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Learners’ flow experience during peer revision in a virtual writing course during the global pandemic

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ABSTRACT

The global Covid-19 pandemic that hit educational contexts worldwide transformed our regular educational practices and some tasks such as peer revision, a staple in many additional language (AL) writing courses (Hyland & Hyland, 2019), were put aside. As teachers have become more familiar with many new technologies since the start of the pandemic, there is a need to implement peer revision tasks in virtual spaces and to understand learners’ experiences in this process. The aims of the present study were to examine AL learners’ subjective experience through flow theory as they engage in peer revision tasks with two components: an individual peer feedback component with a follow-up shared feedback component. Flow, a positive experiential state characterized by focus and involvement in challenging yet doable tasks, has been associated with enhanced self-confidence and task performance (Csikszentmihalyi, 2008). Participants of French as an AL (n = 18) engaged in two peer revision tasks (PR) which included both an individual (I-PR) and a follow-up sharing component (S-PR). Flow perception questionnaires were completed immediately following each task. Findings provide empirical evidence that despite being physically isolated and having limited experience with online technologies, learners experienced flow, especially during the S-PR component.

1. Introduction

For a number of years, scholars have discussed the importance and efficacy of feedback provided by teachers across learning contexts (Bitchener & Storch, 2016; Hyland & Hyland, 2019). Further, research informed by socio-constructivist and collaborative learning theories has examined the practice of peer revision which engages learners in the process of co-constructing knowledge and developing “a range of skills important in the development of language and writing ability” (Lundstrom & Baker, 2009, p. 30). Researchers have examined how learners provide feedback and respond to peer revision (e.g., revision behaviors and learning) in traditional face-to-face (f2f) classrooms (Diab, 2010; Lundstrom & Baker, 2009; Yu & Lee, 2016; Zhao, 2018) and in synchronous and asynchronous online environments using tools such as chat rooms, Moodle, and wikis (Chang et al., 2011; Chang, 2012; Guardado & Shi, 2007). They have studied learners’ subjective experience using constructs such as learner beliefs, engagement, and emotions (Ellis, 2010; Guardado & Shi, 2007; Han & Hyland, 2015, 2019; Zhang et al., 2014). Recently, additional language (AL) researchers have begun exploring the construct of flow (e.g., Aubrey, 2017a, 2017b; Cho, 2018; Zuniga & Payant, 2021), which can be described as a state of intrinsic motivation characterized by positive affect and heightened cognitive engagement that occurs when one is immersed in meaningful and challenging, yet doable activities (Csikszentmihalyi, 1975, 2008, 2014). This line of research, conducted primarily in

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f2f environments, shows how learners experience a greater sense of flow during collaborative oral activities that are neither too simple nor too difficult (Zuniga & Rueb, 2018). With the global Covid-19 pandemic, teachers quickly transformed their practices to virtual spaces, which presented major challenges for AL writing teachers wanting to engage learners in collaborative tasks, forcing some to put aside the practice of peer feedback. In the present study, we implemented peer review tasks with a teacher who had initially abandoned this practice but had decided to integrate it again in her teaching, albeit online.

Our primary objective was to examine learners’ state of flow as they engaged in a peer review task in a synchronous online environment, which included a virtual individual peer feedback component immediately followed by a virtual f2f sharing component. With the pandemic, teachers and AL learners worldwide became participants in the largest of unplanned online learning experiments. Knowing that space, time, and interaction differ between f2f and virtual spaces (Breuch, 2004), we investigated, within the context of the pandemic, whether implementing virtual peer revision tasks with an individual and a f2f sharing component on repeated occasions induces flow.

2. Literature review

2.1. Peer revision

Peer revision, also referred to as peer review and peer response, is operationalized as “a dialogic interaction between the provider and the receiver about the quality of the work being assessed” (Zhu & Carless, 2018, p. 884). During peer revision, learners offer comments on their peers’ drafts, a responsibility which was traditionally associated with teachers or tutors (Liu & Hansen Edwards, 2018). Today, peer revision has become a regular practice in numerous classroom contexts and is “not just cop-outs for lazy or exhausted teachers” (Ferris, 2007, p. 167). Informed by socio-constructivist theories of AL learning that view cognitive development as a socially situated activity between two or more individuals (Swain et al., 2015), peer revision engages students in the review and evaluation of their peers’ essays in different modes of communication (oral, writing, chat) and time (synchronous and asynchronous) (Chang, 2012; Guardado & Shi, 2007; Pritchard & Morrow, 2017; Yu & Lee, 2016b). Its effectiveness will depend on the learners’ abilities to provide and engage with scaffolded assistance (Storch, 2019). Peer revision can support writing competence development (Diab, 2010, 2011), increase audience awareness (Tsui & Ng, 2000), empower learners (I. Lee, 2016), impact the provider’s writing quality (Lundstrom & Baker, 2009) and create a space for dialogue (Pritchard & Morrow, 2017; Zha & Carless, 2018). In sum, peer revision can generate “a rich source of information for content and rhetorical issues, enhance intercultural communication, and give students a sense of group cohesion” (Hansen & Liu, 2005, p. 31). In the remainder of the study, we use the term peer revision to denote the practice of engaging learners in the provision of comments about language, content, and organization.

Some researchers have considered peer revision in computer-mediated communication (CMC) settings using chat software (Guardado & Shi, 2007) and compared peer revision in synchronous CMC, asynchronous CMC, and f2f settings (Chang, 2012; Pritchard & Morrow, 2017). While synchronous CMC is believed to be efficient, convenient, and favorable to feedback (J. Liu & Sadler, 2003) while still creating opportunities for interaction with peers (as in f2f settings), some prefer f2f interactions given the affordances of working in a shared physical context (Chang, 2012). Before the global pandemic, these ‘online’ studies were often conducted on campus either in computer laboratories (CMC) or in intact classrooms. Such artificial online spaces offered teachers and students the luxury of a shared physical space thus allowing for some f2f interactions either before or even after the experiment. This, however, was no longer possible due to the pandemic’s public health measures. We maintain that the physical isolation influences the amount of control and monitoring that can be done by the teachers to prepare learners for peer revision tasks. For this reason, it is important to understand how learners experience peer revision opportunities in authentic virtual settings. In this study, we focused on the construct of flow during a peer revision task with two components: an individual component with a follow-up virtual f2f sharing component. It is important to identify learners’ state of flow during these two components to determine the feasibility of including peer revision programs in such environments. In light of these discussions and in response to the call for more research that considers context-related variables (Storch, 2019), we maintain that it is imperative to examine the quality of learners’ subjective experience (e.g., flow) while giving and receiving feedback during an entirely online writing course during the physically isolating Covid-19 pandemic that we experienced at the time of the data collection (and are still experiencing in early 2022).

2.2. Students’ subjective experience with feedback

Research has considered students’ general beliefs, engagement, and emotions towards teacher feedback and peer revision. Research concerned with learners’ general beliefs reported that learners find it helpful for revising and improving their texts, enhancing audience and language awareness, and creating a sense of confidence and autonomy among student authors (Chang, 2012; M. K. Lee, 2015; Tsui & Ng, 2000). Nevertheless, learners exhibit a preference for comprehensive and direct feedback provided by teachers who are considered to be more knowledgeable than their peers (Amrhein & Nassaji, 2010; G.; Lee & Schallert, 2008; I. Lee, 2005; M. K. Lee, 2015; Tsui & Ng, 2000) and learners also worry about the feedback quality they provide and receive (Hu, 2005; M. K. Lee, 2015; Poverjuc et al., 2012; Tsui & Ng, 2000).

Research on learners’ subjective experience with feedback has also examined engagement, a multidimensional construct which, in classroom contexts, can result in greater participation and investment (Fredricks et al., 2004). Engagement refers to “how learners respond to the feedback they receive” (Ellis, 2010, p. 342), in relation to feedback provided by teachers (Hyland, 2003), peers (Fan & Xu, 2020; Han & Hyland, 2015, 2019; Yu & Lee, 2016a), and automated feedback (Zhang & Hyland, 2018) along cognitive, behavioral and, to a lesser extent, affective perspectives (Ellis, 2010; Fredricks et al., 2004). This line of research has uncovered learner strategies
to improve the quality of texts (Yu & Lee, 2016a), the type of preferred feedback (e.g., direct written corrective feedback) (Fan & Xu, 2020), and positive affective engagement with peer revision (Fan & Xu, 2020).

Research on learner subjective experience has recently turned to emotions, defined “as multi-component, coordinated processes of psychological subsystems including affective, cognitive, motivational, expressive, and peripheral physiological processes” (Pekrun, 2006, p. 316). In their seminal work, Fredrickson and Joiner (2002) demonstrated that positive emotions trigger psychological processes that have enduring effects on emotional states and can increase desire to play, engage, experience, and maintain sustained interest (Fredrickson, 2001; Fredrickson & Joiner, 2018). Conversely, negative emotions, which can take over conscience experiences are associated with anxiety, lowered willingness to communicate, and withdrawal (Fredrickson, 2001; MacIntyre & Vincze, 2017). Although the influence of emotions on learning has begun to receive more focused attention (Dewaele, 2015; MacIntyre & Vincze, 2017; Pavlenko, 2013), the relationship between peer review and flow, a positive experiential state characterized by the optimal interaction between cognitive and emotions processes, has not been investigated.

Flow has been described as a sign of “ultimate task engagement” (Philip & Duchesne, 2016, p. 59). Based on flow theory (Csikszentmihalyi, 1975; Csikszentmihalyi & Csikszentmihalyi, 1988), AL researchers (Cho, 2018; Egbert, 2003) have operationalized the construct along four dimensions: skill-challenge balance (SCB), control, interest, and focus. First, while in flow, people report being immersed in a challenging task for which they perceive themselves as having the necessary skills (SCB) (e.g., Csikszentmihalyi et al., 2009; Csikszentmihalyi & LeFevre, 1989; Engeser & Rheinberg, 2008). Csikszentmihalyi (1975) argues that tasks that are perceived as too difficult trigger negative emotions such as anxiety, and those perceived as too easy, boredom, two anti-flow emotions. Secondly, people report a sense of autonomy and having total control over actions (control) (e.g., Ghani & Deshpande, 1994), which allows them to modulate the complexity of the task to maintain the SCB necessary for flow. Thirdly, they also describe a sense of intrinsic motivation, that is engaging in the task for the sake of enjoyment rather than some extrinsic reward (interest) (e.g., Kowal & Fortier, 1999; Mills & Fullagar, 2008). Finally, while in flow, attention is so focused on the task that people experience a sense of time flying and an absence of self-consciousness (focus) (e.g., McQuillan & Conde, 1996). Following such flow experiences, learners report feeling a sense of well-being and accomplishment-related positive emotions, such as pride or satisfaction (see Pekrun, 2006), emotions that are even more important in our current isolated educational experiences. According to flow theory (Csikszentmihalyi, 1975), such positive affect and focused attention increases task engagement, exploratory behaviors, and the chances of repeating the task, which itself has a positive effect on the development of skills.

Flow theory has begun to attract the attention of AL researchers (e.g., Aubrey, 2017b, 2017a; Zuniga & Payant, 2021; Cho, 2018; Czizmerrmann & Piniel, 2016; Egbert, 2003; Kirchhoff, 2013; Oxford, 2017). The results of this body of research suggest that authentic, meaningful, and collaborative tasks that offer clear goals and feedback, present realistic challenges, and favor learner autonomy appear to be the most amenable to classroom flow experience. Although research from the field of AL writing has closely examined learners’ perception towards teachers’ corrective feedback and peer review as well as engagement, no research has examined the relationship between peer review and flow. More importantly, few studies have examined peer review in an online laboratory environment (Chang, 2012; Pritchard & Morrow, 2017) and even fewer in an authentic online classroom context (I. Lee, 2019; Storch, 2019). Such contextual variables might interact with flow in various ways. On the one hand, being confronted with new communication technologies and procedures used for online feedback with limited opportunities to receive individual assistance may impose cognitive demands that surpass learners’ skills and compromise flow experiences. On the other hand, those cognitive demands may be mediated by the nature of the components of the task, namely an individual peer revision component (I-PR), operationalized in this study as individually commenting a peer’s text during an online course and a sharing peer revision component (S-PR), operationalized as sharing comments (after the I-PR) in a private breakout room with one peer. The virtual interactions taking place in real time (a virtual FTF interaction) during the S-PR component of the peer review task may create opportunities for a collective scaffold such that learners provide appropriate forms of assistance (Storch, 2019), which may be associated with enhanced flow experience. However, it may impose too many technology-related demands on the learners that they may not be able to experience flow during this component. As such, it is important to uncover if they experience flow and whether the interaction opportunities afforded in an online environment is flow-inducing. In light of these arguments, the objective of the present online study is to examine the relationship between learners’ flow experiences as they engage in two peer revision tasks, each with two components. We formulated the following three research questions:

**RQ1.** How do learners experience flow during two peer revision tasks, each with an I-PR and a S-PR component in an online Zoom-based course?

**RQ2.** How do learners experience flow when repeating this task with a new text?

**RQ3.** What are learners’ perceptions of peer revision during the I-PR and S-PR components?

### 3. Methodology

#### 3.1. Context

The study took place in January and February 2021 in an authentic Zoom-based classroom at a large urban francophone institution in Canada which offers French as an AL courses. This specific course is an advanced-intermediate French writing course (B2 on the CEFR scale) and its aim is to develop students’ grammatical skills through a writing approach. At this level, students are able to comprehend complex texts and can interact with some fluency (CoF, 2001). This was the second time the teacher offered this course on
Zoom; however, as a result of the pandemic had not yet integrated peer review tasks, a practice that was part of her teaching practices prior to 2020. The course met virtually 3 hours per week and the teacher made regular use of Moodle, a course management system, to communicate with students.

3.2. Participants

A total of 31 students enrolled in this Zoom-based French writing course. We obtained consent from 28 students; however, we report data from 18 learners who completed the four online flow questionnaires following each I-PR and S-PR component. The participants’ ages ranged between 19 and 54 (M = 35.1; SD = 9.5), with 14 women and 4 men. The group was quite heterogeneous, a distribution that is not uncommon in advanced writing courses. Participants were multilingual and first languages included Arabic (n = 6), Berber (n = 1), Cantonese (n = 1), Spanish (n = 5), Portuguese (n = 1) Japanese (n = 1), Romanian (n = 1), and Russian (n = 2). All participants reported having studied English as an Al prior to learning French. Participation in the study was voluntary but the peer revision tasks were integrated into the regular course.

3.3. Writing task

In this French writing course, learners were required to complete various writing tasks, namely, 3 short texts, a book summary, a midterm writing paper, and a final paper. The three short texts (200 words) were the assignments that included peer revision. The first text, a biography of a famous artist from the learners’ home country, was used during the researchers’ second visit to practice the peer revision procedures. For the data collection visits, learners produced a text which described an invention that would change the world and justified their argument (week 3) and described a useless invention and justified their argument (week 4). These three texts were produced individually at home and were uploaded to Moodle, the university course management platform, before the virtual meeting. At the end of each online meeting, participants uploaded the first draft with their peer’s comments and the revised draft, which were completed within 48 hours of the peer revision task.

3.4. Instruments

To measure flow experienced by participants as they completed the I-PR and the S-PR components with two writing tasks, we used a previously validated questionnaire (see Egbert, 2003 for flow questionnaire) that included 14 Likert-scale items designed to measure three basic components of the flow construct: Interest (This task excited my curiosity.), Attention (While doing this task, I was aware of distractions.) and Control (I felt I had no control over what was happening during this task.). To this, we added two items (items 12 and 16, respectively) to assess the Skill-challenge balance (This task was too hard. This task was too easy.) (Csikszentmihalyi et al., 1997). Open-ended items were also included to obtain information regarding their perception towards I-PR and S-PR (What did you think of the feedback activity? What did you think of the feedback discussion activity in the breakout rooms? What other comments do you have?).

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**Fig. 1.** Procedure.
3.5. Procedure

The teacher invited the researchers to join the course on four occasions. Before the first meeting (Week 2 of the semester), we shared two videos that provided details about peer feedback (e.g., type of feedback; language to use when sharing feedback) and a video modeling local and global feedback practices. During the first meeting (Week 3 of the semester), we began with a 20-min presentation about local and global feedback, direct error corrections, and global comments. We also facilitated a question-and-answer period and elicited experiences with feedback. The teacher then guided the class in the development of a rubric, which can be found in the Appendix.

The goal of the second visit (Week 4 of the semester) was to familiarize participants with each step of the peer revision task: exchanging texts, using MS Word functions to individually provide written feedback, joining breakout rooms, activating cameras in breakout rooms, saving files, and sharing their feedback. New to the university, many learners were not familiar with peer revision or with the technologies (e.g., Moodle, Zoom, and the editing functions of MS Word). As such, during this second visit, we demonstrated ways to provide respectful comments to peers to foster collaboration. We also gave a demonstration of MS Word editing functions, a step which was quite complex given the many versions and languages of MS Word, and we practiced giving, accepting, and rejecting in-text changes (track changes) and comments. We also offered a follow-up workshop that week for students who continued to experience difficulties with MS Word functions, all on Zoom. In a f2f context (e.g., laboratory), this step would be simpler, considering the availability of uniform equipment and the shared working space. In this virtual environment, taking the time to scaffold learning was time-consuming, but critical for the success of the peer revision task.

Data collection took place during the third and fourth visits (Weeks 5 and 6 of the semester) and followed the peer revision process detailed in Fig. 1. As per the teacher’s request, the researchers created dyads based on the participants’ L1 profiles (avoiding shared L1s as much as possible) and emailed each dyad the two texts a few minutes before the peer revision task. After receiving their peer’s essay, the I-PR component began, for which participants were allotted 20 min to read their peer’s text twice, offering comments during the second reading. During this time, participants remained in the main room, but were invited to turn off their microphone and cameras. At the end of the I-PR component, participants were invited via a link in the chat function to complete the flow perception questionnaire (10 min). Then they transitioned to their assigned breakout rooms, emailed their commented texts to their peers (cc’ing the researchers), and took 10 min to read their peer’s comments before beginning the S-PR component, at which time they discussed the feedback (although most learners did not share the same L1 (e.g., Spanish, Arabic, Chinese), they had English and French as shared languages). Each dyad was instructed to record their interactions during the S-PR component in their individual breakout rooms which were later uploaded to Moodle. Immediately after, participants completed the second flow questionnaire and responded to the open-ended items. This procedure was repeated one week later with the second text (i.e., a useless invention).

3.6. Data analysis and coding

The data for the flow perception questionnaire were organized in an Excel spreadsheet. We first reverse-coded the negative items and then calculated flow averages by dividing the sum of the Likert responses by the maximum possible score (84) to obtain a composite flow ratio. We further calculated ratios for each flow component (i.e., Interest, Control, Focus). SCB was calculated as a separate measure by subtracting the result for the item “too difficult” from the item “too easy” (both on a scale of 1 = strongly disagree and 6 = strongly agree). This provides us a 10-point scale ranging from −5 (too easy) to +5 (too hard), where zero represents perfect SCB. For example, a response of 4 for “too hard” and 3 for “too easy” yields a score of +1, which would indicate that the task is relatively balanced (close to zero), but slightly too hard. Likewise, a score of 6 for “too easy” and 1 for “too hard” yields a score of −5 (unbalanced, and too easy). The open-ended responses from Time 1 and Time 2 were compiled in a single document.

As a first step with the analysis, we verified the normality of the distribution for the data from the flow perception questionnaire. We then compared mean flow intensity scores according to the study variables: I-PR/S-PR, Time 1/Time 2. Mann-Whitney U tests and Wilcoxon rank-sum tests were used to test the statistical significance of mean differences for data not respecting distribution assumptions. For the open-ended items, responses were read several times and codes were created for the I-PR/S-PR components such as L2 learning, technology issues, focus, independence, engaging, lacking confidence, doubts, exchanging. These were then analyzed in light of the four dimensions of Flow Theory: Interest, Control, Focus and SCB.

4. Results

Table 1 presents the composite flow score for all four components, as well as average Interest, Control, Focus and SCB. The average flow score was 77.9/100 (SD = 14.1), with scores ranging from 32.1 to 100, suggesting a wide range of flow experiences. Among the subcomponents, Interest (M = 80.3; SD = 16.7) was slightly more elevated than Control (M = 75.4; SD = 17.8) and Focus (M = 74.1; SD = 17.8). Finally, the SCB score of −1.03 (SD = 2.04) suggests that the task was perceived as balanced, but slightly too easy, with scores ranging from −5 (too easy) to 3 (too hard). Inspection of histograms and skewness and kurtosis ratios show that the data were not normally distributed, with negative skews signaling higher flow scores.

To understand how task synchronicity interacted with flow, we compared mean flow scores for the I-PR and S-PR components. The results presented in Table 2 show that the participants enjoyed a significant 6% increase in flow during the S-PR (M = 80.3, SD = 13.6) compared to the I-PR component (M = 75.6, SD = 14.6). A Wilcoxon signed-rank test confirmed the statistical significance of this difference, T = 403, z = 2.2, p = .03. This increase in flow appears to be attributed to a modest, but significant 5% increase in Interest, T = 377, z = 2.13, p = .03, and a general 15% significant increase in Focus during the S-PR component, T = 380, z = 3.05, p = .002.
Table 1
Descriptive Statistics for Flow.

|        | Mean (N = 72) | Min | Max | Skewness | Kurtosis |
|--------|---------------|-----|-----|----------|----------|
| Comp. Flow | 77.9 (SD = 14.1) | 32.1 | 100 | -7.752 (SE = .283) | .813 (SE = .559) |
| • Interest | 80.3 (SD = 16.7) | 31.3 | 100 | -10.676 (SE = .283) | .410 (SE = .559) |
| • Control | 75.4 (SD = 15.8) | 38.8 | 100 | -12.296 (SE = .283) | -.534 (SE = .559) |
| • Focus | 74.1 (SD = 17.8) | 27.8 | 100 | -11.48 (SE = .283) | -.629 (SE = .559) |
| SCB | -1.03 (SD = 2.04) | -5 | 3 | -1.333 (SE = .283) | -.559 (SE = .488) |

Note: N = Total Sample Size; SD = Standard Deviation; SE = Standard Error.

Finally, the S-PR component (M = −1.42, SD = 2.06) was perceived as significantly easier than the I-PR component (M = − .64, SD = 1.9). T = 68.5, z = 2.35, p = .02. The S-PR component generated significantly more flow than the I-PR component.

To respond to our second research question, we examined the effect of practice on the flow experience by comparing the mean flow scores at T1 and T2. Table 3 reveals that learners experienced about 5% more flow at T2 (M = 79.9, SD = 15.8) than at T1 (M = 76.0, SD = 12.2). A Wilcoxon signed-rank test confirmed the statistical significance of this difference, T = 433, z = 2.31, p = .02. The participants also experienced a 14% significant increase in Focus, T = 459, z = 3.19, p = .001, and the activity was perceived about seven percentage-points easier at T2, T = 108.5, z = −1.96, p = .05. Engaging twice in the peer revision task appears to positively impact flow experience.

To gain a more nuanced response to the RQ2, we compared the mean flow scores at Time 1 and Time 2 for both tasks. With regard to the I-PR components, the results in Table 4 show that learners experienced slightly more flow at T2 (M = 76.3; SD = 17.5) than at T1 (M = 75.0; SD = 11.4), but this difference was not significant. Learners nonetheless reported about 15% more focus at T2 (M = 74.1; SD = 15.2) than at T1 (M = 64.2; SD = 13.7), and a Wilcoxon signed-rank test shows this difference approaching significance, T = 115.5, z = 1.850, p = .06. Finally, learners perceived the I-PR components to be about 10% easier at T2 (M = −1.3; SD = 2.0) than at T1 (M = 0.1; SD = 1.7), T = 22.5, z = −2.58, p = .01. Contrary to the I-PR component, the S-PR component was enjoyed significantly more the second time around, with 9% more flow at T2 (M = 83.6; SD = 13.3) than in T1 (M = 77; SD = 13.3). This difference was statistically significant, T = 138, z = 2.91, p = .004. Among the subcomponents, while there was a significant 7% increase the Interest at T2 (T = 120, z = 2.06, p = .039), the significant 14% increase in Focus seems to be the factor that accounted for most of the flow increase, T = 121, z = −2.77, p = .006. Unlike the I-PR component, the S-PR component was not necessarily perceived as easier the second time. Taken together, regarding the flow experience, it appears that the S-PR component benefited the most from repetition.

This final section presents the qualitative results (RQ3). Five flow-related themes emerged from the analysis: interest in providing feedback, SCB while providing feedback, flow and exchanging feedback, (anti-)flow-inducing aspects, and repetition effects.

Interest in the activity of providing feedback was apparent for a majority of the learners. They felt that the I-PR component raised their awareness about language, which they enjoyed: “So this activity allows me to see the importance of grammar, and it’s fun” (Ye’). In fact, several comments linked peer review and learning: “I think it is an interesting activity, gives us more knowledge when writing” (Lina). Of interest, two participants mentioned the long-term benefits of peer review: “I enjoy the activity. I think over time this task can be a great tool to help us improve our writing and reflect on the things our peers give us” (Amancio) and “I am sure, the feedback will allow us to pay attention in the grammatical part in future written works” (Séverine).

It was interesting to note, however, that learners saw more value in the peer revision task the following week, a finding which corroborates the quantitative data. In addition to being interested in the task, many more began to see its value for their own language learning: “I learned many things, especially correcting my own mistakes [identified] by another person” (Alissa). Engaging with the language also had an impact on their interest in the language itself: “The activity of giving feedback has awakened our imagination about French, and it helps us a lot” (Zeina). Finally, we see that they were more in control of their actions and aware of areas to develop. One participant wrote: “The mistakes my partner made allows me to reflect or look up grammar points online. It helps me to consolidate my grammar knowledge. […] When I was correcting my partner’s mistakes, I was thinking about how to explain it to him” (Paola). For another, it was an opportunity to increase her awareness of her language: “I realized that I need to know more about punctuation in French” (Lina).

1 Pseudonyms are used throughout the paper. Responses were translated from French to English.
Table 3
Comparison of Flow in T1 and T2.

| Flow       | T1 (N = 36)     | T2 (N = 36)     | Difference |
|------------|-----------------|-----------------|------------|
| Comp. Flow | 76.0 (SD = 12.2)| 79.9 (SD = 15.8)| +3.9*      |
| • Interest | 79.4 (SD = 15.0)| 81.3 (SD = 18.5)| +1.9       |
| • Control  | 73.6 (SD = 16.0)| 77.3 (SD = 15.5)| +3.7       |
| • Focus    | 69.1 (SD = 15.2)| 79.0 (SD = 19.1)| +9.9**     |
| SCB        | -69 (SD = 2.0)  | -1.36 (SD = 2.0)| -0.67*     |

Note. *p < .05. **p < .01.

Table 4
Comparison flow T1 T2 for I-PR and S-PR components.

| Task   | Flow   | Time 1 (N = 18)     | Time 2 (N = 18)     | Difference |
|--------|--------|---------------------|---------------------|------------|
| I-PR   | Comp. Flow | 75.0 (SD = 11.4)    | 76.3 (SD = 17.5)    | +1.3       |
| • Interest | 79.3 (SD = 13.2)    | 77.7 (SD = 20.7)    | -1.6       |
| • Control | 74.3 (SD = 16.8)    | 74.7 (SD = 15.3)    | +0.4       |
| • Focus | 64.2 (SD = 13.7)    | 74.1 (SD = 15.2)    | +10.0      |
| SCB    | 0.1 (SD = 1.7)      | -1.3 (SD = 2.0)     | -1.2**     |
| S-PR   | Comp. Flow | 77.0 (SD = 13.3)    | 83.6 (SD = 13.3)    | +6.6**     |
| • Interest | 79.6 (SD = 17.1)    | 84.8 (SD = 15.7)    | +5.2*      |
| • Control | 72.8 (SD = 15.5)    | 79.9 (SD = 15.8)    | +7.1       |
| • Focus | 73.8 (SD = 20.9)    | 84.3 (SD = 16.0)    | +10.5**    |
| SCB    | -1.44 (SD = 2.1)    | -1.39 (SD = 2.1)    | +0.05      |

Note. *p < .05. **p < .01.

The second theme was related to the optimal balance between task challenge and skills necessary for learners to experience flow. The qualitative analysis indicated, however, that for some learners, they were not quite able to meet the challenge of the activity, especially at Time 1 during the I-PR component. It appears as though the task required too much of them cognitively: “I think I don’t have enough criteria to do it. I find it interesting, except that I can’t explain everything in writing” (Joanie). The challenge, for two participants, was directly related to the technologies: “I think it would have been easier in person, and the technology was very difficult for me” (Aicha). One participant mentioned how they were unable to focus with so many students on Zoom at once: “I find this activity interesting, but when everyone is talking at the same time it’s hard to concentrate” (Thalya). Others simply did not feel in control and, despite having received training and a handout detailing each step of the activities, appeared to feel overwhelmed. One participant enjoyed the activity but felt lost: “Positive, but I need to better understand the best way to get there” (Anton). Overall, this I-PR component generated less flow, a finding which may be related to the virtual and physically isolated context.

The qualitative data further showed that exchanging feedback (S-PR) in breakout rooms was a much more flow-inducing experience than the individual written component (I-PR). In fact, a space to exchange ideas was mentioned by several learners and was central to their experience: “It was good and fun, we were able to exchange our ideas and viewpoints with others” (Bakour). They appreciated the interaction opportunities, and despite being online and never having met in person, referenced the interpersonal relationships that were developing.

I found it more useful than part 1. I liked it a lot because there was human contact, with debates (Tian).

I am more involved when I am face to face with my partner. It’s more involving than the monologue with the teacher. Also, I have a lot of discussion with my partner (Naima).

Although no participant explicitly mentioned losing sense of time as a result of greater focus, one learner explained that: “The activity suits me perfectly. The activity is perfect for me because I focused to the max” (Albana).

The qualitative analysis revealed a fourth theme, namely that four participants were in an anti-flow state. Two participants were insecure about their linguistic abilities. One student explained: “If we both learn, I do not even know how to correct correctly” (Li). Another explained how she would feel more in control if she collaborated with a more proficient partner: “To do it with a person who has the knowledge because we are not sure if it’s the right correction” (Mikhaela). One student, in turn, felt confused since they each focused on different aspects in their feedback. She explained: “It was a little confusing, I thought the feedback was based on general questions asked by the teacher, and that was my goal. The other person was only focusing on grammar” (Karolina). These participants were out of the flow channel such that the challenge was beyond their current skill level.

Finally, having the chance to implement these tasks on repeated occasions had a positive impact on their overall appreciation of the task. One participant wrote: “It was great! We were no longer distracted by technical issues and had the opportunity to talk more” (Naima). Another participant explained: “At first, I wasn’t sure if this activity was for Zoom and Word or for French. But after 2 tries, everything went very well today” (Maria). Exchanging appeared to be a flow-inducing activity: “I like to give my opinions, and my partner’s opinions help me write the text better. It’s good to have feedback from the other person” (Zeina). This observation lends even more support for the importance of allowing time for learners to interact after reading and commenting a draft on repeated trials.
5. Discussion

The global Covid-19 pandemic that hit educational contexts obliged teachers to quickly transform their practices to virtual spaces with little to no warning. The objective of the present study was to uncover learners’ state of flow as they engaged in peer review tasks which included an individual component (providing feedback) with a follow-up virtual f2f sharing component (discussion feedback). The findings from this study contribute to the growing body of research on peer revision by expanding the focus to completely online spaces and to the study of flow. In what follows, we discuss the results from the first two research questions and support these with the qualitative results.

In response to our first research question, the analysis of the composite flow scores as well as the four flow components (i.e., Interest, Control, Focus, and SCB) illustrates that peer review in an online environment is quite flow generating, compared to the average of flow score of 69/100 published in Zuniga and Rueb (2018). These findings converge with previous AL flow research which show higher levels of flow during meaningful collaborative tasks (Zuniga & Payant, 2021; Czimmermann & Piniel, 2016; Egbert, 2005). Among the specific flow components, we found Interest to be highest, followed by Control and Focus. The peak in Interest corroborates with little to no warning. The objective of the present study was to uncover learners which aspects of their peers challenges experienced by these learners, namely, (a) having developing knowledge of the target language, (b) feeling unsure about individuals to be significantly harder than sharing that feedback. The qualitative data provided additional insights into the specific learners’ attention away from the main objective which translated into less control and focus over the task as hypothesized by Csikszentmihalyi (1975, 2008, 2014). It would be worthwhile to further examine how technology knowledge and physical location influences flow during peer review activities.

In light of previous research demonstrating how individuals experience more flow during interactive tasks, we also compared flow during the individual and shared components. Exchanging feedback in small breakout rooms generated significantly more flow than the individual reading and feedback-providing task. Looking into the dimensions of flow, Focus is largely responsible for this observed difference. One potential explanation for this greater perceived focus pertains to the joint attention which was facilitated through the ‘Share Screen’ function on Zoom which creates a virtual synchronous communication space (O’Rourke & Stickler, 2017). Despite the physical distance, being in a shared virtual space may facilitate the collaborative negotiation of difficulties learners experienced during the task. These interactions may thus help learners maintain the activity in the SCB flow zone, something not afforded by the comment task, which was completed individually with limited opportunities to seek help or validate their work.

Another interesting finding relates to the SCB experienced in this context. Learners perceived the task of providing peer feedback individually to be significantly harder than sharing that feedback. The qualitative data provided additional insights into the specific challenges experienced by these learners, namely, (a) having developing knowledge of the target language, (b) feeling unsure about which aspects of their peers’ text to focus on, (c) having different interpretations of the types of feedback to provide (local and global) and (d) experiencing some technology-related struggles. These findings corroborate previous research in f2f contexts such as learners doubting their own or their peers’ abilities to provide feedback (Hu, 2005; M. K.; Lee, 2015; Poverjuc et al., 2012; Tsui & Ng, 2000). Sharing and discussing feedback, on the other hand, was perceived to be easier by these participants. This can be partially explained by the affordances of collaborative learning and teaching where learners can discuss ideas and feedback and engage in negotiation of meaning when they are unable to grasp the information (e.g., clarification requests, confirmation checks). Learners can also participate in the co-construction of knowledge about language by engaging in collaborative dialogue, namely, moments where they talk about the language using the language (Swain & Lapkin, 1998). A number of studies support the affordances of collaborative learning and writing (Zuniga & Payant, 2021; Fernández Dobao, 2012).

The second research question examined learners’ flow experience while engaging in the task one week later, with a new text. Overall, engaging learners in the same tasks on two occasions appeared to be flow-inducing. This positive state of flow at Time 2 can be attributed to an increased perception of focus and SCB. With greater familiarity of task expectations and technologies at Time 2, learners appeared to have appreciated opportunities to exchange and collaborate. Further analysis according to task synchronicity showed that the interaction between flow and task repetition was particularly salient during the S-PR component, which itself was largely due to a significant increase in focus at Time 2. It appears that S-PR component involving oral interaction was not only the most favorable to flow experiences but appears to have also benefitted the most from task repetition. These results contribute to the mounting evidence from task repetition research that task familiarity contributes positively to positive experiences during task completion (Kim, 2013; Pinter, 2015; Payant & Reagan, 2018). To the best of our knowledge, Kim et al. (2020) are the first to examine the influence of task repetition, but with teacher-provided synchronous feedback, and reported that students’ stress decreased after having performed the task on multiple occasions. Furthermore, the modality-specific finding corroborates those of Zuniga and Payant (2021) who examined the impact of two task repetition conditions (identical task repetition and procedural task repetition) on flow. At Time 1, all participants completed an identical two-way decision-making gap task in the oral and the written modalities. One week later, Time 2, one group repeated the identical task and the other, a new task (same procedure, new content). Although no significant differences were identified between Time 1 and Time 2 for the exact repetition group, they identified increased interest and focus at
Time 2 for the procedural repetition group, but only during the oral task. These studies, taken together, suggest that repeating tasks, particularly collaborative oral tasks, is positively experienced by learners and together suggest that task familiarity can increase flow across various task types. The relationship between flow, task repetition, task modality, and peer review are promising avenues for future research.

The qualitative findings that emerged from this study contribute additional insights into peer review activities for AL learners. We know, from previous research, that learners appreciate peer feedback opportunities as it creates spaces where they can improve their texts, gain more insights about writing for an audience, and increase their sense of confidence in writing and in providing feedback (Chang, 2012; M. K. Lee, 2015; Tsui & Ng, 2000). In this context, in addition to identifying perceived language-related advantages, we found several discussions surrounding the importance of having a virtual f2f component, especially in an online course. During these more intimate meetings, with the same partner, our participants felt more engaged and more comfortable with the task expectations and the technologies. To the best of our knowledge, how learners perceive peer review overtime in an online environment remains to be investigated.

6. Conclusions and future directions

At the time of writing this paper, some are experiencing the fourth wave of the pandemic and still living during Covid-times, that is experiencing all their education in online spaces. Even though many educators are actively thinking about post-Covid times and about a return to ‘normal’ pedagogical practices, how the pandemic will have reshaped our practices remains unclear. In the context of AL writing, working in online environments (synchronous and asynchronous) are already being implemented (Ziegler, 2016) and are likely going to continue. Having identified in this authentic online laboratory the potential for peer review practices that include an interactive dimension (S-PR), it is important to continue to examine how space, time, and interaction influence our subjective experiences. Each space offers unique experiences to learners and the optimal peer review experience may in fact be a blended approach with individual and interactive components in virtual and physical spaces (Chang, 2012).

Despite the great care in developing training materials and familiarizing learners with the procedure, some limitations should be acknowledged. In a first instance, learners did not have the same level of comfort with technologies and greater care in creating same technology-proficiency dyads may have enhanced the experience for all learners. Also, the study was conducted over two consecutive weeks. Learners had limited time to revise and produce new texts. It remains unclear how repeating a similar task would mediate flow. Finally, the present study only examined flow experience and no analysis of the cognitive or behavioral engagement with the feedback was conducted. While flow is considered to be the ultimate engagement, it is imperative that we also examine the quality of the feedback and subsequent revisions in relation to flow. Despite these limitations, the present study contributes to the learning and teaching opportunities during this global pandemic. We invite teachers and researchers to collaborate and experiment with peer review in their virtual spaces with learners who appreciated this opportunity to interact with their peers during these very isolated times.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

Peer Review Task: Guiding Questions

Questions about the instructions

1. Did your peer respect the topic of the essay?
2. Did your peer rephrase the information in the text?
   a. Did not copy sentences from the Internet

Questions about the structure of the text

3. Is your peer’s text clear?
4. Is your peer’s text coherent (sentences follow logically, use of relationship markers, no contradictions)?
5. Does your peer’s text have an introduction, a body, and a conclusion?

Question on grammar

6. Did your peer make any spelling errors?

—-2 These questions were developed by the learners and their teacher.
Reflection questions

11. Did you like the text?
   a. If yes, why?
   b. If not, why not?

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