible drawbacks of single-item measures, however the decision allowed for a greater number of variables to be included in the exploratory study and as such widen the nomological network under investigation.

Figure 1

Proposed Structural Equation Model.

The model was tested utilising maximum likelihood estimation with robust error. Model fit was primarily analysed through the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the Standardised Root Mean Square Residual (SRMR). Cut-off recommendations set by Kenny (2020) were used to determine fit, with the RMSEA and SRMR indicating close fit if less than the rule-of-thumb value of .08. In turn, CFI and TLI indicate close fit when greater than .90. In addition, the chi-square (χ^2) and chi-square/degrees of freedom ratio (χ^2/df) were also considered in the estimation

of fit. A non-significant chi-square and a chi-square/degrees of freedom ratio of < 2.0 were used to indicate close fit (Byrne, 1998).

RESULTS

DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENTS

Descriptive statistics for all variables included in the model can be found in Table 1. In addition, a Pearson correlation coefficient matrix of all variables is displayed in Table 2.

Table 1

Descriptive Statistics

	<i>M</i>	<i>SD</i>	Min	Max
FLE	3.85	.64	1.33	5
FLCA	3.08	.91	1	5
FLB	2.18	.91	1	5
Attitude	4.29	.86	1	5
Achievement	78.29	12.22	10	100
Teacher FL use	4.33	.74	2	5
Teacher predictability	2.65	.78	1	5

Table 2.*Correlation Coefficient Matrix*

	1.	2.	3.	4.	5.	6.	7
1. FLE	-	-.342***	-.633***	.286***	.118**	.176***	.110**
2. FLCA		-	.386***	-.138**	-.186***	-.057	.051
3. FLB			-	-.332***	-.170***	-.077	-.190***
4. Attitude				-	.190***	.217***	.000
5. Achievement					-	.135**	-.027
6. Teacher FL use						-	-.034
7. Teacher predictability							-

*** $p < .001$ ** $p < .01$

STRUCTURAL EQUATION MODELLING

The model achieved close fit as indicated by the RMSEA (.068) and SRMR (.057), which were both below the cut-off of .08 (Kenny, 2020). In addition, the CFI (.933) and TLI (.921) were both above the minimum limit of .90 (Kenny, 2020), further indicating close fit. In contrast, the chi-square was significant ($\chi^2 (217) = 549.99; p < .001$), with a χ^2/df ratio (2.52) of >2.0 , implying poor fit (Byrne, 1998). However, the chi-square has been found to be particularly sensitive to sample size and large correlations between factors, which may result in Type 1 errors (Kenny, 2020). As such, the bulk of fit indices indicated close fit and the model is therefore accepted as an adequate representation of the data.

As Figure 2 demonstrates, a number of hypothesised paths in the model were statistically insignificant (see Table 3 for overview of hypotheses). This is not an unexpected result given the

exploratory nature of this study. However, support was found for the first hypothesis of the study as there were statistically significant symmetrical effects between all emotion variables. FLE was found to be negatively correlated with both FLCA ($r = -.303$; $p < .001$) and FLB ($r = -.500$; $p < .001$). In addition, FLCA and FLB shared a statistically significant positive correlation ($r = .451$; $p < .001$). The emotion variables of FLE, FLCA and FLB are therefore interdependent in the FL classroom.

Figure 2

Structural Equation Modelling Result.

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 3*Hypotheses Overview*

	<i>B</i>	<i>p</i> -value
Teacher FL use → FLE	.133	< .01
Teacher FL use → FLCA	-.074	.143
Teacher FL use → FLB	-.092	.085
Teacher unpredictability → FLE	.119	< .05
Teacher unpredictability → FLCA	.060	.346
Teacher unpredictability → FLB	-.199	< .01
FLE ↔ FLCA	-.303	< .001
FLE ↔ FLB	-.500	< .001
FLE → FL attitude	.134	< .01
FLE → FL achievement	.038	.470
FLCA ↔ FLB	.451	< .001
FLCA → FL attitude	-.007	.912
FLCA → FL achievement	-.145	< .01
FLB → FL attitude	.268	< .001
FLB → FL achievement	-.046	.530
FL attitude → FL achievement	.141	< .01

The second hypothesis was partially substantiated in the structural equation model. Teacher FL use had a significant positive effect on FLE ($\beta = .133$; $p < .01$). However, no statistically significant effect was found between teacher FL use and the two negative emotion variables of

FLCA and FLB ($p > .05$). The use of the target FL in the FL classroom therefore only seems to impact the positive emotion of enjoyment and has no effect on either anxiety or boredom in the FL learning context.

The third hypothesis of teacher un/predictability influencing the three emotion variables were also partially substantiated. Teacher unpredictability had a significant positive effect on FLE ($\beta = .119$; $p < .05$) and a significant negative effect on FLB ($\beta = -.199$; $p < .01$). No statistically significant effect was found between teacher unpredictability and FLCA ($p > .05$). As such, the results of both the first and second hypotheses seem to indicate that teacher-related variables may be more related to positive emotion (e.g. FLE) than to negative emotion (e.g. FLCA).

Similarly, partial evidence was found to support the fourth hypothesis. The two variables of FLE and FLB both predicted the attitude of the FL learners, with no statistically significant relationship found between FLCA and FL attitude. FLE positively influenced the FL learner's attitude towards their target FL ($\beta = .134$; $p < .01$), whilst FLB negatively influenced FL learner's target FL attitude ($\beta = -.268$; $p < .01$).

In contrast to the findings of the fourth hypothesis, the only statistically significant path found between the emotion variables and academic achievement was in the impact of FLCA on academic achievement ($\beta = -.145$; $p < .01$). Neither FLE nor FLB had a statistically significant effect academic achievement in the FL. The fifth hypothesis was therefore only partially supported. Lastly, the results indicated support for the sixth hypothesis in that FL attitude was found to positively influence academic achievement ($\beta = .141$; $p < .01$).

Overall, the proposed model was found to closely fit the data and support was found for the majority of hypothesised relationships. The model indicated a complex nomological network,

with the three emotions of FLE, FLCA, and FLB, each having unique associations with the teacher-related variables and the outcome variables of FL attitude and academic achievement.

DISCUSSION

The aim of the present paper was to throw a wide net in order to link three FL learner emotions with a number of learner-internal and learner-external variables in order to explore how they are connected to each other. In doing so, we wanted to present a wide panoramic view of the range of FL learner emotions, their sources and their effects. SEM allowed us to uncover the multiple relations between the variables in our dataset. Our first hypothesis was confirmed as FL learners who enjoyed themselves were less anxious and less bored than those who reported lower levels of FLE. Also, more anxious FL learners suffered more from boredom, which could be linked to a lack of control and lower engagement causing these negative emotions (Li, 2021). This finding confirms and extends the findings about the moderate negative relationship between FLE and FLCA first reported in Dewaele and MacIntyre (2014) and confirmed in ulterior studies on different FL populations (Jiang & Dewaele, 2019). It could be interpreted in two ways: one could either argue that high FLE helps learners neutralise the negative effects of FLCA, or, alternatively, that high FLCA chips away at the FLE, possibly because of the distracting and tiring effects of anxiety. The negative relationship between FLE and FLB makes perfect sense: a bored student is by definition not much engaged in the classroom activities and cursing how slowly the clock ticks (Li, 2021; Li & Dewaele, 2021; Li et al. 2021). The relationships between the three emotions reflects those uncovered in Li and Han (2022) for Chinese EFL learners.

The second research question focused on the role of teacher's frequency of use of the FL in shaping learners' emotions. We hypothesised that frequent FL use would boost FLE and reduce

FLCA and FLB. While the first part of that hypothesis was confirmed, namely frequent use of the FL by the teacher had a significant positive effect on FLE, confirming previous research (Dewaele & Dewaele, 2017; Dewaele et al., 2018, Dewaele et al. 2019; Jiang & Dewaele, 2019), the second and third part of the hypothesis were rejected as no statistically significant link was found between frequency of teacher FL use and FLCA and FLB. In other words, learners' anxiety and boredom cannot be neutralised by increased use of the FL by the teacher.

The third research question focused on the effect of teacher unpredictability on FLE, FLCA and FLB. It turned out to affect two out of the three learner emotions, which partly confirmed our hypothesis. FL learners reported significantly higher levels of enjoyment and lower levels of boredom with teachers who did not stick to the same routines in their class and varied in the way they taught the class. This finding confirms earlier studies on Western learners (Dewaele & Dewaele, 2017; Dewaele et al., 2018, Dewaele et al. 2019), partly contradicts the study on Chinese learners where little effect was found (Jiang & Dewaele, 2019; Li, et al., 2018), and completely contradicts the finding of the study on Arabic learners where the opposite pattern emerged, namely more predictability of the teacher being linked to higher enjoyment (Dewaele et al., 2021b). Teacher unpredictability had no effect on FLCA which confirms previous research (Dewaele & MacIntyre, 2019; Dewaele et al., 2018; Dewaele et al., 2021b).

The relationship between FLE, FLCA, FLB and attitude of the learner towards the FL was as the heart of the fourth research question. The hypothesis that classroom emotions would predict attitudes towards the FL was partly confirmed. Students who enjoyed themselves and were not bored in the FL class had a much positive attitude towards the FL. FLCA had no effect. This again confirms previous research on FLE and FLCA (Dewaele & Dewaele, 2017; Dewaele et al. 2019, Li & Dewaele, 2021) but it contradicts the finding that attitude towards the FL was

negatively linked to FLCA in Dewaele et al. (2018) and Jiang and Dewaele (2019). As Botes et al. (2020) pointed out, we cannot exclude the possibility that the causal relationship between emotions and attitudes could also go the other way: learners with a more positive attitude toward the FL are more likely to feel happy and excited in the FL class which may, in turn, strengthen their positive attitude towards the language and the culture.

The fifth research question delved into the relationship between FLE, FLCA and FLB and achievement. Partial support emerged for the fifth hypothesis as it turned out that only FLCA had a (negative) effect on academic achievement. This effect is well documented (Botes et al., 2020; Dewaele & Proietti Ergün, 2020; Li et al., 2019; Li & Han, 2022) however most studies also reported a (typically slightly weaker) positive effect of FLE on achievement (Botes et al., 2020, 2021; Dewaele et al., 2018; Dewaele & Proietti Ergün, 2020; Li, 2020; Piechurska-Kuciel, 2017; Wei et al., 2019). The finding in Li and Han (2022) that FLE and FLB predicted perceived achievement rather than actual achievement suggests a certain mismatch between the vision that learners have of their own performance and their actual performance.

The sixth and final research question focused on the relationship between attitude towards the FL and achievement. The hypothesis of a positive link between both was confirmed as a more positive FL attitude was found to be linked to better FL academic achievement, which confirms previous research (Dewaele & Proietti Ergün, 2020), where the effect was found to be stronger for the weaker FL (Italian) than for the stronger FL (English).

The present study is not without limitations. Firstly, the sample included a wide variety of participants from across the world. Context-specific effects could therefore not be demonstrated, such as the impact of culture, age, and target FL. Secondly, several variables were measured utilising a single item. Although the use of single item variables in SEM is an accepted practice

(Fuchs & Diamantopoulos, 2009), a model with multiple indicators does provide greater psychometric confidence. We do believe that the inclusion of all variables did provide a more panoramic view of complex interactions between multiple variables that have not all been brought together in previous research designs. Lastly, we acknowledge that other independent variables that were not included in the current study for reasons of economy may also contribute to the relationships we observed. It is very likely that frequency of teacher joking, teacher enthusiasm and classroom environment also contributed to learners' emotions and engagement, and subsequent achievement (cf. Dewaele & Li, 2021, Dewaele et al. 2021a). One way to find out what these variables are would be through an alternative emic, qualitative approach. Semi-structured interviews with FL learners could throw light on what goes on in their head when their teacher is unpredictable again in class, or asks them something in the FL that they do not quite understand, what they feel about the FL and the culture, or how they manage to impose order in their mind and focus when doing FL tests or exams. Moreover, it is very likely that the shape and texture of FLE, FLCA and FLB was affected by co-occurring feelings and emotions such as hope, optimism, shame, and guilt (Dewaele & Pavelescu, 2021).

It is not self-evident to draw specific pedagogical implications from exploratory work. The network of relationships identified in the present study cannot be translated into specific actions teachers can take to boost students' FL achievement. Only intervention studies can test the effect of specific teaching strategies. Yet, a number of rather broad recommendations can be drawn from the findings. A degree of unpredictability in the FL class, combined with abundant use of the FL seem to boost FLE and lower FLB without actually affecting FLCA. Awakening students' interest in the FL and culture and thus shaping their attitude toward the FL can have both direct and indirect beneficial effects on their achievement. Attempts to alleviate FLCA in

testing and examinations may have a positive effect on results. In short, creating a rich, exciting, positive emotional classroom atmosphere will shape FL learner emotions in ways that will allow them to grow and thrive (Dewaele & MacIntyre, 2016; Elahi Shirvan et al., 2021; Li, 2021).

CONCLUSION

We started the introduction with a reference to JK Rowling's fictional character Ron Weasley who could not quite believe that a person could experience many different emotions simultaneously without their head exploding. We linked this to the field of FL learner emotions where the emotional range was larger than a teaspoon because researchers had been investigating FLCA for several decades, but where the emotional range increased only recently with the appearance of FLE. By including a third emotion in the current research design, as well as a number of learner-internal and learner-external variables, the present study stretches the range by exploring relationships between three FL learner emotions, their sources and their effects. The findings suggest that FLE, FLCA and FLB are interconnected and are differentially shaped by a learner-internal variable (attitude towards the FL) and by teacher behaviours such as frequency of use of the FL in class and unpredictability, which in turn determines learners' achievement.

To conclude, researchers, like the characters in the Harry Potter books, need to stretch the epistemological and methodological boundaries in order gain knowledge and wisdom. It does not require magic, although FL learners in a state of flow may think their teacher possesses magical powers.

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