

## Article

# Is Flow Possible in the Emergency Remote Teaching Foreign Language Classroom?

Jean-Marc Dewaele \*, Alfaf Albakistani and Iman Kamal Ahmed

Department of Applied Linguistics, Birkbeck University of London, London WC1H 0PD, UK;  
aalbak02@mail.bbk.ac.uk (A.A.); iahmed14@student.bbk.ac.uk (I.K.A.)

\* Correspondence: j.dewaele@bbk.ac.uk

**Abstract:** The present study focuses on the experience of flow among 168 Arab and Kurdish English Foreign Language (EFL) learners in both in-person and emergency remote teaching (ERT) classes. Statistical analyses of questionnaire data revealed that learners did experience flow in their ERT classes but for a significantly shorter time than in the pre-pandemic in-person classes. Those who experienced flow in in-person classes were also more likely to experience it in ERT classes. In the in-person classes, the proportion of time in flow was linked to age, self-rated proficiency, attitudes toward English, attitudes toward the teacher, and the teacher frequency of use of English. In contrast, in ERT classes, the proportion of time in flow was only linked to attitude toward the teacher. This is interpreted as evidence that the ERT does not just cause physical and social isolation but also mental isolation.

**Keywords:** flow; emergency remote teaching; in-person teaching; English Foreign Language



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## 1. Introduction

When the COVID-19 pandemic forced everybody to stay home in early 2020 and much of the following year, students found themselves connected to their teachers and peers only through a tenuous electronic link. Students living in areas with regular power outages, such as Iraqi Kurdistan, found themselves at the mercy of electricity companies, as their screens could go black in mid-sentence and a candle had to be lit, hoping that power would return before the end of class.

The rushed, last-minute switch to emergency remote teaching (ERT) made it very different from the well-established delivery of carefully prepared online teaching courses. The whole education sector was instead forced into “a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances” [1]. The sudden switch to ERT, in a period of heightened anxiety, grief, and social isolation, affected everybody in the education system [2,3]. There was also a worry that ERT would be insufficient and that students would learn less [4]. The fear was that the sole reliance on online teaching would dampen learners’ positive emotions and exacerbate their negative emotions, affecting their learning and coping strategies [5]. Recent research on learner emotions has indeed shown that positive emotions are moderate positive predictors of foreign language (FL) performance, while negative emotions are negative predictors [6,7]. Learners’ emotions have been found to be dulled in ERT classes compared to in-person classes. It seems that ERT classes generate much less enjoyment, a little less anxiety, and much more boredom among FL learners [8,9]. Nobody, to our knowledge, has investigated whether learners’ flow experience is equally affected by the learning environment.

The concept of flow was introduced by Csikszentmihályi in 1990, who described it as an optimal psychophysical state that can emerge when the demands of a situation or a task match the skills of the person performing the task. It generates a consciousness that is “harmoniously ordered” where thoughts, actions, and emotions become well-coordinated ([10], p. 6). Research has shown that the emergence of flow in the FL is gradual and increases as learners

become more advanced and more proficient. Experiencing a state of flow is exhilarating and has positive longer-term effects on motivation [11–15] The present study will focus more specifically on the experience of flow in ERT and in-person FL classrooms.

## 2. Literature Review

The literature review is organized into three sections. We start by briefly defining the concept of flow as our dependent variable, and we refer to some key texts in positive psychology. After that, we sketch how positive psychology energized research on learner emotions in applied linguistics and how it led to a more holistic perspective on both positive and negative learner emotions, including research on flow in the foreign language classroom. The final section reports studies that considered the effect of emergency remote teaching contexts on FL Enjoyment (FLE), FL classroom anxiety (FLCA) and FL boredom (FLB).

### 2.1. Flow in Positive Psychology

Csikszentmihályi [10] described flow as follows:

*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. (p. 71)*

Nakamura and Csikszentmihályi [16] distinguished nine components of flow: (1) challenge-skills balance, (2) clear goals, (3) unambiguous feedback, (4) merging action and awareness, (5) total concentration, (6) feelings of control, (7) transformation of time, (8) loss of self-consciousness, and (9) an autotelic or intrinsically motivating activity.

The first component is undoubtedly the fundamental one: an optimal experience can only arise when the challenge is just right: not overly difficult but not too easy either [16]. People in a state of flow “report feeling more active, alert, concentrated, happy, satisfied, and creative” ([17], p. 816). Being in a state of flow is a gratifying and highly motivating experience [18]. Flow is more likely to emerge in group activities than in solitary activities [19].

### 2.2. Learners' emotions in Positive Psychology

The introduction by MacIntyre and Gregersen [8] of positive psychology to the field of applied linguistics in 2012 has led to a surge of interest in both positive and negative learner emotions (see [3,20]).

Dewaele and MacIntyre [21,22] were inspired by Csikszentmihályi's flow theory [10] in developing the concept of foreign language enjoyment which Dewaele and MacIntyre [22] defined as “a complex emotion, capturing interacting dimensions of challenge and perceived ability that can reflect the human drive for success in the face of difficult tasks” (p. 216). They sought to understand its relationship with foreign language classroom anxiety [23].

Dewaele and MacIntyre [21] used an online questionnaire to obtain quantitative and qualitative data from 1746 multilingual FL learners from around the world. Statistical analyses revealed that levels of FLE and FLCA were linked to age, gender, type of institution (universities vs. secondary schools), degree of multilingualism, level of mastery and proficiency in the FL, and wider geographical background (Western vs. Asian). Further research showed that sources of FLE were more likely to be learner-external (mainly the teacher) and to some extent also personality traits such as trait emotional intelligence and cultural empathy. In contrast, FLCA was more strongly linked to learner-internal variables (personality traits such as neuroticism) [9,24]. Analysis of descriptions of enjoyable episodes by participants in Dewaele and MacIntyre [21] showed that FLE was linked to specific classroom activities that allowed a degree of autonomy, peer recognition, a realization of progress, teacher recognition and teacher skills. In a follow-up study using the same

database, Dewaele and MacIntyre [12] compared the proportion of time in a state of flow among EFL learners and FL learners of languages other than English (LOTE). LOTE learners reported spending a significantly higher proportion of class time in a state of flow than the EFL group, but the effect size was small. This was interpreted as evidence of stronger emotional involvement in LOTE classes, where learners often knew English already. Dewaele and MacIntyre's [13] mixed-methods study investigated the relationship between FLE, FLCA, and proportion of class time in flow among 1044 FL learners. The authors found a significant positive correlation between FLE and flow ( $r = 0.62$ ) and a significant negative correlation between FLCA and flow ( $r = -0.27$ ). Flow turned out to be an emergent phenomenon, with beginners reporting lower levels of flow than more advanced learners. Analyses of the enjoyable episodes confirmed these patterns, with advanced learners describing enjoyable experiences that were much more intense, more frequent, and of longer duration than those described by beginners and low-intermediate learners.

Egbert [25] was the first study on flow in second language acquisition. She used seven specific language-learning tasks in a high school Spanish class with 13 Anglophone students. She found that causality in flow and performance is bi-directional: an appropriate balance between challenge and skill can support flow which can lead to improved performance. The challenge–skill balance emerged as a crucial aspect of flow experiences of 36 Japanese learners of English in [26,27]. Researchers have also investigated different types of flow. Czimmermann and Piniel [28] were surprised to find that task flow and general classroom flow of their 85 Hungarian EFL students were only moderately positively correlated. Anxiety, boredom and apathy were found to be significantly negatively correlated with task-specific flow. The importance of the presence of the group was highlighted in Rubio [29]. He found that his 29 Spanish EFL learners were more likely to experience flow in group-work tasks that encouraged learner agency and a degree of autonomy in performing the task. Following a similar avenue, Liu and Song [30] found that flow antecedents (skill, challenge, and clear goals) determined flow experience among their 235 Chinese EFL students engaged in challenging online learning activities. Beneficial long-term effects of flow on motivation were found in Piniel and Albert's [14] study on 214 Hungarian EFL students suggesting that they can be mutually reinforcing [15].

In an attempt to create a better conceptualization and measurement of flow and anti-flow in a blended learning environment, Wang and Huang [31] developed a new instrument, the Foreign Language Flow Scale. The authors collected data from 661 Chinese EFL learners. Their analyses showed that FL learning flow is a three-dimensional construct involving FLE, FLCA, and FLB. They found that FLE is a core component of flow and is a predictor for FL achievement. FLB and FLCA were linked to negative flow.

Adopting an innovative neurophysiological approach, Nozawa et al. [32] discovered a significant link between inter-brain synchronization and interpersonal similarity of flow state dynamics during collaborative learning process by 56 Japanese EFL learners. Students who had been working in the same group showed significantly more inter-brain synchronization than members of other groups.

### 2.3. Learner Emotion Research in Emergency Remote Teaching Contexts

Researchers have looked into the sources of FL learners' emotions in in-person and ERT classes as a consequence of the COVID-19 pandemic.

Li and Dewaele [33] found that their 348 Chinese EFL learners' foreign language boredom (FLB) was linked to the perceived meaningfulness of engaging in ERT courses and their degree of confidence. Levels of FLB were higher in the ERT course compared to the in-person course, but the causes of FLB were broadly similar to those in in-person classes [34]. Students felt that the ERT course was too time-consuming, meaningless, too socially detached, and resulted in low test results.

Combining an online questionnaire ( $n = 52$ ) and interviews ( $n = 16$ ), Kohnke, Zou, and Zhang [35] looked at learner emotions, self-regulated strategies, and perceived difficulties of Chinese FL students in an ERT setting. The authors found that students enjoyed attending

the ERT classes and felt that they were able to develop their L2 skills online. However, the amount of time needed and the workload, combined with the lack of experience in ERT, caused them to experience stress, doubt, and loneliness. They regretted the absence of group work and social interaction and developed coping strategies to interact with their peers.

Adopting a similar approach, Resnik and Dewaele [9] found that 510 European EFL students experienced both significantly less FLE and FLCA in ERT classes compared to in-person classes. The increased teacher-centeredness of ERT classes limited the number of opportunities to engage with peers, which led to increased boredom. Enjoyment suffered in the ERT classes because of reduced group solidarity, little laughter, and more detached relationships with teachers and peers. The lower anxiety in ERT classes was linked to the ability to turn the camera off and to avoid participation.

Following this path, Resnik, Dewaele, and Knechtelsdorfer [36] explored differences in FLE in ERT and in-person EFL classes among 437 university EFL learners. FLE levels were found to be significantly lower in ERT classes than in in-person classes. Interviews revealed that the sources of FLE differed in both conditions: interaction with teachers and peers, group solidarity, and a fun atmosphere drove FLE in in-person classes; while the home comfort and convenience of not having to travel combined with increased autonomy were mentioned as sources of FLE in ERT classes. They did point out that social interactions with peers and teachers were possible in the ERT context too.

Resnik, Dewaele, and Knechtelsdorfer [37] used the same dataset to focus on FLCA. Overall, FLCA was found to be lower in the ERT context. Interviews revealed that the sources of FLCA in ERT classes were different from the sources of FLCA in regular classes. Being forced to contribute to class discussions was the most frequently mentioned cause of FLCA in in-person classes, while technological and connection issues were the main source of FLCA in ERT, followed by uncertainty about requirements for assignments and worries about the resulting grade.

Pursuing a similar approach, the mixed-method study by Maican and Cocarada [38] focused on FLE and FLCA among 207 Romanian FL university students during the pandemic. Participants were found to appreciate online resources offered in their ERT classes but complained about time-consuming tasks in ERT and resented the physical separation from peers and teachers. They had developed coping behaviors using online resources, which led to higher FLE.

A more in-depth analysis of the reasons for FLB was presented in Pawlak et al.'s [39] qualitative study that included 34 teachers and 256 Iranian EFL students. It showed that a majority of both teachers and students reported that in-person classes were less boring than online classes due to their lecture-type nature. Ineffective coping strategies such as playing games or disconnecting left students bored in the online mode.

Some researchers have also looked at the fluctuation of emotions during ERT classes. A small-scale longitudinal study by Sun and Zhang [40] mapped out the emotional trajectory of 11 Chinese EFL students during ERT classes. Their emotions fluctuated from feeling very anxious at the start and end of the ERT course, with a calm period in the middle. The absence of cooperation with peers during tasks weighed on students.

Finally, in a mixed-methods study based on the same database as the current one, Dewaele, Albakastani and Kamal Ahmed study [41] compared levels of FLE, FLCA and FLB among Arab and Kurdish EFL learners in both in-person and ERT classes. Levels of FLE and FLCA were significantly higher in in-person classes than in ERT classes, while FLB was higher in ERT classes. Qualitative data revealed that learners felt more isolated, disengaged, and distracted in the ERT context. However, some felt that ERT did allow relationship-building, lowered their FLCA, and encouraged them to develop new coping strategies. FLB resulted in a lack of exciting social interactions and monotonous delivery by the teacher. In a follow-up study, Dewaele, MacIntyre, Albakastani and Kamal Ahmed [42] found that FLE was a significant positive predictor of flow while FLB was a significant negative predictor. FLCA did not predict any unique variance in flow.

This literature review has shown that the concept of flow is well established in applied linguistic research, as well as the sources of variation in FLE, FLCA, FLB, and flow. A clear network of relationships has been identified between emotions and flow in in-person FL classes. Given that the pandemic started only two years ago, research is only just emerging about the effect of ERT on FL learner emotions. So far, to our knowledge, no research has been published on the effect of ERT on flow. The present study thus aims to fill this gap. We have also decided to focus on EFL learners from Arab countries, as this is a population that is underrepresented in FL emotion research so far.

Based on the abovementioned literature and the gap it showed, the current study aims to investigate the following research questions:

1. Do students spend a larger proportion of time in flow in in-person than in ERT classes?
2. Are students who spend a larger proportion of time in flow in in-person classes also more likely to experience flow in ERT classes?
3. Are learner-internal and learner-external variables similarly linked to proportion of time in flow in both conditions?

### 3. Methodology

#### 3.1. Participants

Participants were 168 learners (111 females, 53 males, 4 participants did not respond) studying EFL in Arab countries and the Kurdistan region in Iraq. Participants were Moroccan ( $n = 58$ ), Iraqi Kurds ( $n = 53$ ), Saudi ( $n = 46$ ) with smaller numbers of twelve other nationalities. Participants were aged between 16 and 38 years ( $M = 20$ ,  $SD = 3$ ). The majority of the respondents were studying at universities ( $n = 152$ ), while a few were school students ( $n = 15$ ). Most of the participants studied English in their local countries, and all had moved to ERT due to the pandemic. English proficiency levels varied, with 5 describing themselves as advanced beginners, 19 participants as low intermediates, 65 participants as intermediate, 56 as high intermediates, and 23 as advanced. Most participants reported knowing two languages ( $n = 64$ ), fewer spoke three ( $n = 49$ ), four ( $n = 45$ ) and five to seven languages ( $n = 10$ ).

Participants' L1 included Arabic ( $n = 93$ ), Kurdish ( $n = 39$ ), Amazigh ( $n = 17$ ), Turkmen ( $n = 6$ ), English ( $n = 4$ ), French ( $n = 3$ ), and other languages. All spoke Arabic and English.

#### 3.2. The Instruments

The data was collected once through an online questionnaire while all the teaching happened remotely. The first section included demographic questions and a language profile, as reported above. Self-reported proficiency scores were converted in a 5-point Likert scale. They also filled out items on their attitude toward English, their attitude toward the English teacher, and the teacher's frequency of use of English in class. They reported their latest test results (in %). All these variables have been found to be linked to learner emotions [43]. The mean scores and standard deviation are reported in Table 1.

**Table 1.** Means and SD of the independent variables.

| Variable                           | Mean  | Standard Deviation |
|------------------------------------|-------|--------------------|
| English Proficiency                | 3.43  | 0.96               |
| Attitude toward English            | 4.20  | 0.87               |
| Attitude toward English teacher    | 4.11  | 1.00               |
| Teacher's frequency of English Use | 4.64  | 0.78               |
| Test Result                        | 82.67 | 17.50              |

The participants were then asked to rate their emotions (not included in the present study) and the time spent in a state of flow, both pre-pandemic in their in-person classes and in their ERT setting. They filled out items extracted from Larson and Csikszentmihályi's [44] *Experience Sampling Method* and used in Dewaele and MacIntyre [12,13]. The items were

preceded by the question: “What percentage of EFL class time does this apply to you (ranging from 0%-never to 100%-always)? During my EFL class . . . ”. After that, they were presented with the following four items:

- (1) I lose sense of time . . . %
- (2) I’m totally absorbed . . . %
- (3) I feel fulfilled . . . %
- (4) I’m happy . . . %

Taken together, the four items allow the calculation of the proportion of class time in a state of flow. The internal consistency is satisfactory for both In-person and ERT classes (Cronbach  $\alpha = 0.843$ ,  $N = 4$ ; and Cronbach  $\alpha = 0.823$ ,  $N = 4$  respectively).

### 3.3. Procedure

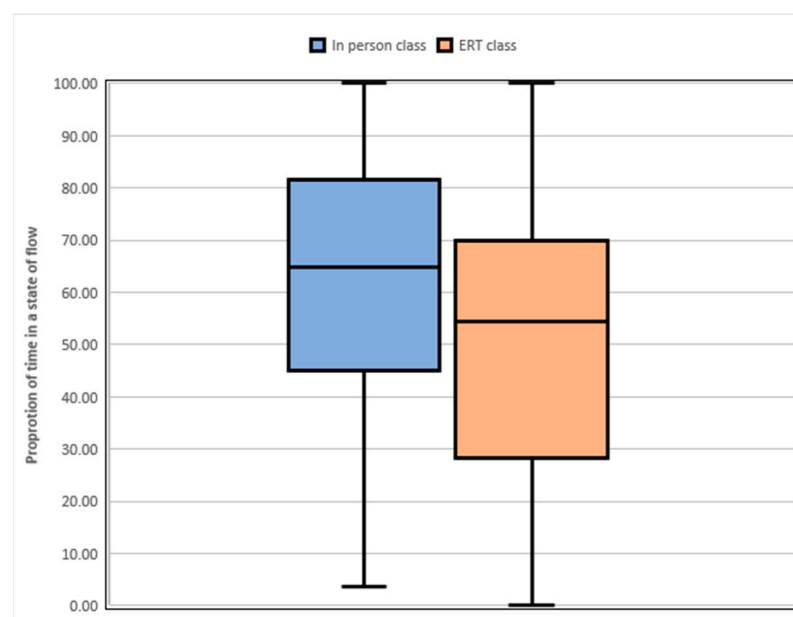
The questionnaire was designed using Google Forms. Snowball sampling was used: an open call was issued to Arab and Kurdish learners who were studying EFL in Arab countries during the pandemic, asking them to share the link with their friends and classmates. The survey was accessible from April to June 2021, and took between 15–20 min to complete. Anonymity of participants’ responses was guaranteed, and their consent was obtained at the start of the survey. The research design received ethical approval from the authors’ institution.

### 3.4. Data Analysis

The calculation of Q-Q plots suggests that values for the proportion of class time in a state of flow follow a normal distribution reasonably well, except for the extreme tails (available from the authors on request). We thus opted for parametric statistics.

## 4. Results

A paired *t*-test was used to answer the first research question. It revealed that participants reported spending a larger proportion of time in a state of flow when they attended their FL classes in-person ( $Mean = 58.16$ ,  $SD = 28.41$ ) rather than online ( $Mean = 46.49$ ,  $SD = 28.00$ ). The difference was significant ( $t(167) = 4.99$ ,  $p < 0.001$ , Cohen’s  $d = 0.31$ ). According to Plonsky and Oswald ([45], p. 889) this is a small effect size. To gain a better understanding of the difference, a boxplot was created (see Figure 1).



**Figure 1.** Proportion of time in flow in In-person and ERT classes.

Looking at the differences between the box plots, it is striking that the median is much higher for the in-person condition than the ERT condition, in contrast with the means that were much closer to each other. The interquartile range box is smaller the in-person condition, suggesting a slightly more limited spread. The whiskers suggest that the bottom 25% of participants were more widely spread out in the in-person condition than in the ERT condition, where the top and bottom whisker are equal in length. Thus, it seems that the dispersion was greater in the ERT condition.

A two-tailed Pearson correlation analysis was used to answer the second research question on the relationship between proportion of time in flow in in-person and ERT classes. A very strong positive correlation emerged:  $r(168) = 0.681$ ,  $p < 0.0001$ . In other words, both sets of values share 46.37% of variance. According to Plonsky and Oswald [45], this represents a large effect size.

The third research considered the relationship between learner-internal and learner-external variables and the proportion of time in flow in both conditions. Firstly, an independent t-test showed no gender effect on proportion of time of flow in in-person and ERT classes ( $t(162) = -0.59$ ,  $p = ns$  and  $t(162) = -1.64$ ,  $p = ns$ ). Secondly, a series of two-tailed Pearson correlation analyses revealed that five independent variables were linked with proportion of time of flow in in-person classes, but only one was linked significantly to proportion of time in flow in ERT classes (see Table 2). Younger learners, learners who rated themselves as proficient, with positive attitudes toward English and their teacher, and whose teacher used English frequently were likely to spend a longer proportion of time in a state of flow in in-person classes. However, in the ERT context, only those with positive attitudes toward the English teacher were likely to spend more time in a state of flow. Comparing effect sizes in both conditions, it appears that those for in-person classes were small-to-medium, while the effect size for the only independent variable in the ERT context was small [45].

**Table 2.** Pearson correlations between independent variables and proportion of time in flow in In-person and ERT classes.

| Variable                           | In-Person | ERT     |
|------------------------------------|-----------|---------|
| Age                                | −0.177 *  | −0.05   |
| Number of Languages                | 0.119     | 0.019   |
| English Proficiency                | 0.159 *   | 0.124   |
| Test Result                        | −0.073    | 0.002   |
| Attitude toward English            | 0.226 **  | 0.048   |
| Attitude toward English teacher    | 0.390 **  | 0.178 * |
| Teacher’s frequency of English Use | 0.315 **  | 0.137   |

\*\*  $p < 0.01$  (2-tailed); \*  $p < 0.05$  (2-tailed).

## 5. Discussion

The first research question focused on the effect of teaching modality (in-person classes versus ERT classes) on the emergence of flow. Participants reported spending a significantly higher proportion of time in a state of flow in in-person classes compared to ERT classes. The effect size is small but it fits the pattern reported in previous studies [33,41,42] where levels of FLE were found to be significantly higher and levels of FLB lower in in-person classes than in ERT classes. It is possible that an ERT environment and the physical separation from peers and teachers generate a weaker social interdependence, making it harder for group members to reach a state of flow [19]. The finding that our participants spent close to two thirds of their in-person FL classes in a state of flow, and over half of their ERT FL classes in a state of flow, corresponds very closely to the values reported by Dewaele and MacIntyre [13], where a similar method of measurement showed that participants reported being in a state of flow close to 60% of the class time. Researchers who used different ways of measuring flow found broadly similar values [25,29,43]. The finding that the proportion of time in a state of flow in

ERT classes is lower than in-person class is not surprising, as it fits with the patterns for learner emotions in both settings. Lower FLE, slightly lower FLCA and higher FLB in the ERT setting compared to in-person confirms a general feeling of social and emotional detachment [9,35,36,44]. Dewaele et al. [41] also found that many students were worried about the stability of the internet connection and the fear of being literally left in the dark. They also complained about their own disengagement, distraction, and feelings of isolation during their ERT classes. However, adopting a more positive view, we could rejoice that even while physically distant, learners still spent half their time in a state of flow, on average, in front of their computer screen. In other words, even in an ERT class, it is possible to reach a good challenge-balance with clear goals [16,26,27,30].

One possible explanation for the longer time in flow in the in-person classes, and the slightly lower dispersion around the median, is that being in the same room as the teacher and peers means full physical immersion in the class activities, breathing, joking, struggling, and laughing together and co-constructing the classroom activities under the watchful eye of the teacher while developing social relationships [38,40]. It also implies that in-person classes have fewer sources of distraction that can potentially break the learner's concentration compared to ERT classes. This is probably due to the teacher's physical presence in the classroom and the constant observation of all students. In other words, the teacher can immediately counter comments or behaviors that would disrupt the flow experience and impede attaining the objectives of that class. The joint classroom experience includes reactions to unexpected things that happen inside or outside the classroom, ranging from the bird that flies in through the open window to sudden commotion in the corridor. In contrast, the online class may well occupy only a small part of the computer screen, with microphone muted, loudspeaker on minimal volume and the camera turned off, as the student may simultaneously be chatting online with friends, answering phone calls, having music in the room, or a family member walking in bringing food. In addition, unexpected funny events, such as a bird suddenly perching on the computer screen, are not joint experiences that strengthen group cohesion, but rather isolated distractions that cannot benefit the student's social capital. In other words, it is slightly harder to be 'in the zone' when performing a task, and to remain in that state, when the teacher's voice and the occasional voice of peers come through a tiny loudspeaker and their faces are mere two-dimensional thumb-sized blots on the screen ([38], p. 38). The temptation to play games or to disconnect is probably also playing in the back of the minds of bored students [39]. It is also less likely that pair work is as exciting through an internet connection, and brain synchronization between learners in different locations is less likely to occur [32]. Finally, the stress linked to the pandemic, the isolation, and potentially the grief for having lost loved ones may have weighed on their emotions and prevented them from reaching a state of flow as easily as before in in-person classes.

The finding that learners who reported spending more time in a state of flow in in-person classes also spent more time in online classes strengthens the validity of the instrument and measure. It suggests that the instrument taps into something real that exists in different conditions. It could be argued that those who had experienced flow in In-person classes were best able to reach that same state again in online classes, even if it was for shorter periods of time. As was pointed out before, being able to coordinate thoughts, actions, and emotions when reaching a state of flow is not only highly satisfying; it is also motivating, addictive, and likely to lead to accelerated learning and better performance [13–15].

The answer to the third research question on the role of learner-internal and learner-external variables on the proportion of time in a state of flow could also shed light on the first research question. The finding that multiple independent variables were linked to flow in in-person classes but that only a single independent variable was linked to flow in ERT classes was unexpected. Why would age, self-rated proficiency, attitudes toward English, attitudes toward the English teacher, and the teacher's frequency of use of English frequently be linked to the flow of in-person classes, but only the attitude toward



the English teacher be (less strongly) linked to flow in ERT classes? The finding of these relationships in the in-person classes converges with the findings of the studies that looked at the effects of these variables on FLE and FLB [21,33,43]. Why then would all these variables no longer have an effect in the ERT classes? It could be argued that sitting in the classroom among peers, with the teacher standing in front of a well-filled blackboard, with iconic posters of Big Ben, the Capitol, Sydney Harbour, and Cape Town, feeds a connection with the whole wide world. Every student in the classroom is co-constructing the teaching event by their mere presence. However, sitting in one's bedroom watching the teacher's face and the teaching material on the computer screen might be sufficient to reach a state of flow in carrying out the required activities, but it will be shorter in duration and the feeling of co-construction of the event will be absent. ERT classes are more likely to be perceived as emotionally disembodied [9] and learners may feel mentally disconnected from the rest of world.

The present study is not without limitations. Firstly, a cross-sectional design meant we only had a "snapshot" of a dynamic situation as learners' emotions were likely to change over time, especially with the ERT context becoming more commonplace during the pandemic. Also, the quantitative design does not allow us to pinpoint specific causes for the patterns we observed. Only interviews with participants about their flow experiences in both conditions could allow us to throw a light on reasons why flow was more difficult to sustain in front of the computer at home. We are aware that the modest sample size does not allow us to make sweeping generalizations. The patterns extracted apply only to our population, but they seem to be broadly in line with previous research. Finally, the questionnaire did not inquire whether the participant had experience with blended learning, which may have made a difference in the transition to ERT [46].

Further research could also adopt a more granular approach, focusing on the contextual factors that could have an effect on flow in a specific classroom, including the temperature or humidity in the classroom, the time of the day, the smile (or absence of smile) on the face of the teacher, the tasks at hand, and the group cohesion at that moment in time: did students fight or laugh in the previous class? For research on flow in the ERT setting, it would be worth exploring whether certain activities were linked to a higher level of flow, whether more autonomy through breakout-room activities may have made a difference as well as the cameras being switched on or off during class.

The pedagogical implications of the present study are relatively limited as this was not an intervention study but a cross-sectional study using a correlational design that does not allow for determining causality. The historical circumstances did allow an unexpected comparison of the experience of flow in pre-pandemic in-person classes with those of pandemic ERT classes. The finding that flow can occur in both conditions will be a relief for teachers who had to adapt their teaching methods overnight in extremely challenging circumstances. The absence of relationships between background variables and proportion of time of flow in the ERT condition raises uncomfortable questions about the future. Will teachers be able to reconnect their learners in post-pandemic in-person classes with the rest of the world? Will they be able to strengthen the social bonds between their learners and themselves? Will the experience of flow be predicted by more than just the attitude toward the teacher?

## 6. Conclusions

Depending on whether one is more of an optimist or more of a pessimist, the findings of this study could be interpreted as a glass being half full or a glass being half empty. The finding that flow does occur in ERT foreign language classes-albeit for shorter timespans-is a positive finding because it means that the world-wide efforts of foreign language teachers to keep their classes going and to keep their students engaged despite the unfamiliar software and the challenging conditions were largely successful. The pessimist might acknowledge that it would have been much worse if the pandemic had hit thirty years earlier when fewer students had computers and access to the internet. Yet, the pessimist

would also point to the fact that while ERT was better than nothing, it did not quite replace the real thing, namely the hustle and bustle of an exciting classroom full of peers and a teacher where flow is very much a group experience to which everybody contributes. Lower levels of FLE and higher levels of FLB in the ERT condition [41] might also explain shorter periods in flow.

The original findings of the current study are that, firstly, the teaching condition (in-person or ERT) affects learners' time in flow. Secondly, being locked at home in front of a computer meant that learners were not just physically and socially isolated, but also mentally closed. The phrase "no human being is an island" comes to mind. Learners need to be part of a community in order to thrive, and the pandemic and the resulting ERT tested everybody's resilience as never before (and hopefully never after). Learning is harder on a small island, even with an internet connection.

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