"You can't start a fire without a spark". Enjoyment, Anxiety, and the Emergence of Flow in Foreign Language Classrooms[1]

Abstract: The present study adopted a mixed-methods approach using a convergent parallel design to focus on the role that positive and negative emotions have in the Foreign Language (FL) classroom on the ontogenesis of positive flow. Participants were 1044 FL learners from around the world. They provided quantitative and qualitative data on FL enjoyment (FLE), classroom anxiety (FLCA) and experience of flow via an on-line questionnaire (Dewaele and MacIntyre 2014). FLE was a significantly stronger predictor of frequency of flow experience than FLCA. Further statistical analyses revealed that flow experiences are typically self-centred, infrequent and short-lived at the start of the FL learning journey and when the perceived social standing in the group is low. They become an increasingly shared experience, more frequent, stronger and more sustained as learners reach a more advanced level in their FL. What starts as an occasional individual spark can turn into a true fire that extends to other group members. The findings are illustrated by participants' reports on enjoyable episodes in the FL classroom in which some reported complete involvement in an individual or collective task, merging of action and awareness, joyful bonding with classmates, intense focus and joy, loss of self-consciousness, sense of time and place.
Keywords: Classroom emotions; Foreign Language Enjoyment; Foreign Language Classroom Anxiety; Flow.

1 INTRODUCTION

The aim of Foreign Language (FL) teaching is not limited to transmission of knowledge and skills to be measured by tests, but also includes character-building and wellbeing so learners can flourish and engage in meaningful social relationships (Seligman 2002). Research in this area falls under the umbrella of positive language education (Mercer et al. 2018). The diversity of events over the long process of language learning leads to a wide variety of emotional experiences, including some emotionally intense and memorable experiences. Although the role of emotions has been underestimated among learner factors, research interest has accelerated significantly in recent years (Arnold 2011; Dewaele 2005, 2011; Prior 2019), partly owing to the emergence of interest in positive psychology in SLA (Dewaele, Chen et al. 2019; Dewaele and Li 2020; MacIntyre et al. 2016, 2019; MacIntyre and Mercer 2014). Csíkszentmihályi's (1990) concept of "flow" is a particularly intense, powerful conceptualization of an optimal,

[1] Pre-print of Dewaele, J.-M., & MacIntyre, P. D. (2022) "You can't start a fire without a spark". Enjoyment and the Emergence of Flow in Foreign Language Classrooms. *Applied Linguistics Review* https://doi.org/10.1515/applirev-2021-0123

positive emotional experience featuring the interaction of skill with challenge (Csíkszentmihályi 1990, 2009). The purpose of the present study is to contribute to the as-yet limited literature on flow in SLA by examining empirically the antecedent conditions and correlates of positive flow in a large, internet-based, international sample of language learners. We will thus focus on the ontogenesis of flow in the FL learning journey of these participants by considering the experience of beginners to more advanced learners, trying to understand the role of FL classroom anxiety (FLCA) and FL enjoyment (FLE) on the presence of flow.

2 LITERATURE REVIEW

2.1 The concept of flow

Looking back, Csíkszentmihályi's (1990) bestselling book, *Flow: The psychology of optimal experience* outlined a theoretical construct that may be especially relevant to success in second language learning. At the core of the flow experience is a balance between the demands of a situation or a task with the learners' skills; optimal experiences arise when a demanding situation is met with appropriate skill. Flow is an inherently dynamic concept; as skills grow so do the challenges that can be faced, creating an interactive, upward spiral (virtuous cycle). Flow generates a consciousness that is "harmoniously ordered" where thoughts, actions, and emotions become well-coordinated (Csíkszentmihályi 1990: 6).

> Concentration is so intense that there is no attention left over to think about anything irrelevant, or to worry about problems. Self-consciousness disappears, and the sense of time becomes distorted. An activity that produces such experiences is so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult, or dangerous. (Csíkszentmihályi 1990: 71).

The flow state is intrinsically rewarding (Schüler 2012). Flow not only integrates challenge with skill, but there is also an active role for the regulation of emotions. A mismatch of challenge and skill (one or the other too high or too low) can produce apathy, boredom, worry, and anxiety, among other potential reactions (Csíkszentmihályi et al. 1997). The flow channel lies in the "sweet spot" between anxiety and boredom, where increasing skills meet with increasing challenges and vice versa, with positive and negative emotional arousal being well regulated and coordinated (Nakamura and Csíkszentmihályi 2009). Whereas experiencing positive and negative emotions together can produce an uncomfortable, conflicted state of ambivalence, a feeling of being pulled in opposite directions (MacIntyre 2007), flow is defined by a harmonious balance between the positive and negative emotions, both of which in effect recede into the background of consciousness.

2.2 Positive and negative emotions in foreign language learning

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 and MacIntyre 2014). According to Frederickson (2001, 2013; Tugade and Fredrickson 2007), the activation of positive emotion has three key consequences, (1) they reverse or "undo" the deleterious effects of negative emotions, (2) expand a person's thought-action repertoire, and (3) they build resources that can be used in the future. Complex interactions among positive and negative emotions are strongly implicated in language learning and communication, where emerging skills are constantly being challenged.

Piniel and Albert (2019: 579) recently pointed out that "(d)espite its popularity in numerous different fields, the concept of flow appears to be under-researched with regard to work on language learners' motivation". The same could be said for Second Language Acquisition (SLA) research as a whole. The earliest study published in a major SLA journal was by Egbert (2003) who examined flow during seven specific language-learning tasks in a high school Spanish class with 13 students. The study, preliminary in nature, used a convergence of surveys, interviews, and observations to identify specific features of task design in the language laboratory that facilitated flow. Consistent with Csíkszentmihályi's et al.'s (1997) research, Egbert's learners described similarities among flow experiences with different tasks. Although the results were encouraging, Egbert's call for research into flow among language learners has been slow to build a literature.

The available studies in SLA feature a diversity of learners, research methods, and correlates of flow. Results generally support the expected relationships and expand on the factors relevant to creating flow states among language learners. Aubrey (2017a) showed that Japanese learners of English found inter-cultural learning produced greater flow than intra-cultural conditions. Follow-up analysis of student diaries found that "challenge–skill balance" was the most important contributor to flow experiences, followed by "sense of accomplishment" after successful communication, "enjoyment", "interest", "attention" and "control" (Aubrey 2017b). Additional studies show that language task design can have a significant impact on flow (Amini et al. 2016; Kirchhoff 2013). Flow appears to arise in tasks characterised by increased learner agency, when learners could explore, discover and perform tasks in pairs (Rubio 2011). Czimmermann and Piniel (2016) expanded on task flow by defining and measuring flow at two levels: task and classroom. Although learners frequently experienced flow with specific tasks, and they saw the classroom generally as producing flow states, the two levels of flow showed only a modest positive correlation, suggesting that the source of flow might differ for different learners. Flow has been measured at different stages in an online learning activity:

antecedents, experience and consequences (Liu and Song 2021). The authors found moderately-high flow experience among their Chinese junior high school students. Using the same database as in the current study, Dewaele and MacIntyre (2022) compared the proportion of time in a state of flow among EFL learners and FL learners of Languages Other Than English (LOTE). EFL learners reported spending a significantly lower proportion of class time in a state of flow than the LOTE group, which the authors attributed to learners' stronger emotional involvement in LOTE classes, where learners often knew English already.

One reason for differences among individual learners is the social context in which they are learning; there is a role for teachers and peers. FLCA has long been conceptualized to have a social dimension of fear of negative evaluation, concern for self-presentation in a group, and consequences for inter-group relations (Horwitz 2017; MacIntyre 2017). Horwitz (2017) sees FLCA as a specific anxiety "linked to language learning and/or use" (p. 33) and caused by learners' "distress at their inability to be themselves and to connect authentically with other people through the limitation of the new language" (p. 41). FLE was defined 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" (Dewaele and MacIntyre 2016: 216-217). There is a growing literature suggesting that teachers have relatively little influence over learners' FLCA but that they are more influential in creating propitious conditions for FLE (Dewaele and Dewaele 2020; Dewaele et al. 2018; Dewaele, Franco Magdalena et al. 2019) which would be key to creating flow states. Teacher's friendliness seems to be the strongest predictor of FLE (Dewaele, Franco Magdalena et al. 2019; Dewaele and MacIntyre 2019). Teacher enthusiasm and behaviour have also been linked to increased FLE, lower levels of boredom, higher levels of engagement and motivation (Dewaele and Li, 2021; Dewaele et al. 2022). Interpersonal relationships combined with personal success are considered underlying causes of joy, a type of "social glue that bonds relationships" (Reeve 2015: 412). The role of teachers and peers in facilitating enjoyable experiences as a precursor to flow states has not been studied in SLA. However, the available data on the social dimensions of language task design and the interpersonal-social-contextual processes that set conditions for flow point to a concern for the ***sources*** of enjoyment leading to flow.

Flow experiences in language also have been correlated with the intensity of motivation and emotion. Future time preference and self-determination were found to be significant predictors of flow among Malaysian students (Elias et al. 2010). Piniel and Albert (2017) found a moderate positive relationship between learners' motivation and their flow experiences in the classroom, suggesting that an increase in learners' motivation is associated with stronger flow experience. Czimmermann and Piniel's (2016) found that task-specific flow was significantly, negatively correlated with the

levels of boredom (r = -.59), apathy (r = -.53) and anxiety (r = -.36) (p. 204). This leads us to suggest that individual differences in the ***intensity*** of emotions, particularly enjoyment, may be related to flow.

Recently, Ibrahim and Al-Hoorie (2019) introduced the term "sustained flow" referring to "the occurrence of flow in a series of tasks aimed at achieving a certain outcome (for example improving proficiency in a second language)" (Ibrahim and Al-Hoorie 2019: 51). Ibrahim (2020) analysed the sustained flow experiences of nine learners and found that these were sustained by positive emotionality, both in single learning episodes (positive emotions) and over more extended periods (positive mood). This line of research points to a need to consider the ***duration*** of episodes of enjoyment as they relate to flow, a topic which has not been given much attention in the SLA literature thus far.

Finally, Nozawa et al. (2021) focused on collective motivational dynamics and more specifically on the relationship between students' inter-brain synchronization and the interpersonal similarity of flow state dynamics during a collaborative learning process. Participants were Japanese English Foreign Language (EFL) students in two classes working in groups of four facing each other. Wireless functional near-infrared spectroscopy was used to record the medial prefrontal neural activities of two groups from both classes. Participants later watched the video recording of their performance and rated their flow state for 30 2-minute periods. These ratings allowed the researchers to calculate temporal correlations between flow ratings which yielded a measure of flow experience dynamics. Greater similarity in flow dynamics was found in the student pairs within the same group compared to cross-group pairs, suggesting that higher inter-brain synchronization reflects a more convergent flow experience.

In summary, flow is a potentially powerful concept in SLA because it integrates emotion states with clear ties to emerging skills and challenges aroused in virtually any language context, including language classrooms. There remains much left to learn about how flow can be created more often in language classrooms. In particular, there is a need to understand how to increase the frequency, intensity and duration of enjoyment. The present study adopted a two-pronged approach. A set of items eliciting a quantitative value were used as an index of the flow experience, as is done in the experience sampling method. In addition, we asked respondents for a description of a specific, enjoyable experience and asked that they provide as much detail as possible, in an effort to hear the voices of learners on the source, intensity, and duration of those experiences.

3 RESEARCH QUESTIONS

1) How frequently does flow arise, and is it related to FLE and FLCA?
2) How do FLE and FLCA relate to the sources, intensity, and duration of flow?
3) How do learners describe their enjoyable episodes?

4 METHOD

4.1 Participants

The sample used in the present study is extracted from the original database with 1742 FL learners from around the world used in Dewaele and MacIntyre (2014) which was obtained through snowball sampling. A total of 1044 multilinguals (745 females, 294 males[1]) who had indicated their level in the FL (ranging from beginner to advanced) were selected. They were all learning a FL the time of the survey. Those who were learning several FLs simultaneously were asked to focus on just one FL. The majority of female participants is typical in web-based questionnaires that deal with language and emotion (Dewaele 2018). Participants ranged in age from 11 to 75 (*Mean* = 24 years, *SD* = 8.0) and came from all levels of education, with 34 having an intermediate high school diploma, 54 a high school diploma, 583 a Bachelor's degree, 326 a Master's degree and 43 a PhD[2]. The largest nationality group were Belgians (*n* = 194), followed by Chinese (n = 156), British (*n* = 107), Americans (*n* = 64), Poles (*n* = 59), with the remaining 464 participants representing another 33 nationalities. Many participants reported having dual nationalities. French was the most frequent L1 (*n* = 208), followed by English (*n* = 206) and Chinese (*n* = 156), with the remaining participants speaking 30 other L1s. The sample consists of 307 bilinguals, 317 trilinguals, 244 quadrilinguals, 121 pentalinguals, and 55 participants with six or more languages.

Considering indices of relative language performance in the FL class, 112 rated themselves as below average, 385 as average, 531 as above average[3]. Asked to indicate where they were on their FL learning journey, 315 participants labelled themselves as beginner to intermediate, 435 as high intermediate and 294 as advanced learners. English was the most frequently studied FL (*n* = 522), followed by French (*n* = 121) and Spanish (*n* = 112).

4.2 The instrument

The questionnaire started with a socio-biographical section that produced the descriptive information reported above. Next respondents were asked to think about their favourite foreign language class and respond to items reflecting anxiety and enjoyment. After questions about anxiety and enjoyment in language classrooms that primed memory for

emotional experiences related to flow, participants were asked to fill out a brief measure based on Larson and Csíkszentmihályi's (2014) Experience Sampling Method that tapped into essential characteristics of flow. The original measure had four negatively worded and five positively worded items but a reliability analysis indicated low inter-correlations among the negatively worded items. In addition, one of the positively worded items, "I lose myself," might have been ambiguous to respondents; it showed a weak item-total correlation (r = .13) and also was dropped. Therefore, we retained four positively worded questions to tap into characteristics defining flow, one more item than a measure used by Nakamura and Csíkszentmihályi (2009).

The question was formulated as follows: What percentage of FL class time does this apply to you (ranging from 0%-never to 100%-always)? During my FL class…

1) I lose sense of time …%
2) I'm totally absorbed…%
3) I feel fulfilled…%
4) I'm happy…%

The numerical values thus indicate the percentage of time in FL class that they experienced a transformation of perception of time, that they felt fully engaged, felt completely fulfilled and happy. The average value of the four items was calculated. Taken together, the flow measure produced a satisfactory level of internal consistency (Cronbach alpha = .82).

The calculation of Q-Q plots suggests that values for proportion of class time in a state of flow follow a normal distribution reasonably well, except for the extreme tails (see Figure 1).

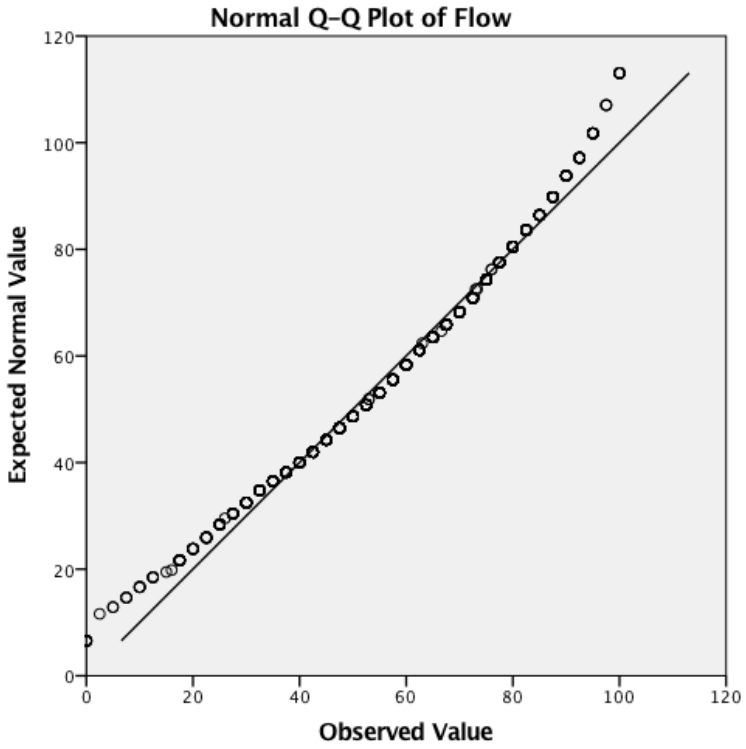

Figure 1: Normal Q-Q plot of proportion of time in a state of flow

Participants filled out the original 21-item original version of the Foreign Language Enjoyment (FLE) questionnaire (Dewaele and MacIntyre 2014). Referring to the FL course they were enrolled in, participants were asked to what extent they agreed with the statements. Items on 5-point Likert scales reflect both the private and social dimensions of FLE. For example, item 6: *I learnt to express myself better in the FL*; item 19: *We form a tight group).* Internal reliability was good (Cronbach α = .87, *Mean* = 3.83, *SD* = .47).

Participants also completed eight items extracted from Horwitz et al.'s (1986) FLCAS which reflected physical symptoms of anxiety, nervousness, and lack of confidence and which were used in Dewaele and MacIntyre (2014). Two FLCA items were phrased to indicate low anxiety (reverse scored), for example: Item 4: *I don't worry about making mistakes in FL class*; and six items were phrased to indicate higher anxiety: Item 7: *I start to panic when I have to speak without preparation in FL class*. Internal reliability was good (Cronbach α = .86, *Mean* = 2.70, *SD* = 0.83).

The questionnaire contained a final open question stating the following: "Describe one specific event or episode in your FL class that you really enjoyed, and describe your feeling in as much detail as possible". Five hundred eighty-one participants answered the open question, producing 31,430 words which means that participants produced on average 54 words in their response. Enjoyable experiences were coded for three dimensions: source, duration and intensity.

4.3 Data coding

Firstly, the experience was coded according to its source: the self, the self and a peer, the self and the teacher, or the self, teacher and peers (see Table 1 for examples).

Secondly, duration of the experience was coded: short (less than a minute), medium (between 1 and 10 minutes); and long (between 10 minutes and a complete session). In cases where no indication of duration was provided, or a habitual event was mentioned (“It's nice when the teacher uses anecdotes or jokes to explain some grammar exercises”), no code was attributed (see Table 1 for examples).

Thirdly, the intensity of the positive experience was coded as low, moderate, or high. The intensity was rated as “high” if there was mention of at least one characteristic of flow, namely full immersion and involvement in a task, intense focus loss of sense of space and time, an experience of lift-off or of spontaneous and shared joy with peers in the FL class. We thus assumed that the high positive intensity corresponded to a state of flow. Examples are presented in Table 1.

Table 1: Coding on the three dimensions: examples

Dimension	Code	Examples
Source	Self	When I nailed the pronunciation on a sentence I read out loud in my seminar group.
	Self + peers	I really enjoy the group work that we do in class!
	Self + teacher	I was so happy when my teacher said that it was a good job
	Self + teacher + peers	All the students come to the front of the classroom, facing the screen and follow the video all together. It is fun to do that, all of us are mobilized.
Duration	Short	When I can make a sentence without any mistakes, I feel proud of myself
	Medium	When the second group showed their presentation lively and responsibly, I was absorbed totally.
	Long	It was like I could talk hours about France (…) I did not see the time passing and it was a very interesting discussion we had in class
Intensity	High (Flow)	I can't really remember the topic of the discussion, but it was **really challenging**. It was very **fascinating**, not only because it was a **heated** discussion, but also we were very **involved** in it and very **productive**; I **forgot about the time**.
	Moderate	I really liked introducing ourselves in French including our hobbies. I felt confident and happy doing this.
	Low	It's nice when the teacher uses anecdotes or jokes to explain some grammar exercises

The inter-rater reliability (IRR) was calculated for the three dimensions. The coding was done by the first author and a PhD student. Cohen's Kappa value for the codes on the source was 0.78, for duration is was 0.73 and for intensity it was 0.79, revealing an acceptable level of agreement between the two coders (Landis and Koch 1977).

As fewer participants reported information about duration, the total number of participants is lower than for the other two dimensions (see Table 2).

Table 2: Distribution of participants on the dimensions of source, duration and intensity

Dimension					
Source	Self	Self + Peers	Self + Teacher	Self + Peers + Teacher	TOTAL
N					556
%	19.8	4.3	6.6	69.2	100
Duration	Short	Medium	Long		
N	69	165	272		506
%	13.6	32.6	53.8		100
Intensity	Low	Moderate	High		
N	73	279	204		556
%	13.1	50.2	36.6		100

4.4 Procedure

The research design and questionnaire obtained approval from the Ethics Committee at the first author's research institution. After piloting an early version of the questionnaire, a final version of was put on-line on Googledocs and an open call was addressed to FL learners around the world, asking them to forward the call to friends, teachers or students. This snowball sampling is a form of nonprobability sampling (Ness Evans and Rooney 2013).

4.5 Data Analysis

Our approach to data analysis can be described as the data-validation variant of a convergent parallel design (Creswell and Plano Clark 2011). Collecting quantitative and qualitative data simultaneously is very efficient. The former allows statistical analyses of the complete sample, the latter allows statistical analysis of the qualitative material provided by participants. The MANOVA procedure will be used to test the effect of intensity (groupings: low, medium, high) and duration (groupings: short, medium, long) of flow experiences on FLE, FLCA, and proportion of time in flow. MANOVA is appropriate when dependent variables are moderately correlated (but not extremely highly correlated) and allows for control of Type I error prior to reporting univariate analysis (Haase and Ellis, 1987). The qualitative data that follows the MANOVAs allows us to hear the voices of the learners themselves describing unique and complex situations. We chose extracts that were striking and reflected a range of unique experiences. Results provided by the two types of data are mixed and combined in the discussion section.

5. RESULTS

5.1 Frequency of flow

An analysis of the quantitative flow measure reveals that participants reported, on average, being in a state of flow for more than half the time in their FL classes (*Mean* = 59.3% of the time, *SD* = 19.5, range 0-100%, skewness = -.48, kurtosis = -.002) (See Figure 2).

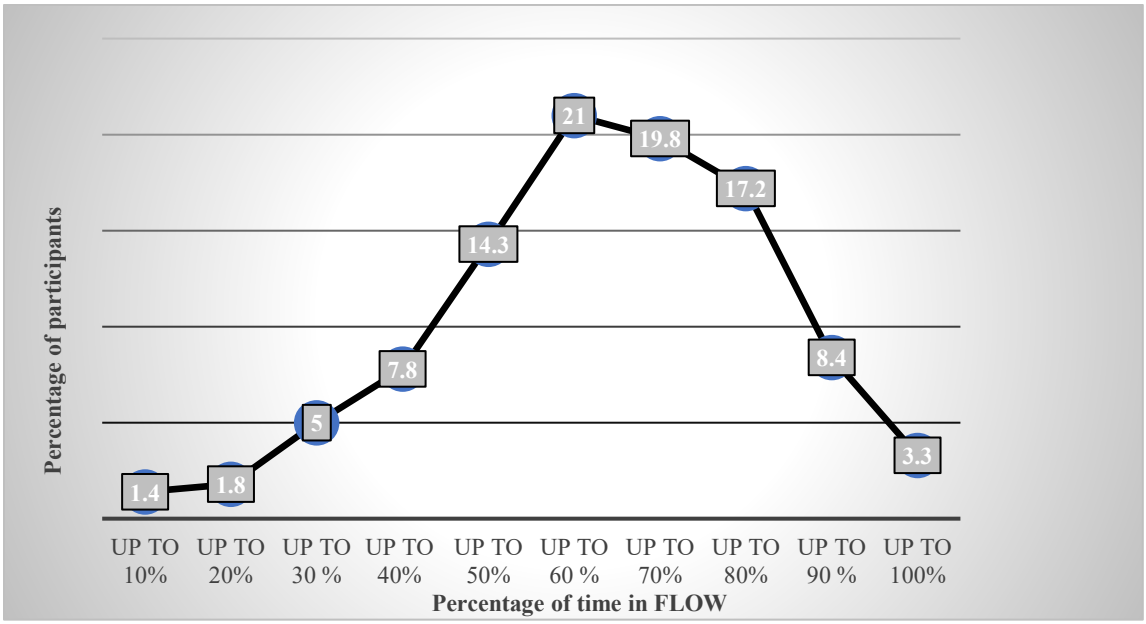

Figure 2: Distribution of participants according to self-reported proportion of time in a state of flow

The second part of RQ1 focussed on the link between FLE, FLCA and proportion of time in a state of flow. A Pearson correlation analysis revealed a significant positive relationship between FLE and proportion of time in a state of flow ($r[1044] = .619$, $p < .0001$) and a significant negative relationship between FLCA and proportion of time in a state of flow ($r[1044] = -.269$, $p < .0001$). Using a correlation between FLE and FLCA (r = -.39), a z-test reveals that flow is correlated significantly more strongly with FLE than with FLCA ($z = 8.5$, $p < .001$)[4].

5.2 Sources of enjoyable episode

A one-way MANOVA with the source of the enjoyable episode as independent variable (self, self-peer, self-teacher, self-teacher-peer) and FLE, FLCA, and proportion of time in flow as dependent variables revealed a significant main effect at the multivariate level (Pillai's Trace = .052, $F[12, 3117] = 4.54$, $p < .001$, $partial\text{-}eta^2 = .017$). Post-hoc tests of means (Tukey's HSD) showed a significant difference for FLE and for proportion of time in a state of flow between those who reported the self and those who reported the self-teacher-peer as source ($p < .0001$ and $p < .022$ respectively) (see Figure 3). No significant differences emerged for FLCA. The effect sizes are in the medium to small

range (Cohen 1988). The relationship between source and proportion of time in a state of flow is visualised in Figure 6.

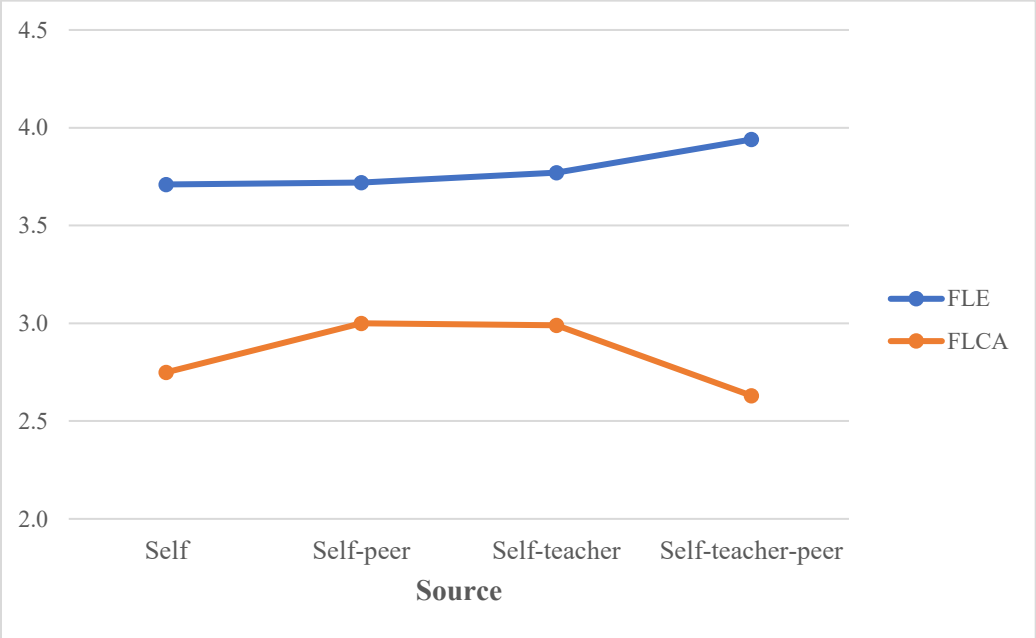

Figure 3. Relationship between source of enjoyable episode and mean levels of FLE and FLCA

5.3 Intensity of enjoyable episode

A one-way MANOVA was performed with positive intensity of the enjoyable episode as independent variable (low, medium, high) and proportion of time in flow, FLCA, and level of FLE as dependent variables. There was a significant effect of intensity at the multivariate level (Pillai's Trace = .101, $F[6, 1104] = 9.82$, $p < .001$, $partial\text{-}eta^2 = .051$). At the univariate level, all three dependent variables showed a significant effect of intensity ($p < .001$). Post-hoc tests of means (Tukey's HSD) showed that the low intensity group had significantly higher FLCA, lower FLE and proportion of time in flow than the other two groups which did not differ between themselves (see Figures 4 and 6). They showed that the difference between the low intensity group and the two other groups was significant ($p < .001$). No significant differences existed between the medium and high intensity groups. The result thus suggests that those who reported an enjoyable episode that was low in positive intensity also reported a less frequent experience of flow in the FL class. The effect sizes are in the medium range (Cohen 1988). The relationship between intensity of the enjoyable episode and proportion of time in a state of flow is visualised in Figure 6.

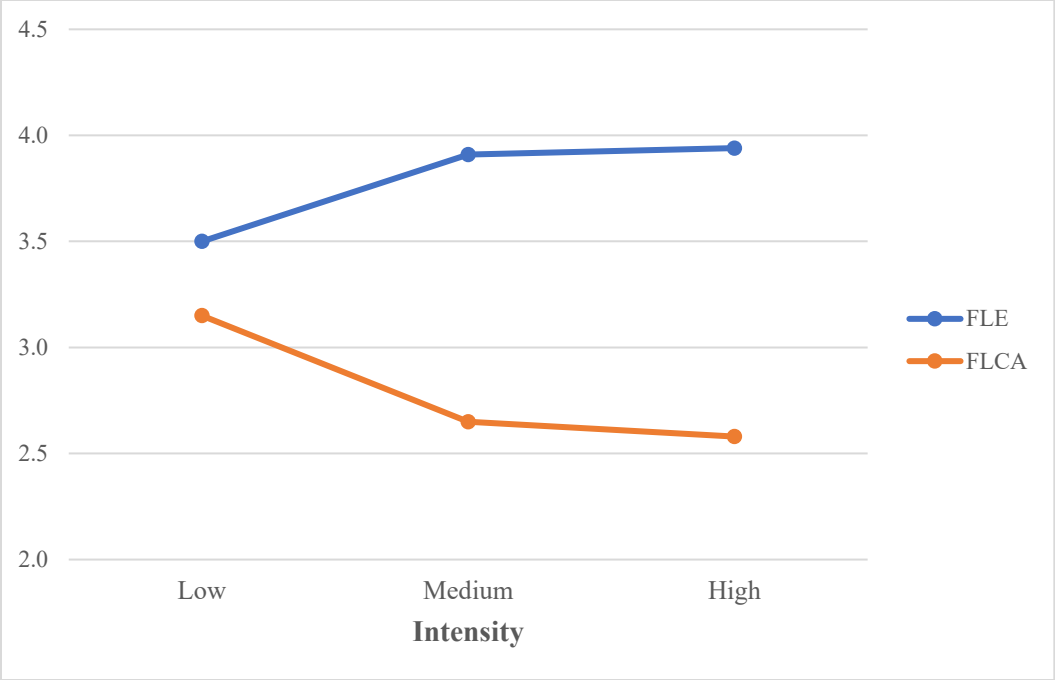

Figure 4. Relationship between intensity of enjoyable episode and mean levels of FLE and FLCA

5.4 Duration of enjoyable episode

A one-way MANOVA was performed with duration of the enjoyable episode as independent variable (short, medium, long) and proportion of time in flow, FLCA, and level of FLE as dependent variables. There was a significant effect of duration at the multivariate level (Pillai's Trace = .025, $F[9, 3120] = 2.88$, $p < .002$, $partial\text{-}eta^2 = .008$). At the univariate level, all three dependent variables showed a significant effect of duration ($p < .05$). Post-hoc tests of means (Tukey's HSD) showed that the low intensity group had significantly higher FLCA, lower FLE and proportion of time in flow than the other two groups, which did not differ between themselves (see Figure 5). The tests also showed that only the difference between the low intensity group and the high intensity group was significant ($p < .05$). However, the medium duration group did not differ significantly from either the low or high duration groups. The effect sizes are in the medium range (Cohen 1988). The relationship between duration of the enjoyable episode and proportion of time in a state of flow is visualised in Figure 6.

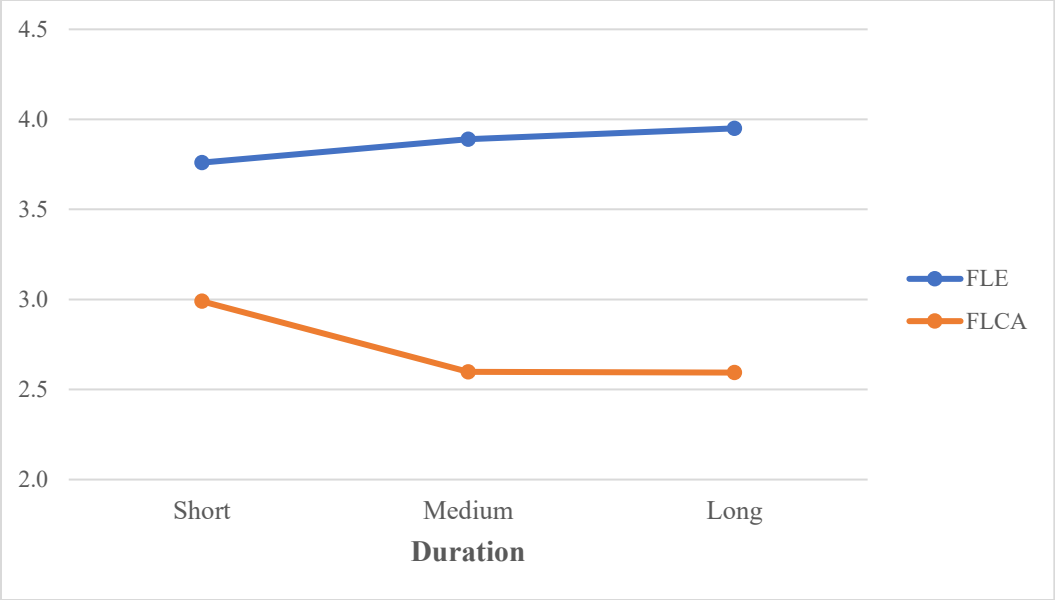

Figure 5. Relationship between duration of enjoyable episode and mean levels of FLE and FLCA

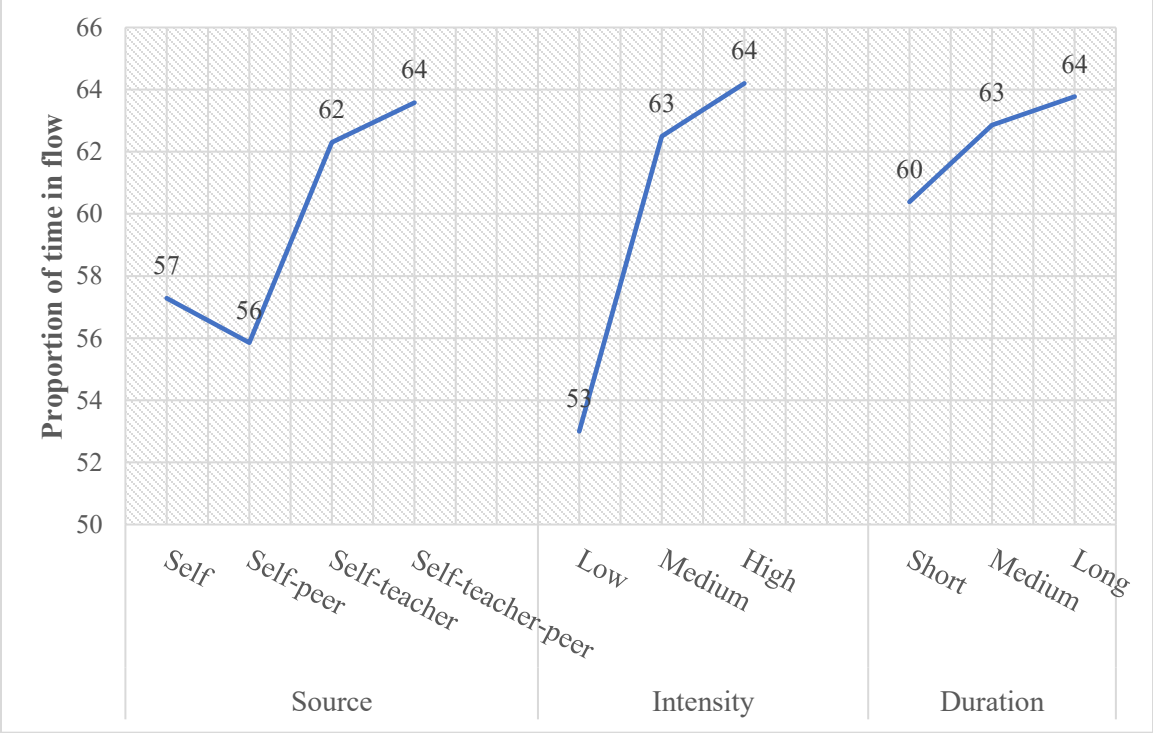

Figure 6. Relationship between source, intensity and duration of enjoyable episode and proportion of time in a state of flow

5.5 Learner voices: Self-induced moments of intense enjoyment and pride

The boundaries between categories of the sources of flow used in the above analyses are fuzzy; the categories overlap to various degrees. Participants may highlight one aspect or another (self, teacher, peer) in their short comment but leave out something else that a longer interview would reveal. We must emphasize that not mentioning the teacher or the peers does not mean that they are completely absent, as classroom activities are by nature directed by the teacher and they are social and collaborative. Participants wrote that they had not always noticed themselves that they were in a state of flow as the activity was unfolding but that teacher and peers had pointed it out afterwards, which sometimes acted as a trigger for longer-term enjoyment and investment in the FL.

Moments of intense enjoyment can be like sparks: very short but leaving a positive after-glow. Amy, in addressing the balance between skills and challenge, and the merging of action and awareness, describes the sudden realisation that, for the first time, she could answer a question in the FL. It could be argued that this was the closest she had come to reaching a state of flow in class.

> Amy, female, 17[5]: I had a light bulb moment. I was suddenly able to express myself in Spanish in a way I hadn't previously been able to. I was answering spontaneous questions with ease and feeling confident enough to answer without pausing for more than a second or so. At first, I was shocked by my ability. I left the session feeling on top of the world at what I had just managed to do.

Enjoyment and flow can arise when the learner received unambiguous feedback when performing something challenging and potentially anxiety-provoking in public. Mari describes such an event where she managed to regulate her anxiety inside an enjoyable episode and overcome her usual reflective self-consciousness. She describes the positive reactions she received from a peer immediately after the performance which made her reflect on the positive intensity of the experience and hints at the longer-term positive effect on her motivation and self-efficacy:

> Mari, female, 21: As a final task for our oral communication for the teachers course, we had to hold a small "teaching" session to our fellow students. I was extremely nervous since I'm less than comfortable when it comes to standing and giving presentations in front of the class. Anyway, I practiced A LOT and the session went very well and I was extremely pleased with myself. The best part, though, was when a fellow student complimented me on one of the tasks I had organized. I just felt extremely proud. I'm usually terribly negative about myself and my performance in different tasks but this time, I felt really good and was actually buzzing afterwards. The feeling of succeeding in something is just something else and the motivation you get from it is absolutely thrilling.

One participant, Delphine, describes an episode in class where the topic of conversation was her home country, and she experienced the feeling of being in control and a

distortion of time that flow theory describes. Assuming the role of expert, she took centre stage and lost track of time:

> Delphine, female, 22: When we were talking about France, which is my country and so a great topic to talk about for me. Because I knew the topic, I did not feel that stressed, I was like kind of confident, it is so rare for me!! I did not see the time passing and it was a very interesting discussion we had in class.

5.6 Learner voices: Teacher-induced moments of intense enjoyment

Teachers can stimulate enjoyment and flow by engaging in a new and challenging group activity. Tissot describes how in the minutes preceding a state of flow she experienced a negative emotion when the teacher introduced something unexpected in the class. However, this soon gave way to excitement and bonding with group members:

> Tissot, female, 34: I really enjoyed when we participated to a game which consisted in conducting a criminal investigation. For once, we got off the main topic of the course which was health care and at first it surprised me and I was a bit disappointed. However, I soon changed my mind and had a lot of fun with my colleagues. We learnt a lot without thinking about it and as a matter of fact we also learnt to know each other better. It was useful and funny. A really pleasant moment we had!

States of intense enjoyment may be much shorter for less advanced students (i.e. the uttering of a single sentence), but still capture key elements of flow states. Positive feedback from the teacher on doing a small thing right was like a spark that seemed to have had longer-term positive consequences for Trisha, helping her feel less self-conscious:

> Trisha, female, 21: Being congratulated for saying a difficult phrase correctly without any help. It made me feel like I knew what I was doing, like I was in the right class, and it helped me enjoy the class more because I felt less self-conscious.

A brilliant teacher made Younes lose sense of time and brought him close to tears at the end of class:

> Younes, male, 19: This week I had a session of Literature and I had so much fun so that 1 hour 30 minutes passed like 2 minutes!! the teacher was narrating us stories and events, I was focusing so that I've travelled in a world of art....it was such a beautiful feeling so that I wanted to cry when the session ended.

Edilson noted that peers engaging in role play in the FL class briefly entered in a state of group flow, allowing them to throw off social conventions in the L1:

> Edilson, male, 48: I feel incredibly happy when I see my peers' role play. Many times, I have seen classmates do things I would never imagine they did in their L1.

5.7 Learner voices: Group-induced moments of intense enjoyment

Introducing debates in class can trigger intense emotions. Agata describes a debate in which both sides were well prepared, completely involved, happy and where they lost track of time, with specific goals and high levels of concentration. Interestingly, although she forgot what the topic was, she remembers reaching a state of flow, which acted as a trigger in the development of her skills in the FL:

> Agata, female, 22: During one of my speaking classes we were divided into 2 opposite groups. One group was for, the other was against. I can't really remember the topic of the discussion, but it was really challenging. We were supposed to prepare before the class and collect some arguments, data and research. As I remember this class was very fascinating, not only because it was a heated discussion, but also we were very involved in it and very productive; I forgot about the time. And I have an impression that this lesson had a great contribution into my speaking skills.

6 DISCUSSION

The present study shows that the successful regulation of positive and negative emotions, enjoyment and anxiety respectively in the present case, is related to experiencing flow. In answering the first research question, participants reported being in a state of flow more than half the time, on average. Although this value may seem high, it corresponds broadly with previous studies that reported students' average time in flow. A recalculation of the data reported by Egbert (2003) shows that an average of 47% of her participants reported being in flow across seven tasks (ranging from 8% when reading out loud and answering questions to 92% when engaging in electronic chat with L1 users). Rubio (2011) reported that 72% of participants reached a state of flow on most tasks. Czimmermann and Piniel's (2016) mean score of 3.5 on a 5-point frequency scale suggests participants experienced flow between "half of the time" and "usually" on average.

The substantial amount of flow experiences correlates strongly with FLE. This is consistent with prior research showing how important it can be to design language tasks that create enjoyment as a condition of flow (Aubrey 2017a; Piniel and Albert 2017; Rubio 2011). Yet the connection between flow and challenge entertains certain risk as skills are challenged; success is not guaranteed and mistakes during language learning are common. Anxiety-arousal is associated with language missteps. The present data suggest that managing or regulating anxiety, keeping it at a relatively low level, is associated with a greater proportion of time in flow. Given the finding that flow is significantly more closely related to enjoyment than a lack of anxiety leads us to suggest that in a flow state a learner can tolerate some fluctuations in anxiety as long as enjoyment is the predominant felt emotion. The learners, especially Amy, Mari and Tissot, provide

concrete examples of the coordination and integration of positive and negative emotions within an enjoyable classroom event.

The learner accounts echo the major tenets of flow theory (Csíkszentmihályi 1990) and they are consistent with the results of flow studies in SLA (Aubrey 2017b; Egbert 2003) and Ibrahim's (2020) observation that sustained flow experiences were linked to positive emotionality. The finding that FLCA was significantly less predictive of flow than FLE suggests that anxiety is not an unsurmountable obstacle. This is an important finding because it means that anxious students can still reach a state of flow if they enjoy the activity. It is of course possible that anxiety may have prevented other participants from taking centre stage in a group activity, thus having avoided emotional ups-and-downs. Being in a state of flow can also momentarily lift inhibitions or social restrictions on classroom behaviour, because the sense of self recedes into the background (Nakamura and Csíkszentmihályi 2009). Edilson felt that during role play exercises his peers dare behaving in the FL in ways that would not be tolerated in the L1. Whether or not this perception is correct, it seems that acting in the FL class may be linked to reaching a momentary state of flow and liberation from usual social restrictions.

The data reported here show that teachers play a crucial role in boosting FL enjoyment, and thus offer a stairway to a state of flow (Dewaele and MacIntyre 2019). Younes explained how his literature teacher was so brilliant that time seemed to speed up. Some of the strategies adopted by teachers may not lead to a state of flow straight away, as Tissot reported. She was initially displeased when the teacher introduced an entirely new and challenging activity in the class, but after a couple of minutes this new activity led to a state of flow and group bonding that she had not at all anticipated. The social dimension was also at the heart of Agata's episode. She recalled a debate between two teams that had prepared their arguments in advance. She loved the shared purpose in her group, the heated arguments with the opposing team, and the fact that this episode had contributed to her speaking skills. It is very likely that the participants experienced inter-brain synchronisation during that debate as group members' temporally aligned perception of challenge and achievement which resulted in a shared convergent flow experience (Nozawa et al. 2021). It offers further support for the view that flow is more likely to emerge in group activities that strengthen the level of social interdependence than in solitary enjoyable activities (Walker 2010).

One of the key pedagogical implications of our findings is that flow does not emerge at random. It is usually the result of a careful setting by the teacher who allows a certain degree of autonomy among learners, giving them a period of preparation that allows them to speak fluently in the classroom, impressing themselves, peers and teacher (Csíkszentmihályi 1990). Positive emotionality in the classroom is clearly at the heart of any flow experience (Ibrahim 2020). Another key implication is that flow experiences strengthen learners' motivation (cf. Piniel and Albert 2016, 2019), a view also expressed

by our participants. We thus urge FL teachers to strive to bring their learners to a state of flow.

There are a number of methodological limitations to our research design. Because of the self-selection bias, we cannot claim that our participants form a representative sample of FL learners, as the questionnaire was more likely to attract motivated and good learners (Dewaele 2018). Another limitation is linked to the very nature of self-report. Since there is no direct way to measure flow experiences, researchers have to rely and trust participants' self-reports. The large number of participants and the anonymity does limit the social bias, as participants had nothing to gain from claiming more enjoyment in their FL classrooms than they actually had. We also realise that the analysis of reports of enjoyable episodes gave us only an indirect and incomplete view on participants' possible flow experiences. In coding the data, we had to make assumptions about the presence of flow based on keywords in participants' reports of memories of enjoyable experiences, as we had no explicit questions about flow experiences. We acknowledge that the reliability of the qualitative data is lower than that of the quantitative data but we argue that the combination of both analyses strengthens the overall understanding of the phenomenon of flow. Further research could combine quantitative data on flow experiences with classroom observations and interviews focused specifically on flow in order to get a richer understanding of this complex, addictive and fleeting phenomenon.

7 CONCLUSION

There have been relatively few studies of flow in SLA, despite it being one of the most intriguing concepts in the literature on motivation and emotion. The situation may be changing as language researchers and teachers become more cognizant of the role played by emotions in general, and positive emotions in particular. Flow experiences create a unique mode in which a learner's thoughts, feelings, and behaviour reflect effortless and harmonious coordination in challenging situations that offer both risk and reward. Flow experiences are motivating and they are memorable. Best of all, the conditions for flow have been well studied in other contexts, and language tasks can be designed to increase the probability of flow among learners and teachers.

The most original finding in the present study was that the same ontogenesis of flow in FL learning emerged from both the quantitative and qualitative analyses. While early flow experiences are self-centered, infrequent and short-lived – to the point that they may in fact simply be precursors of flow-, they become gradually more social, more frequent, stronger and more sustained among more advanced FL learners. What starts as an occasional positive and somewhat private emotional spark can reach a stage where learners spend the whole class in a state of glowing flow. Given the role of positive emotions in broadening one's experience, facilitating exploration and play with ideas, flow experiences can be seen as both the result and the contributing factor for progress in

the FL. We can thus conclude with the famous chorus line in Bruce Springsteen's song *Dancing in the Dark:* "You can't start a fire without a spark".

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[1] Five participants did not report their gender.
[2] Four participants did not report their education level.
[3] Sixteen participants did not fill out this item.
[4] To be conservative, we entered a positive correlation between FLCA and Flow to test only the relative strength of the relationship, ignoring the +/- sign.
[5] We report gender and age of participants.