

Exploring the Scope of Flow in a Language Learning Context: Redefining the Dimensions Based
on Student Perspectives

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Abstract

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This study explores the notion of flow as it applies to contexts of second language (L2) learning and use. Previous work has focused on researcher-centred descriptions of flow, which generally refers to a person's sense of being completely absorbed in a task, with L2 learners predominantly responding to questionnaire statements about flow. In this study, instead, flow is explored through the perspectives of the individuals experiencing flow, by asking them to describe their feelings and any factors they feel relevant to their experience. For a period of four weeks, five undergraduate students taking L2 courses of French or Spanish reported their flow states in weekly diary entries and interviews. As reported by students, several contexts emerged as conducive to flow, including interactive activities (which were the most reported), taking an exam, studying grammatical forms, listening to a lecture, reading, or practicing a speech. Data analysis focused on identifying a set of flow dimensions as emergent from students' reports. Seven flow dimensions were identified: skill–challenge balance, attention, oblivion, interest, stress, enjoyment, and sense of accomplishment. Four dimensions were similar to the characteristics identified previously in relation to L2 learning (attention, interest, enjoyment, sense of accomplishment), one dimension was redefined on the basis of the present findings (skill–challenge balance), and two new dimensions were identified for the first time (oblivion, stress). Findings of this study suggest that flow might be linked to a certain level of proceduralization of L2 skills, as the element of automaticity was prominent in most descriptions

of flow. Taken together, the findings align with previous claims that advanced skill levels are necessary for flow states to emerge (Egbert, 2003; Nakamura & Csikszentmihalyi, 2014).

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Table of Contents

List of Tables	viii
Chapter 1: Introduction	1
Chapter 2: Literature Review	3
Concept of Flow	3
Flow in L2 Learning.....	5
Dimensions of Flow	6
The Current Study	8
Chapter 3: Methodology	12
Participants	12
Materials.....	13
Procedure.....	16
Data Analysis	17
Chapter 4: Results	21
Occurrences of Flow	21
Dimensions of Flow	23
Flow in Interactive Speaking Activities	27
Flow in Other Language Activities	33
Chapter 5: Discussion and Implications	37
Dimensions and Characteristics of Flow.....	37

Implications for Language Learning	42
Chapter 6: Limitations and Conclusion	45
References	48
Appendices	53
Appendix A	53
Appendix B	54
Appendix C	55
Appendix D	60
Appendix E.....	61
Appendix F	62

List of Tables

Table 1. <i>Subcategories Established for the Coded Dimension “Oblivion”</i>	18
Table 2. <i>Intercoder Disagreement and Resolution</i>	20
Table 3. <i>Flow Experiences Reported by Participants During the Four Weeks</i>	21
Table 4. <i>Examples of Emergent Codes</i>	24
Table 5. <i>Frequency and Distribution of Coded Dimensions of Flow</i>	26

Chapter 1: Introduction

Mihaly Csikszentmihalyi (1975, 1990) proposed the notion of flow to characterize a person's state of intense focus on a specific task. Flow refers to a perceived state of harmony in terms of enjoyment and concentration in an activity, to the point of oblivion of the surrounding environment. When people experience flow, also referred to as the optimal state, their focus is often so deep, that they feel a lack of self-consciousness (forgetting their physical and/or emotional states, such as hunger and stress), have trouble perceiving time accurately, and experience coalescence between their awareness and action, which is characterized by an ability to accomplish the task without much conscious effort (Csikszentmihalyi, 1990). Flow has been researched in many contexts (e.g., Abbott, 2000; Jackson, 1996; Sinnamon et al., 2012) and has been found to lead to life and work satisfaction (Hood, 2008; Ilies et al., 2017; Olčar et al., 2019), improved creativity (Csikszentmihalyi et al., 2018; MacDonald et al., 2006), and enhanced task performance (Borovay et al., 2019).

In education, flow has been operationalized as a determinant of students' intrinsic motivation (e.g., Abbott, 2000; Borovay et al., 2019; Cho, 2018; Hong et al., 2017; Liu et al., 2016) and task engagement (e.g., Aubrey, 2017a; Cox & Montgomery, 2019; Kirchhoff, 2013; Liu et al., 2016; Mcquillan & Conde 1996). For instance, second language (L2) learners who reported experiencing flow in an interaction-based activity also showed more frequent turn-taking behaviours, which suggested greater engagement for these students than for students who did not experience flow (Aubrey, 2017a). According to Csikszentmihalyi (2014), creating opportunities for students to experience flow can be used as an effective approach to help them attend to the target material, because flow is believed to be intrinsically motivating and engaging.

With respect to L2 learning in particular, several dimensions of flow have been established (Egbert, 2003), including skill–challenge balance, attention, interest, and sense of control (described in detail below). Although these dimensions of flow have been explored to various degrees in prior work (e.g., Aubrey, 2017a, 2017b; Cho, 2018; Cox & Montgomery, 2019; Kirchhoff, 2013), our understanding of what language speakers—and L2 learners in particular—feel during their flow experience is limited because most previous research on flow has relied on discrete-point questionnaire items to elicit L2 learners’ perspectives. Thus, what is currently known about flow in L2 learning comes largely from researcher-imposed statements and descriptions, to which L2 learners have been asked to react typically using Likert-type scales. In an attempt to provide a richer description of flow, as it applies to L2 learning and use, and to contribute to our understanding of the flow experience in education, the goal of this exploratory study is to document L2 learners’ qualitative perspective on flow through an analysis of diary entries written by intermediate L2 learners of Spanish and French over a period of four weeks.

Chapter 2: Literature Review

Concept of Flow

The concept of flow was developed by Mihaly Csikszentmihalyi in his book *Beyond Boredom and Anxiety* (1975) to understand why artists, athletes, and other professionals continued practicing careers from which they did not receive any external rewards (e.g., recognition, money, or success). He hypothesized that people's experience of performing their chosen activity was in large part autotelic, meaning that it brought them enjoyment in itself. Consequently, the rewards of engaging in an autotelic activity came from within, intrinsically motivating people to continue performing this activity. Csikszentmihalyi called this experience flow, which generally refers to a person's sense of being completely absorbed in a task (Nakamura & Csikszentmihalyi, 2014). To date, multiple characteristics of flow have been established as a result of descriptions provided by individuals experiencing flow, including an intense focus on the task, a loss of self-consciousness, a sense of enjoyment, a distorted notion of time, a merger of action and awareness, and a sense of heightened control (Csikszentmihalyi, 1990; Csikszentmihalyi et al., 2018; Nakamura & Csikszentmihalyi, 2014).

Although flow states occur relatively rarely (Abuhamdeh, 2020; Nakamura & Csikszentmihalyi, 2014), they can be experienced universally (Nakamura & Csikszentmihalyi, 2014) as people practice sports (Jackson, 1996), write (Abbott, 2000), read (Mcquillan & Conde, 1996), or play music (Sinnamon et al., 2012). For instance, in a study of 205 musicians, Sinnamon et al. (2012) showed that 87% of the surveyed amateur musicians and 95% of the quasi-professional musicians experienced flow states frequently, with multiple characteristics (e.g., loss of self-consciousness, perceived time distortion) associated with their perception of flow.

According to research in educational settings (e.g., Hood, 2008; Mcquillan & Conde, 1996), including various contexts of L2 learning and use (e.g., Aubrey, 2017a, 2017b; Cho, 2018; Cox & Montgomery, 2019; Egbert, 2003; Kirchoff, 2013), the general conditions that promote the experience of flow include (a) clear and proximal task goals, (b) possibility of immediate feedback, (c) skill–challenge balance, and (d) opportunity for autonomy/control (Csikszentmihalyi et al., 2014; Nakamura & Csikszentmihalyi, 2014). For example, using various data collection instruments, such as observations, questionnaires, and researcher reflection journals, Cox and Montgomery (2019) examined the experience of flow for 34 students of L2 Spanish, focusing on the potential benefits of flow in L2 learning. The students were divided into two groups, with one engaging in project-based instruction while the other following traditional instruction. Regardless of the type of instruction, the students’ experiences with flow were associated with a sense of control, receiving unambiguous feedback, and experiencing a skill–challenge balance.

One of the most researched issues with respect to flow is the balance between people’s perception of their skill level and of the task challenge. In order for flow to be possible, individuals need to perceive their skill level as relatively equal to the challenge posed by an activity (see Appendix A for a visual representation). When the skills needed to perform the task are perceived as greater than the challenge posed by the task, a person will likely experience other states (e.g., boredom, relaxation, or control). Conversely, when the skill level is assessed as low and the task is considered challenging, a person might experience worry, anxiety, or arousal. Furthermore, the perceived balance needs to be at a certain level of both challenge and skill in order to make flow experiences possible. That is, for someone to experience flow, skill and challenge should be perceived at an intermediate-to-advanced level, otherwise the state of apathy

is more probable (Nakamura & Csikszentmihalyi, 2014). When both perceptions are aligned at an optimal level, an experience of flow is possible (Csikszentmihalyi, 1990; Nakamura & Csikszentmihalyi, 2014). Creating various conditions for flow to occur, which includes ensuring an optimal skill–challenge balance, might allow language teachers to promote flow experiences in their classrooms, thus increasing the likelihood that learners become immersed in the process of learning by being both intrinsically motivated and engaged.

Flow in L2 Learning

Introduced to the field of L2 learning and teaching by Egbert (2003), flow is a concept which has not received much attention to date. As pointed out by Egbert (2003), one reason for this lack of attention involves the specifics of language teaching and learning. For instance, a certain level of both challenge and skill is necessary for people to attain the experience of flow (Nakamura & Csikszentmihalyi, 2014), which implies that beginner-level language learners could not be easily targeted in research on flow. Other limitations include the inherent expert role of teachers in a language classroom, which involves a great deal of control that is not conducive to a person’s experience of flow (Egbert, 2003). Nevertheless, a number of studies have reported L2 learners experiencing flow in various contexts (e.g., Aubrey, 2017a, 2017b; Azizi & Ghonsooly, 2015; Cho, 2018; Cox & Montgomery, 2019; Egbert, 2003; Hong et al., 2017; Kirchoff, 2013; Liu et al., 2016).

In her initial exploratory study, Egbert (2003) established four dimensions of flow relevant to L2 learning, including perceived learners’ skill–challenge balance, attention, interest, and control. She engaged L2 learners of Spanish in seven tasks, using surveys, interviews, and observations to evaluate their perceptions of flow along these dimensions. The learners reported experiencing flow in a language classroom, with some activities, such as computer-based tasks,

promoting this experience more than others (e.g., listening to and discussing passages, or reading and answering questions). However, the discrete-point nature of Likert-style questionnaires did not allow the researcher to provide a holistic, detailed perspective on flow, as experienced by an individual learner, and on the specifics which contributed to that experience. Therefore, it is not clear whether the feeling of flow emerged in response to the use of computer-mediated activities or whether flow was elicited as the learners reacted to the novelty of using technology in the classroom, in which case task novelty might be another condition for flow to occur (e.g., Liu et al., 2016; Mcquillan & Conde, 1996). Generally speaking, based on this initial investigation, flow can be created in a language classroom through activities as long as they respect the four conditions identified by Egbert (2003).

Dimensions of Flow

The four dimensions of flow, as described by Egbert (2003) in relation to Csikszentmihalyi's original work (perceived skill–challenge balance, learners' attention, interest, and control), have been influential in shaping subsequent studies on flow in language learning and teaching, with most work focusing mainly on learners' attention and interest (for a summary, see Appendix B). Attention, which concerns a learner's unintentional and largely unplanned focus on the task, is perhaps the most telling characteristic of flow, as the flow experience is unlikely to occur and persist unless the individual is completely focused on the task at hand (Csikszentmihalyi et al., 2014). As a result, all studies of flow in L2 learning have explored the role of attention in flow experiences. For instance, findings from Egbert's (2003) interviews show that attention was important in inducing flow, in the sense that when learners were not paying attention to the task, they were also not experiencing flow. Similarly, Cho (2018) studied 141 Korean learners of L2 English completing several task-based activities, to determine how

modality (speech vs. writing) and perceived task difficulty (simple vs. complex) impact learners' experience of flow. Using a questionnaire targeting the dimensions of attention, control, and interest, the researcher found that task modality influenced the occurrence of flow, with more flow experiences reported in writing than in speech. Across all flow experiences, however, attention was the highest rated and presumably the most important component.

Alongside attention, an individual's interest in an activity, which encompasses perceived meaningfulness of the task, has also been identified as an important component of flow in L2 learning and teaching. For instance, Azizi and Ghonsooly (2015) focused on the flow states reported by L2 learners completing expository and argumentative essays as part of the TOEFL test. Based on the results of a questionnaire and interviews with four students who reported the highest and lowest flow scores, expository essays elicited significantly more flow experiences than argumentative essays, with L2 learners' interest in the task shown especially relevant to the occurrence of flow. In another study, Kirchhoff (2013) looked at flow in extensive reading assignments completed by L2 Japanese students over 14 weeks. The data were collected through recall questionnaires, which prompted learners to identify specific flow conditions through Yes/No questions and to provide further explanation for the Yes responses. The condition leading to flow states most frequently (i.e., in 40% of the responses) was book content, which was directly related to the students' interest as they could select the books they wanted to read.

A third element of flow is the perceived skill–challenge balance, which (as described previously) refers to an equilibrium between a learner's skill level and the challenge or difficulty of the task. In a study focusing on L2 interaction and flow, Aubrey (2017b) showed that flow occurs more often in intercultural tasks (i.e., activities between individuals from different cultural backgrounds) than intracultural exchanges (i.e., activities between individuals of similar

cultural backgrounds). L2 learners' detailed journal descriptions of flow revealed that skill–challenge balance and learners' sense of accomplishment were important to their flow experiences.

Although control, which denotes an opportunity for a learner to be autonomous while completing the task, was not the characteristic most relevant to flow in Aubrey's (2017b) research, it has been shown to be a prominent dimension of flow in other work. For instance, in a study exploring flow in two L2 learner groups receiving either project-based or traditional instruction, learners' sense of control in the task was the most important in promoting flow experiences for both groups, as the learners linked the feeling of control to their investment in performing well (Cox & Montgomery, 2019). Based on these examples, multiple dimensions of flow, including perceived skill–challenge balance, attention, interest, and control, appear central to L2 learners' experiences with flow, although different dimensions seem to be more or less salient depending on a given context or a particular learner's experience.

The Current Study

Previous research about flow in L2 learning has focused on the four dimensions of flow, as established by Egbert (2003), including learners' perceived skill–challenge balance, attention, interest, and control (for a summary, see Appendix B). Most studies, however, have explored these dimensions through researcher-centred views relying on discrete-point questionnaire-style descriptions to which L2 learners were asked to react using Likert-type scales. Needless to say, this methodology is limiting, in the sense that the predominant use of Likert-style items or researcher observations to capture L2 learners' experience with flow leaves the details and perceptions of this experience scarcely explored. Although some researchers have included interviews alongside questionnaires (e.g., Azizi & Ghonsooly, 2015; Egbert, 2003), interviewing

each participant separately can be a time-consuming process, which discourages the possibility of analyzing lengthy narratives with detailed information provided by multiple individuals. For example, in Azizi and Ghonsooly's (2015) study, only four out of the 33 participants were interviewed. In addition, the use of diaries as a data-rich research tool (Hyers, 2018) has been largely overlooked. Aubrey's (2017b) diary study is an exception within previous work, in that he used diaries to obtain a learner perspective on flow. However, Aubrey's (2017b) study examined inter- and intra-cultural differences in flow experiences mediated through specific oral tasks, such as information exchanges and decision-making scenarios. What is largely missing from the current literature on flow are rich descriptions of L2 learners' flow experiences, including those arising from various language-related activities other than those targeting specific skills (e.g., writing, reading, listening) in instructed settings undisrupted by researcher-imposed interventions (e.g., tasks, activities), with a focus on a variety of target languages.

Given that flow is a subjective experience that occurs "privately, in consciousness" (Csikszentmihalyi et al., 2018, p. 220), it would be important to gain a private, personal insight into L2 learners' experience, which would contribute to a holistic view of flow. Such insights into flow would allow researchers to understand how flow is experienced, perceived, and interpreted by a given learner, which would in turn inform teachers about how to potentially transform these subjective experiences into pedagogical opportunities in the classroom. For instance, conflicting evidence regarding which characteristics contribute to flow in a given task (e.g., Egbert, 2003) or why control is conducive to flow in one context (e.g., Cox & Montgomery, 2019) but not in another (e.g., Aubrey, 2017b), would be easier to reconcile by using information provided by the individuals experiencing flow rather than through researchers' interpretations of questionnaire responses.

Moreover, an exploratory study design is necessary in order to refine previously established dimensions of flow from the perspective of the individuals experiencing it. Although several dimensions of flow have been identified in relation to L2 learning (e.g., Egbert, 2003), these descriptions have largely emerged out of researchers' theoretical speculation about how flow might unfold in contexts of L2 learning and use (e.g., Egbert, 2003; Guan, 2013). Therefore, it is essential that an exploratory study be carried out in which participants directly contribute to the development and refinement of the construct of flow, with the view of using participant-generated evidence to inform L2 teaching. Just as Aubrey's (2017b) diary study provided evidence for a new dimension of flow (i.e., sense of accomplishment), the present exploratory investigation might reveal new characteristics of flow specific to individual learners or particular learning tasks. Therefore, an exploratory design is ideal for redefining existing and identifying new dimensions of flow relevant to L2 learning.

In light of these conceptual and methodological gaps, the goal of this study was to provide a holistic, learner-centred perspective on flow in a longitudinal, diary- and interview-based study. This study was guided by the following research questions:

1. How do L2 learners perceive and describe their flow experiences?
2. Which specific dimensions of flow emerge as important in L2 learner descriptions of their flow experiences?

This research was conducted with undergraduate students enrolled in intermediate L2 French or Spanish courses. The students were provided with general guidelines in relation to the concept of flow and were asked to complete a weekly online diary and interview for four weeks, reporting any flow experiences related to their L2 learning or use. The student-centred perspective on flow

was expected to enhance previous L2-focused work on this construct with rich, context-specific descriptions of various dimensions of flow.

Chapter 3: Methodology

Participants

Participants for this study were recruited as volunteers using a call for participation distributed via e-mail by individual course instructors or a language program coordinator at Concordia University in Montreal. Participant recruitment began in the Spanish Program of the Classics, Modern Languages, and Linguistics Department, in hopes of recruiting learners of the same L2. However, because of the lack of response, the flyer was subsequently distributed among L2 French students in the French Studies Department (Études françaises). The final participant sample included five undergraduate students enrolled in L2 coursework, which was consistent with this study's purpose to collect detailed, qualitative information about instructed L2 learners' perceptions of flow.

The students, who are henceforth identified through pseudonyms, self-identified as female (D, Z, N) and male (O, X). Apart from one older individual (X), who was 68 years old, the remaining students were similar in age, ranging between 20 and 29 years old. They came from diverse language backgrounds, including English (O, Z), Arabic (X), Romanian (D), and Russian (N), and most reported knowledge and prior study of at least two L2s (N, D, X, Z), except one (O) whose only L2 was French. All students followed intensive courses, such that during the study, they completed two levels within the same course. One student (N) was enrolled in an intermediate-level L2 Spanish class focusing on a broad review of Spanish grammar, while the four others were taking L2 French courses. One student (X) followed an intermediate-level course, which centered on the grammatical structure of French and aimed to expand learners' vocabulary with the goal of enhancing their communication skills. The remaining three (D, Z, O) were enrolled in a high-intermediate course, which focused on the

development of their comprehension and writing skills. The students' proficiency was determined based on the level of the course in which they were enrolled. All were non-beginner language learners, as lower levels of L2 proficiency are generally not conducive to flow (Egbert, 2003; Nakamura & Csikszentmihalyi, 2014).

Materials

Three sets of research tasks were used for this study: an introductory presentation focusing on flow, weekly diaries, and interviews. At the beginning of the study, all students were given an individual 10-minute introductory lecture focusing on the notion of flow, delivered as a live PowerPoint presentation via Zoom (see Appendix C). Because flow is a concept which can easily be mistaken for other non-flow states, such as enjoyment or relaxation (Abuhamdeh, 2020), the presentation provided the students with a general layperson-friendly framework to understand this concept, using quotes from prior interview-based studies to illustrate flow (e.g., Abbott, 2000; Garces-Bacsal, 2013; Jackson, 1992). One example of a flow experience, as described by a student, was the following:

Because that's what I'm doing, I'm just blinking out from everything else... I'm basically talking to me and myself. Me, myself, and I, we're having our own little conversation...

Like I'll be writing and then I'll look up and you know, just kind of get off my train of thought, by blank-out, and it might be 30 minutes later. (Abbott, 2000, p. 75)

No specific dimensions of flow were itemized or defined in the presentation, so as not to influence the students' perceptions and to allow for various dimensions of flow to emerge from the students' own experiences. The presentation was followed by a brief informal quiz asking the students to recognize whether a given description (adapted from prior research) illustrated a flow

state. Of the five students, four scored 5/5 (100%) while one (X) scored 4/5 (80%). Therefore, all students generally began the study with a comparable understanding of flow.

The second research task involved the students writing weekly diary entries, with the aim of describing any flow experiences that they might have experienced during the previous week. A rather unconstrained nature of diaries allowed for a holistic view of each individual's perceptions, allowing the students to express their own views about what flow is and to document the dimensions relevant to their experience. The structure of diary entries was similar to that used by Aubrey (2017b) in his diary research, which involved asking prompting questions to guide the students in providing relevant information about their flow states. Unlike in Aubrey's (2017b) work, however, the students did not need to perform any specific intervention activities, as the aim of this study was to get a general sense of flow in an L2 learning context (inside and outside the classroom) without any pedagogical intervention. In each entry, they were requested to state whether they had experienced flow in relation to any aspect of their learning or using L2 Spanish or French, inside or outside language instruction. If they had experienced flow in a given week, they were asked to describe, in their own words, what this experience felt like using the prompting questions available at the beginning of each diary page. The following prompts were used in guiding the students' diary entries:

1. When and where did the flow state occur?
2. For how long were you in the flow state?
3. What do you think helped you get into or stay in this state?
4. Describe in your own words what this experience was like for you and how it made you feel in as much detail as you can. You may relate this experience to previous flow states you felt during the duration of this study.

5. How do you feel flow is related to the work you were completing for the second language class?

The students were encouraged to use these prompts to guide their semi-structured, free-flowing narratives rather than to respond to each prompt. In other words, the prompts were used as an inspiration for the students to provide deeply personal accounts of their flow experiences. Given that the students (all being proficient English speakers) attended a university where English is the medium of instruction and that their proficiency in Spanish or French was likely not sufficient to allow for lengthy written narratives, the students had the option of completing their diaries in English.

The final research task included individual online interviews, which took place during the week when the students reported flow in their diary entries, except for the final exit interview, which was conducted regardless of whether the student reported flow. The general purpose of the interviews was to elicit in-depth comments regarding the factors which played a role in each student's reported flow experiences and to check with the students the accuracy of the researcher's interpretations of their diary entries. The interviews were semi-structured, in that although guiding questions were available, the discussion was oftentimes free flowing. Each interview was based on a unique set of questions focusing on each student's personal experience as described in their diary entry for that week (see Appendix D for general guidelines used to develop student-specific questions). Researcher-student conversations during the interview focused on refining and clarifying descriptions, outcomes, enablers, and sometimes inhibitors of the specific flow state(s) described in that student's diary entry. The exit interview was conducted to review with each student the researcher's interpretation of the key characteristics of that student's flow experiences emerging over the four weeks of data collection. During the exit

interview, the researcher shared with the student a general list of key characteristics, so that the student could comment and elaborate on the researcher's interpretations. Given that qualitative analysis is subjective at its core (Ratner, 2002), it was of utmost importance to allow for each student's personal narrative to emerge throughout the study in both written (diary) and oral (interview) modality.

Procedure

All students were first familiarized with the study goals and, if they wished to participate, read and signed a consent form. They then attended a short live 10-minute PowerPoint presentation (delivered by the researcher via Zoom), which was followed by an informal quiz. At the end of the presentation, the students received information about all research tasks and were invited to clarify any outstanding questions. The students were asked to complete a personal diary entry at the end of each week for the period of four weeks using the GoogleDocs platform, and were provided with a sample entry for reference (see Appendix E for an example of a diary page containing all instructions). The students received a weekly personalized reminder to submit their entry three days before the deadline.

If a student forgot or was unable to submit their diary by the end of each week, they were accommodated with an alternative deadline. Each student had a private link to an individual page which could only be accessed by the researcher and the student. It was important that the students had the opportunity to freely express themselves without any judgment from fellow students, although they might have felt uncomfortable knowing that the researcher would read their entries. Weekly interviews took place on average one to two days after the students submitted their diary entry, which allowed the researcher to prepare for the interview. Exit

interviews took place at the end of the fourth week of the study. All interviews (conducted via Zoom) lasted approximately 25–30 minutes.

Data Analysis

All interviews, which were transcribed and verified, along with the content of written diary entries were imported into MAXQDA, which is a software application dedicated to qualitative analyses. Because flow states are typically rare (Abuhamdeh, 2020; Nakamura & Csikszentmihalyi, 2014), not all participants reported flow experiences during the four weeks. Nevertheless, all students' data were retained for the purposes of this study to provide a perspective on the occurrence and the extent of flow experiences among all students.

Stemler (2000) describes qualitative data coding as either emergent (i.e., categories are established once data are examined) or *a priori* (i.e., categories are previously determined based on a theory). Although previous L2 research has revealed four flow dimensions (i.e., skill–challenge balance, attention, interest, and control), this dataset was not coded using predefined categories. Because the primary goal of this study was to understand how individuals describe their flow experience rather than to impose any pre-established dimensions on their narratives, it was important to allow for categories to emerge from the students' diary entries and interviews. Data coding, which entailed categorizing the students' perceptions of flow (whenever flow states were reported) into different dimensions related to flow, was applied to both journal entries and interview transcripts. Given that new coding categories emerged from the data as analysis progressed, the entire dataset was re-coded in light of the updated coding categories in the final step of the analysis, to ensure that all coding decisions were applied uniformly across all transcripts.

An adapted version of the Grounded Theory Method was employed for coding (Strauss & Corbin, 1998), which involved three phases of data coding: open coding, axial coding, and selective coding. During the first phase, a preliminary coding of “similar words and phrases, concept-indicators, in broad initial thematic domains” (Williams & Moser, 2019, p. 48) was carried out to create an initial list of recurrent subcategories of flow dimensions, using the students’ verbatim descriptions, as interpreted by the researcher. Table 1 summarizes several examples of some coding decisions made at this stage.

Table 1

Subcategories Established for the Coded Dimension “Oblivion”

Example	Subcategory
“my classmate and I <u>lost track of time</u> a little bit because we were so engaged in the conversation.” (N, Diary entry 1)	Distorted notion of time
“ <u>I went into a flow state naturally.</u> ” (X, Diary entry 4)	Natural occurrence of flow
“ <u>I didn’t realize that I was in flow</u> until I snapped out of it probably 20 to 30 minutes later.” (D, Diary entry 4)	Lack of awareness during a flow state

During the axial coding phase, related discrete-point subcategories were combined into more general thematic categories. For example, the subcategories illustrated in Table 1 (i.e., distorted notion of time, natural occurrence of flow, lack of awareness) were organized under the general coded dimension called “oblivion.” During this phase, any subcategories which had similar meanings (e.g., feeling proud and feeling of achievement) were merged together into one subcategory. At the end of this process, another trained independent coder used the provisional categories developed in this step to re-code a random selection of three diary entries (out of 13)

and three interviews (out of 13) representing 23% of the dataset. The purpose of secondary coding was to revisit the initial coding decisions and check for potential coding inconsistencies, which is a common and expected practice in qualitative research as a way of creating a refined, reliable coding system (Kuckartz & Radiker, 2019). The independent coding revealed 35% disagreement in the identification of specific codable elements in the students' diary entries or interviews, and 63% disagreement for the assignment of individual codes to these entries. The two coders then discussed each disagreement until a consensus was reached. Table 2 provides several examples of between-coder disagreements, along with the final mutually agreed decisions. At the end of the axial coding phase, the updated coding scheme was applied to the rest of the dataset.

Given that selective coding, as the final step of the coding process, requires further grouping of specific categories under broader themes, often based on previously identified categories (Williams & Moser, 2019), this step was omitted, in light of this study's goal to identify the richest possible collection of thematically organized characteristics of flow states rather than to provide a discrete set of dimensions. In the final stage of the coding process, all initially coded descriptors from the students' narratives, such as those listed as examples in Table 1, were cross-checked against the identified categories to highlight commonalities and differences across the students in reporting their flow experiences, specifically as they related to different linguistic tasks (e.g., studying grammar) or features (e.g., speaking).

Table 2*Intercoder Disagreements and Resolution*

Segment	Coder 1	Coder 2	Rule After Resolution
“The intense concentration that I felt was a result of the culmination of pressure, anxiety, and fear that I had the night before and the morning of my exam not knowing the extent of difficulty.” (D, Diary entry 1)	Stress (whole segment) Anxiety (whole segment)	Stress (whole segment)	Although the general feeling of the passage describes a stressful situation, anxiety is also specifically mentioned in this context. Therefore, both should be coded in this example.
“Well, the sentences were clear, we knew the topic, we knew what we were doing. <u>I was visualizing the sentence</u> . So, I understood the meaning. Sometimes when you're doing a conjugation, even though you don't understand the sentence, or what it means you can still do it. But it doesn't feel real. This one no, it felt like... the language made sense. And so you could visualize it, and you get more and more engaged into the action.” (X, Interview 1)	Visualization (whole segment)	Visualization (only underlined segment)	Whenever a specific feature is elaborated with relevant information, the code will include all relevant parts. In this instance, the whole segment will be coded.
“Yeah, I think it’s because it kind of triggered memories in me that I didn’t know I had anymore. And it reminded me about certain experiences I had on the trip, which is like what they talked about in the article. And I was very... it was just a very nostalgic moment when I was reading it.” (N, Interview 3)	Topic linked to personal experience (whole segment)	Feeling of nostalgia (whole segment)	When a segment could be coded in multiple ways, the code which is the most specific to the experience will be selected. In this instance, a feeling of nostalgia is encapsulated by a personal experience, and therefore is considered more specific.

Chapter 4: Results

Occurrences of Flow

The first research question asked how L2 learners perceive and describe their flow experiences. All five students reported at least two flow experiences related to their L2 learning and use within the four-week period, for a total of 15 flow experiences reported. Table 3 summarizes these experiences for all students, providing brief details about their length and context. The average duration of flow states reported across the students was 17 minutes, although it varied across individual students. For instance, Student D always reported longer flow states (30–40 minutes), whereas Student N’s flow experiences were relatively short (4–10 minutes). Flow also occurred in a diverse range of contexts: in conversations (6), while taking oral (1) or written (2) exams, studying grammar forms (2), reading (1), writing an argumentative text (1), practicing a speech (1), or listening to a lecture (1).

Table 3

Flow Experiences Reported by Participants During the Four Weeks

Week	Student N	Student O	Student Z	Student X	Student D
1	FLOW 5–6 min Communication task	FLOW 10 min Listening to lecture FLOW 15-20 min Conversation with friend	FLOW 15 min Studying grammar	FLOW 10 min Communication task FLOW 5 min Communication task	FLOW 30 min Writing exam
2	—	—	—	—	FLOW 40 min Studying grammar
3	FLOW 4 min Reading task	FLOW 30–45 min Conversation	—	—	FLOW 30 min Writing a text

		with stranger			
4	FLOW 7–10 min Communication task	NO FLOW	FLOW 8 min Practicing speech	FLOW 4 min Oral exam	FLOW 30 min Writing an exam

The students' descriptions of flow varied in complexity and length. Some students, for instance, used individual descriptors to depict their flow state, referring to it through terms such as “total enjoyment” (Student X, Interview 4), “intense focus” (Student D, Interview 1) and “immersive experience” (Student N, Interview 4). Student N also provided brief comments to illustrate what flow meant to her while completing a reading assignment about Mayan ruins:

I think the best way to describe it would be: I felt like I forgot about the world around me and it was just me and the... my... what I was reading. Yeah, I don't know how else to describe it. I think the best way is just to say I was so engaged that I was... I just felt like I forgot about the world around me. (N, Interview 3)

Student O provided the following description of his flow state while in conversation with a stranger on a bus:

I think, I think my emotions were, were... like calm. For me it was like a state of calmness. And while speaking, I don't, I didn't rely on my... I don't know how best to explain it, but I didn't really rely on my like knowledge. It was like just, just speaking. It felt like kind of I was speaking English basically. (O, Interview 3)

Yet others found it challenging to describe their experience with individual words or even short phrases, resorting to metaphors to explain what they felt. For instance, Student X described the experience by detailing the way it altered his focus:

And it's like entering another medium if you like, and, and just being there, you know, like, like jumping from... Imagine like a virtual wall and you're moving from one to another, and you leave something, you leave things behind you, maybe your other senses or whatever. And you're just focusing on that particular thing. (X, Interview 4)

Another student (D) associated the experience of entering and exiting a flow state with that of riding a roller coaster: “But then as I'm going down the roller coaster, it's a controlled going down the roller coaster, it's not like a freefall. Everything's very, very... You're going up very, very slowly, and then you're going down very, very slowly” (D, Interview 1).

Dimensions of Flow

The second research question asked which specific dimensions of flow emerge as important in L2 learners' descriptions. With respect to the students' descriptions of flow, a total of seven distinct dimensions emerged from this dataset, with several subcategories (see Appendix F for a complete list). The seven dimensions, along with key subcategories are illustrated in Table 4. The dimension of SKILL–CHALLENGE BALANCE, which is the largest category, appeared to capture the relationship between the students' skill level and task difficulty, where a balance was achieved when the students *perceived* that they had an adequate ability to complete their task. The dimension of OBLIVION described the feeling of loss of self-consciousness on multiple levels while in a flow state, such as not being aware of the state itself or losing track of time. The dimension of ATTENTION encompassed various indicators of an individual's focus on the task at hand, both where the students explicitly stated that they were focused on the task and where they provided evidence that they tuned out or disregarded other details of their environment. The dimension of INTEREST characterized the students' feeling of captivation and interest, specifically as it pertained to the topic of the task that they were

performing. The dimension of STRESS captured the students' feeling of stress or anxiety associated with academic or linguistic achievement while they experienced a flow state. Although stress might have a negative connotation, for some students, stress led to a more intense concentration and consequently a deeper state of flow. The dimension of ENJOYMENT encompassed the students' feelings of joy, satisfaction, or generally a positive emotional response to a flow state. Finally, the dimension of ACCOMPLISHMENT, which was first reported in relation to flow by Aubrey (2017b), was also attested in the present dataset, where it characterized the students' various feelings of achievement with respect to their L2 skills.

Table 4

Examples of Emergent Categories of Flow

Category	Example 1	Example 2
Skill–challenge balance		
a. Perceived skill	“I frankly, I felt <u>pretty confident</u> that <u>I didn't feel like hesitant</u> or anything. But like for me, like, when I speak in French, if I don't know how to say something, usually I think about it. And then I tried to say. Which sometimes it could take like, between like, what like 10... 10 seconds to maybe like 30 seconds before I speak again. So and this wasn't happening. So I think I don't know, <u>I automatically found ways to explain what I want to say even though like my vocabulary is not like massive.</u> ” (O, Interview 1)	“And then another aspect of it, of this flow experience, was the auto like, <u>I was automatic in my responses</u> when it came to the pronouns <i>lesquels, laquel</i> , [...] <u>because I had so much practice with it.</u> ” (D, Interview 1)
b. Perceived challenge	“If I'm being honest, I wasn't incredibly stressed and especially once I saw the question types. My anxiety and worries just disappeared <u>because they were very approachable.</u> ” (D, Diary entry 4)	“Yeah, it requires more brainpower. Not too much, where it's like it takes over my focus entirely and more focused on saying the correct, like conjugating the verbs correctly or saying the right word. So yeah, <u>it kind of has to be in the middle of difficulty of</u>

		<u>whatever I'm talking about.</u> (N, Interview 1)
Oblivion	“Yeah, just... and you'll have no... <u>you have no feeling for time</u> , you just you know, you're talking... <u>you don't know whether it was one minute or five minutes</u> . It was like this.” (X, Interview 4)	“And suddenly experiencing like that excitement and glee like afterwards, <u>because I wasn't realizing in the moment</u> . (Z, Interview 1)
Attention	“And once I, I got going... once you enter, you know, a certain stage of it, it's hard to get to that point. But once you enter <u>a certain state of concentration, of maximum concentration</u> , like you, it just, it rolls like trains on the track, like from itself.” (D, Interview 2)	“Yeah, I mean, there was nothing distractive, no one's calling my name. There's no loud noises or anything that came as an interruption. Outside, in my mind that happened at that moment, <u>is kind of like this isolating moment in a sense, because it's, there's no outside distractions</u> . So it's much easier to be in the flow.” (Z, Interview 1)
Interest	“I think maybe because I felt nostalgic about reading about the games specifically, maybe I felt more connected then. But I still think... because I wrote later in the paragraph that <u>I'm really interested in the topic of history in general, but like history of old civilizations and stuff</u> . So, <u>I felt from the beginning, I felt interested in the topic</u> . (N, Interview 3)	“[...] we wanted to go so <u>that was interesting to me</u> . That was important to me. My exams. My exams were important to me. I guess winter was important to me too, because <u>I was interested in going to skiing</u> . Yeah, I was. Yeah, <u>the topics were significant</u> . (O, Interview 1)
Stress	“Oh definitely, definitely, yeah, <u>there was a stress component</u> . I mean, I feel less stressed when I do written exam. Because, yeah, it's between you and yourself, you know, within you. <u>But when you're presented to somebody, there's always the adrenaline</u> , you know, factor.” (X, Interview 4)	“The intense concentration that I felt was a result of the <u>culmination of pressure, anxiety, and fear</u> that I had the night before and the morning of my exam not knowing the extent of difficulty.” (D, Diary entry 1)
Enjoyment	“Also <u>enjoying what one is doing without... we don't... without knowing it at the time I guess when you reflect back and look at</u>	“I didn't know that they would talk about the games, which I happened to remember from my trip. I think during that part, I was a little bit

	it in hindsight you realize that <u>you had this sense of enjoyment</u> and... and maybe transported also into like, another space.” (X, Interview 1)	more, maybe in the flow. But it was still like, <u>the whole thing was enjoyable for me.</u> (N, Interview 3)
Sense of accomplishment	“So at the moment, <u>I was really proud</u> of... I was like noticing improvements, <u>I felt very proud</u> of that.” (Z, Interview 4)	“[...] <u>this sense of achievement</u> we had. Yeah, we were <u>happy with ourselves</u> that you know, we're able to do those correctly.” (X, Interview 1)

With respect to the distribution of the seven coded dimensions of flow across all student-reported flow experiences, as summarized in Table 5, the dimension of skill–challenge balance emerged as the most frequent characteristic of flow in the students’ reports (42.6%), followed by sense of accomplishment (14.8%), and interest (12.0%). The least frequent attributes of flow, as reported by the students, included attention (9.3%), enjoyment (8.4%), stress (7.3%), and oblivion (5.6%). Most dimensions of flow were reported by all five students, except for stress, which was reported by three students. This dimension was specifically salient in relation to a stressful context, such as a written or oral exam, but it also characterized some of the most intense flow experiences, as described by the students.

Table 5
Frequency and Distribution of Coded Dimensions of Flow

Coded Category	Frequency		Distribution	
	<i>k</i>	%	Students	Flow States
Skill–challenge balance	320	42.6	5	15
a. Perceived skill	137	18.2	5	15
b. Perceived challenge	183	24.4	5	15

Oblivion	42	5.6	5	8
Attention	70	9.3	5	11
Interest	90	12.0	5	12
Stress	55	7.3	3	7
Enjoyment	63	8.4	5	9
Sense of accomplishment	111	14.8	5	12

Flow in Interactive Speaking Activities

Because the goal of this study was to employ a bottom-up, data-driven approach to understanding L2 speakers' flow experiences, particularly with respect to their dimensional characteristics, it was important to explore whether various reported dimensions of flow emerged as more versus less salient in specific situations. Although the situations in which the students reported flow were diverse (see Table 3), conversation-based tasks and interactive speaking activities tended to be more likely associated with flow than other situations of language use which either did not involve a speaking component, such as reading, studying grammar, and writing an exam, or elicited extended monologic performances, such as practicing a prepared oral presentation and taking an oral language exam. In fact, three out of five students reported two conversation-centred flow states each, for a total of six experiences in an interactive context. The conversation-based activities included communication tasks with prompting questions (which targeted grammatical structures or specific vocabulary) assigned by the instructor and impromptu conversations with a friend or a stranger outside of classroom activities. When describing these flow states in situations of interactive language use, the students discussed their perceptions of skill relative to the task's challenge 80 times, expressed an interest in the activity 20 times, and noted their sense of accomplishment 16 times. The remaining conversation-centred

flow dimensions, such as oblivion (7), enjoyment (7), attention (5), and lastly stress (2), occurred less frequently.

Skill–challenge balance was the most reported dimension of flow in interactive tasks, where the students commented on the relationship between their perceived language skill and perceived difficulty of the task. In general, the students reported high skill levels, while the challenge was reported at moderate or low levels. In terms of skill, the ability to communicate effortlessly (i.e., without much planning time or focus on language) was an important requirement which the students associated with flow. For instance, Student O, describing a general conversation with a French-speaking friend, argued that his automaticity in speech was linked to a lack of frustration, which in turn enabled his flow state to occur:

Well, for me, like, I didn't have to think too hard about what I want to say. Yeah, I think it was just like automatically my response times. She asked me a question. If I wanted to explain something, I did it. And it just felt effortless. There was no like feeling of frustration. (O, Interview 1)

Generally speaking, the students commented that they felt most prepared to engage in effortless conversation after a certain amount of practice or sufficient time to consolidate the linguistic knowledge before producing it:

But is also when you, when you practice something or are like... when you engage in something over and over again, I think there comes a point where, like, normally, your mind or your body gets familiar with it. So it just, it just like fully happens, I think, instead of like, oh, that happens, like halfway or something. (O, Interview 1)

Student X, in particular, also linked this feeling of effortlessness with what he called visualization (an immersive experience of understanding, visualizing, and making sense of the

language). For instance, for Student X, visualization enhanced his understanding of French in a paired communication task:

I was visualizing the sentence. So, I understood the meaning. Sometimes when you're doing a conjugation, even though you don't understand the sentence, or what it means you can still do it. But it doesn't feel real. This one no, it felt like... the language made sense. And so you could visualize it, and you get more and more engaged into the action.

(X, Interview 1)

The feeling of effortlessness or speaking with fluidity may have also contributed to a sense of confidence, which was another noteworthy aspect of the students' description of flow. For instance, Student N pointed out the importance of confidence in knowing the needed vocabulary to carry out a conversation:

I have to be fairly confident in my vocabulary, like surrounding that topic, because otherwise I'm gonna be thinking too hard about translating in my head what I'm saying and it's gonna take me out of that flow state. (N, Interview 1)

In fact, during the interviews, the students always reported their confidence level to be seven or above (on a 1–10 scale, where 10 meant “very confident”) when they were asked to think about the specific flow experience they had reported in their previous diary entry. Thus, effortless, fluid speech (resulting from practice), coupled with confidence in one's skill level, was a common attribute of the students' flow experiences in speaking.

In terms of task difficulty, the students reporting conversation-centred flow states commented that task difficulty was relatively low for them, ranging from 2 to 6 (on 1–10 scale, where 10 meant “very difficult”), providing either “easy” or “moderate” as verbal descriptors of task difficulty. Contrary to previous research about skill–challenge balance (e.g., Egbert, 2003),

where L2 learners' skill needed to match the challenge provided by the task, the students in this study experienced conversation-centred flow states in situations where their skill level was perceived to be high while task difficulty was perceived to be low, which enabled them to engage in an effortless conversation. Student N described how an increase in the difficulty of L2 conversations, while completing an in-class communication task, might prevent one from achieving flow by forcing the speaker to focus on language at the expense of the conversation itself:

[...] I think if it were to have been harder, it would be harder for me to get into a flow because it would be taking too much my conscious thinking away and I would be kind of uneasy, I guess, because I would be like worried that I'm saying the right thing or conjugating verbs correctly. (N, Interview 4)

According to the students, conversations could become more challenging and could thus minimize the likelihood for flow states to occur when interlocutors engage in unfriendly behaviors, feel disinterested in the conversation, or when interlocutors' language violates the learner's expectations (e.g., in terms of the anticipated proficiency level or accent). For instance, Student O noted that flow would not have occurred for him if he had felt disinterest from his interlocutor, a stranger he had interacted with in French on a long bus drive: "Because if I was talking to her, and it like, I felt as though I was bothering her, then there wouldn't be any flow state. The conversation probably would've ended two or five minutes in." (O, Interview 3)

For the students, the desired level of challenge was associated with feeling comfort and being at ease in interaction, which contributed to their flow states. For example, Student X and Student N reported that a comparable language proficiency between them and their interlocutor was needed to make them feel less judged or intimidated, which in fact created a comfortable,

low-to-moderate challenge level for them, while their perceived skills were high. Student O, on the other hand, preferred an interlocutor with a more advanced language level, to be able to receive more reliable feedback on his own language production. Yet despite his interlocutor's advanced language level, Student O's perceived challenge was nevertheless low, estimated at 2 (on a 1–10 scale, where 10 is “very difficult”). Thus, even though the students expressed different preferences for interlocutors, they all reported their skills as high and perceived the challenge as low, which most likely contributed to their flow states.

The students' interest, and especially their interest in the topic of a conversation, was the second most reported dimension of conversation-centred flow states. Multiple facets emerged as important in the students' interest in the topic, such general interest, topic relatability, and having a personal connection to it. The students also expressed their interest in a conversation as being related to an immersive experience, which was typically described through such terms as “engaged,” “engrossed,” “involved,” or “immersed.” Describing a communication task with two other interlocutors during class time, Student N expressed her view of the relationship between interest and engagement in the following way:

We kind of stuck on the second question which was about like specifically if either of us have had hospital stays in Canada and what that was like for us. And because I had one fairly recently, that's where we kind of we spent most of the time talking about that because we just couldn't move on. Just immersed in that, in that conversation. (N, Interview 1)

The final salient dimension of flow in an interactive context was the students' sense of accomplishment, which was reported as a feeling of pride and accomplishment or a feeling of surprise in their L2 speaking abilities. For example, recounting his experience during a

communication task with another student focused on the use of verbs *faire* and *se faire*, Student X illustrated these feelings in the following way:

You kind of feel proud of yourself that you know, you beat, we beat the timeline. And because normally when, during those breakout sessions when the teacher comes in, we're still struggling. And we have questions. And that one, we finished. [...] So, you kind of feel proud, you know, of yourself that yes, you've done it. You've beaten the timeline.

And you surprised the teacher that you've finished faster than normal. (X, Interview 1)

This student's feeling of achievement and pride was closely related to his enhanced productivity in the task, in that it was completed faster than anticipated. In fact, increased efficiency was an overarching theme across all students, who believed that flow had an important role to play in their ability to complete interaction not only productively, but also efficiently.

The dimensions of oblivion, enjoyment, attention, and stress were also brought up as part of the students' flow experiences in interactive speaking activities, although not as frequently as the ones described above. The most recurrent mention of oblivion was a distorted notion of time, which Student X wrote about in his Diary entry 1 in the following way: "moving at fast pace, time flew." All three students reporting flow states in interactive activities also mentioned that they were enjoying their conversations during the flow states and that they generally focused all their attention on the conversation, without regard of their surroundings. Lastly, a stress component of flow states was least mentioned, occurring mostly in relation to the students experiencing various degrees of pressure to impress their instructor, for instance, while completing communication tasks assigned during class time.

Flow in Other Language Activities

Although interactive tasks were the most frequently associated with the students' reports of flow, flow occurred in other student-reported activities. One such context is taking a written exam (two flow states for Student D) or completing an oral exam (one flow state for Student X). In terms of the frequency of student comments describing various attributes of flow, skill–challenge balance (39), attention (23), stress (19), and sense of accomplishment (18) were the most frequently reported dimensions during a flow state in an exam, while interest (8), oblivion (8), and enjoyment (4) were the least frequent. For the students in this study, the unique context of a written grammar exam or an oral exam appeared to intensify the stress component of a flow experience, which has not been captured in previous L2 flow research. For example, Student X suggested that the context of an oral exam could create a more intense state of flow than a less demanding situation. Despite the fact that the actual language activity performed during the exam was similar to those performed as practice in non-assessment situations, the implied evaluative consequences of the experience made it more powerful:

I think this was a little more intense than the one [flow state] in week one. Definitely more intense, because there was consequences to it, or result, shall we say. The other one was... we're doing an exercise for fun, just to practice, but this one was the real thing. So, yes, it was more intense, deeper, and more meaningful. (X, Interview 4)

Given that the stress component in this context was high, it is unsurprising that the enjoyment dimension was understated for this student.

Another language activity associated for Student N with a flow experience was reading. Student N's flow state occurred while reading a nonfiction text on Mayan ruins assigned for homework, and this state was described by her most frequently through the dimensions of

interest (13), enjoyment (13), skill–challenge balance (8), and attention (2). The immersive nature of this activity may have allowed the interest and enjoyment components of the reading experience to trump the skill–challenge balance, which was the most frequently reported dimension in other activities of language use. In this case, the enjoyment and interest components of flow were fueled by the meaningful nature of the reading task for Student N, which was related to her previous personal experience when she visited those same ruins: “And I was very... it was just a very nostalgic moment when I was reading it, which I really enjoyed and I think I was kind of, like very engaged” (N, Interview 3). In terms of the skill–challenge balance, this student perceived this activity as fairly easy (rating it at 3–4 on a 1–10 scale, where 10 is “very difficult”) and estimated her confidence in her language skills as relatively high:

N: [...] I wrote later on that the vocabulary wasn't very difficult and, in my textbook, where we had these readings there was always words that, the people who write the textbook assume that we don't know. And they write the translations next to the paragraph on the side. So, I didn't have any moments where I had to turn away from the reading and Google translate a word, which would like kind of...

Researcher: Interrupt the...

N: Interrupt the reading, yeah, the flow. And also, yeah, this wasn't a... because I already kind of knew the information I think it also let me be kind of... it was more like a reminder or a refresher of something that I already kind of knew a little bit. Whereas if it was new information I feel like I would be more kind of... not stressed but more... not so much at ease cause I was trying to process it and understand it while I was reading it. (N, Interview 3)

As shown in this interview excerpt, Student N's high perceived skills were related to the approachable format of the text (where unknown translated vocabulary was immediately available) and to her familiarity with the information presented, both of which allowed her to have a fluid and uninterrupted flow experience.

Yet another language activity associated with a reported flow state concerned studying grammar. For instance, Student Z reported a flow state while practicing conjugations (in her first week) while Student D reported a flow experience when reviewing future tense conjugations (in her second week). For these students, the flow dimensions most frequently associated with grammar practice included skill–challenge balance (20), attention (13), and sense of accomplishment (10), whereas oblivion (6), stress (3), and enjoyment (3) occurred less often. As in speaking and assessment activities, skill–challenge balance remained the most important characteristic of flow in this context, with the two students rating their perceived language ability as very high and estimating the perceived level of difficulty as moderate (i.e., at 4 and 5 on a 1–10 scale, where 10 is “very difficult”). As Student Z commented in her interview, attention was another salient aspect of her flow experience in the context of grammar practice:

I mean, you have blinders to an extent, you're not concerned about very specific details of where you are, what else is on the page, you're very focused on the task that is right in front of you what's at hand, what you are specifically doing. And you're not concerned about if there's other people around you or other thoughts on your mind because any sort of other thoughts or occurrences would disrupt that moment that you have. (Z, Interview 1)

Although the two students generally described their flow states during grammar practice using overlapping attributes, they predictably brought up individual dimensions of their flow states.

For instance, Student D noted on three separate occasions various feelings of stress and anxiety associated with her study session, while Student Z on the other hand found the experiences pleasing, describing her experience as enjoyable in three comments. Thus, even though flow states might feature similar characteristics for different students across various tasks, there is likely a strong, subjective, and personal dimension of every flow state.

Chapter 5: Discussion and Implications

Dimensions and Characteristics of Flow

The goal of this study was to get a general sense of how L2 learners experience flow while studying, interacting, or otherwise learning and using their L2, either outside or inside the classroom. Therefore, flow was explored through a learner-centred perspective by using diaries and interviews to capture the student participants' perceptions of flow as it occurred in their daily activities. The seven dimensions of flow that emerged for the students in this study were skill–challenge balance, attention, oblivion, interest, stress, enjoyment, and sense of accomplishment. Skill–challenge balance, attention, and interest are three of the four dimensions identified previously in relation to flow (Aubrey, 2017a, 2017b; Cho, 2018; Cox & Montgomery, 2019; Egbert, 2003; Kirchhoff, 2013). These three dimensions emerged in both diary entries and interviews, providing qualitative evidence in support of previous studies which mostly employed questionnaires with multiple Likert-type scales to identify various dimensions of flow.

Two additional dimensions of flow (sense of accomplishment and enjoyment), first reported by Aubrey (2017b) in his work on flow in intra- versus inter-cultural ESL interaction, were also present in this dataset. The dimension of accomplishment encompassed the students' sense of pride in their L2 skills, particularly in L2 speaking. As in Aubrey's (2017b) work, accomplishment was the second most reported dimension across all flow categories. However, in this study, accomplishment was often accompanied for the students by the feeling of surprise, insofar as most students, despite reporting high levels of confidence in their L2 skills, also reported being surprised by their achievement as they described their flow states. Although the students may have felt confident in their language skill, their perceived ability to use their L2 while in a flow state may have exceeded their initial expectations, resulting in a feeling of

success. Finally, the enjoyment dimension was also attested in this dataset, which supports Aubrey's (2017b) conclusion that "enjoyment is related but distinct from interest" (p. 684) in the context of a flow state. The students mostly expressed enjoyment through reference to positive emotions (e.g., joy, excitedness, passion), whereas they described interest in terms of their engagement in an activity or task, specifically with respect to its topic (e.g., Is it relatable to me? Is it personally relevant?). As in Aubrey's (2017b) work, in this dataset, enjoyment was reported moderately frequently, compared to other dimensions of flow.

In terms of other characteristics of flow, as reported in previous L2 research in addition to its major dimensions (see Appendix B), these characteristics were also attested in this study and were categorized under the seven main dimensions. For instance, loss of self-consciousness (Azizi & Ghonsooly, 2015; Cox & Montgomery, 2019; Hong et al., 2017) and distorted notion of time (Cox & Montgomery, 2019; Hong et al., 2017) were both reported under oblivion. Similarly, the merger between action and awareness (Azizi & Ghonsooly, 2015) was coded as part of the subcategory of automaticity, which refers to a student's use of language without much conscious control or attention to language elements. Immediate feedback (Cox & Montgomery, 2019) was considered as a characteristic of the skill–challenge balance, because the students considered feedback to be an interactive feature that enhanced their perceived difficulty or confidence in the task where they experienced flow.

In addition to providing converging evidence for previously established dimensions of flow, the present findings also clarify and extend the scope of some of these dimensions. For example, with respect to the notion of skill–challenge balance, the present findings suggest that, for intermediate-level L2 learners, a balance between perceived skill and task difficulty was not a necessary condition for flow to occur. In fact, the perceived skill and challenge were often

mismatched, with skill rated as high and challenge generally estimated at low or moderate. In previous work, this dimension was described in terms of a near-perfect match between the learner's (perceived) skill and the difficulty level of a task (Aubrey, 2017a, 2017b; Egbert, 2003; Kirchhoff, 2013). In contrast, the present findings suggest that skill and challenge need not be equivalent. Instead, what appears to be important is that learners perceive their skill level as high relative to the challenge that is sufficiently comfortable but not overwhelming. As shown through verbal reports, a moderate level of challenge, which enabled the students to complete various language and communication tasks effortlessly, was conducive to flow. To my knowledge, this finding is novel, as it suggests that flow states might be particularly likely in situations where the relationship between a learner's current skill (e.g., in L2 reading or speaking) and the challenge provided by a given task, such as reading for comprehension or engaging in an informal conversation, is *imbalanced* in favour of the linguistic skill. Needless to say, further research is needed to understand various nuanced relationships between perceived skill and challenge, such as those relevant to L2 learners' proficiency or their multilingualism status, which facilitate the experience of flow.

The only previously-described dimension that was not attested in this dataset is that of control, which refers to an individual's autonomy or freedom available while performing a task. In this study, there were very few instances where the students referred to control over a given task. Although some control was implied in the students' comments concerning their ability to make certain choices (e.g., Student X choosing a topic for his oral exam in the fourth week), the students did not indicate how such task or language affordances were relevant to their flow states. Considering that this study was learner-centred, in that it provided the students with as much freedom as possible to volunteer any information they deemed relevant to their experience,

control was never discussed in detail, which implies that this dimension was not as salient or critical, compared to other dimensions, for the students who experienced flow. Nevertheless, even though control was not a prominent theme in the students' reports, multiple aspects of this dimension were captured under different coded categories. For instance, the subcategories of preparedness and confidence (under skill–challenge balance) featured several elements of control, such as the feelings of autonomy and control while performing a task. The following example of an interaction between the researcher (R) and Student Z illustrates the way in which control is interrelated with the student's sense of confidence:

R: [...] if you have to rate your abilities to speak French while experiencing flow in this instance, from one being you're not being confident at all and then ten being very confident in your abilities, how would you rate yourself?

Z: Probably say eight in this situation because it is a constructed story and a script that I've created. It's kind of like... there's... it's... I guess it's like a controlled situation in the sense where the story has a start and an end. I have reviewed this. I know the words to the story. So, I have a lot of control and confidence in that sense because it is in that limited frame. (Z, Interview 4)

The similarities between the previously identified dimension of control and the students' comments about various elements of control relevant to their confidence or task performance suggest that a category of control would be possible if the questions in the interviews focused on this specific dimension more narrowly. In sum, control was not nonexistent in this study. Rather, compared to previous L2 flow research, it was underrepresented, likely because it was not a major characteristic of the specific flow experiences reported in this study or because this dimension was not explored in further detail during the interviews.

The requirement for a task to have clearly stated goals (Cox & Montgomery, 2019) is another attribute of flow which was not explicitly identified in this dataset. Given that the flow states in this study occurred in a variety of contexts of language use which were not expressly linked to specific instructional materials, it would be difficult to attribute a student's experience with flow to a specific set of task instructions. Moreover, many occurrences of flow reported in this study were attested outside class time (e.g., while practicing verb conjugation) and outside instructional tasks (e.g., during conversation with a friend). Therefore, the unconstrained nature of this investigation limits the possibility of detecting a meaningful relationship between specific task characteristics and the occurrence of flow. Because only one previous L2 flow study in an instructional context has identified task goals as a characteristic of flow (Cox & Montgomery, 2019), researchers might wish to explore whether and to what extent this attribute of flow is specific to instructed language settings or to particular teaching and learning activities.

Last but not least, the present findings revealed two new dimensions of flow, thus extending the present knowledge base about various characteristics of flow states as they occur in L2 learning and use. The first new dimension was stress, which was described in terms of the feelings of anxiety or pressure regarding different aspects of L2 use, as illustrated in the following quote: "There is pressure. There is like... there's a feeling for me that like I just, I need to understand everything that she's saying" (O, Interview 1). The element of stress, as it pertained to flow, was particularly salient in the context of a language exam, as reported in the comments by two separate students (D, X). Although stress levels might have impacted the students' perception of task challenge (e.g., as part of skill–challenge balance), stress was also a distinct dimension, in that it contributed to an emotional aspect of the individual's experience (Lazarus, 1993). Put differently, while stress might contribute to learners' perceptions of task

challenge or to their judgments of their own skill or confidence, stress also presumably adds an emotional component to a given flow experience. For the students in this study, stress was linked to flow intensity, where the stress that they experienced, although less enjoyable, enhanced their focus on the task, which increased the intensity of their flow states. Thus, while some students needed the feeling of ease and comfort to achieve flow, for instance, during a conversation with a friend, for others, a stressful situation was conducive to flow. It remains for future research to clarify the extent to which stress levels might play a role in modulating the occurrence and intensity of flow.

The second new dimension of flow that emerged in this study is oblivion, which refers to a person's lack of awareness during a flow state, insofar as the person can lose track of time or fail to notice various aspects of the environment outside the task. As argued by Csikszentmihalyi (2014), people's lack of awareness of the surrounding context, while in a flow state, arises as a likely consequence of their focused attention on the task itself. Therefore, the findings of this study, where both attention and oblivion were identified as categories of flow in the students' narratives, are in agreement with this argument. Although several elements of the larger dimension of attention have been described in previous research on flow, the notion of oblivion was sufficiently salient in this dataset to be considered as a separate category. That is, the characteristic of oblivion was reported 42 times in the students' comments, and not always expressly linked to the students' descriptions of their focused attention on a task. Therefore, it was deemed necessary to consider oblivion as a dimension of flow in and of itself.

Implications for Language Learning

Taken together, the findings of this study support previous claims that there is a link between L2 learners' skill level and the occurrence of flow states (Egbert, 2003; Nakamura &

Csikszentmihalyi, 2014). The relationship between learners' L2 skill and the incidence of flow can be conceptualized within the Skill Acquisition Theory (DeKeyser, 2020), which posits three stages of skill development. In the declarative knowledge stage, a learner acquires explicit information about the target skill, such as the pronunciation of specific vowels or the morphosyntactic rules governing subject–verb agreement. A learner's performance in this stage is generally slow, effortful, and subject to many errors. In the proceduralization stage, the learner begins to apply the acquired declarative knowledge to guide their linguistic behaviors, such as producing words or constructing sentences. In the final automatization stage, the learner achieves a level of practice that is characterized by seemingly effortless performance with minimal conscious thinking and few performance errors. According to this framework, the learner's progression from the proceduralization to the automatization stage with respect to a specific skill (e.g., applying conjugation rules, speaking or reading fluently) requires a massive amount of practice and a significant investment of time.

The students in this study frequently attributed their experiences with flow to their ability to produce or perceive language effortlessly and fluidly, without much attention paid to specific language forms (e.g., pronunciation of individual vowels or grammar rules). This link between the students' flow and their effortless language use was captured through the subcategory of automaticity, which was part of the dimension of skill–challenge balance. In fact, out of all the subcategories within this dimension, automaticity was the most frequently reported (57 times) and was conceptually linked to several other elements, such as having extensive language practice or being able to “feel” or “visualize” language. Because the students were intermediate or high-intermediate L2 learners, all with substantial previous L2 learning experience (3 years and 8 months on average), it is unsurprising that they could use their L2 with various degrees of

facility in different contexts or tasks. Therefore, the students may have reached an advanced level of proceduralization or even attained automatized performance, and the feeling of ease or fluidity that accompanies these stages of language use may have facilitated their perception of flow. The element of automaticity, as revealed in this dataset, therefore suggests strong links between flow and a certain level of proceduralization or automatization with respect to a specific language skill. Although this relationship has not been established previously in L2-focused work, associations between flow and advanced stages of skill acquisition have emerged in prior research in sports psychology (Zhang et al., 2016). Needless to say, more research is needed to establish precise thresholds of L2 skill required for flow states to occur.

Finally, the finding that the majority of the flow states reported in this study involved language use in interactive contexts, such as a conversation with a stranger or a task-based interaction in a classroom, highlights interactive practice as an important component of language learning and use (Gass & Mackey, 2014). This finding also supports previously reported links between the use of interactive tasks in instructed L2 contexts and learners' experiences with flow, as captured through questionnaires (Aubrey, 2017a; Egbert, 2003) and learner diaries (Aubrey, 2017b). Both inside and outside a language classroom, interaction provides L2 learners with opportunities to experience input, practice output, and received feedback from interlocutors (or teachers) on their performance, all of which contribute to the proceduralization and automatization of L2 perception and production skills (Loewen, 2020). Seen from this vantage point, then, it is hardly surprising that flow states were most likely to occur in this study in speaking-focused activities, because these activities have a high potential for language proceduralization (DeKeyser, 2017).

Chapter 6: Limitations and Conclusion

Although revealing, the present findings must be interpreted with caution. First, the limited sample size of learners, a mixture of various L2s, and varying proficiency levels across the learners make it difficult to generalize the findings of this qualitatively-oriented case study beyond the participants targeted here. In future work, it would be important to explore the extent and relevance of learner-reported dimensions of flow in different contexts of language use (e.g., inside language classrooms vs. outside instructed settings) for L2 learners of different proficiency levels studying various target languages. Similarly, the length of the study was insufficient to provide a nuanced look at potential dynamic changes across time in the incidence of flow (Liu et al., 2020) and the dimensions associated with flow states during instructed L2 learning. A longer research timeframe is also necessary to determine the relationship between flow (and its various dimensions) and learners' developing L2 skills.

There are also several limitations to note regarding data analysis. First, the assignment of subcategories (i.e., codes) to specific dimensions was a subjective task. As an example, the dimension of oblivion is related to attention, and another coder might have decided to capture it as a major subcategory of the dimension of attention. Therefore, the dimensions established in this study need to be confirmed in subsequent work, and those dimensions which seem to interrelate with others (e.g., oblivion and attention) should be further explored to understand the extent of their distinctiveness, specifically in L2 contexts. Another important point is that after a blind coding of a portion of the dataset by an independent coder, intercoder disagreements were high. Although all disagreements were resolved unanimously, and an updated coding system was uniformly applied to the entire dataset, the coding performed in this qualitative case study remains highly subjective (Ratner, 2002).

Finally, flow is difficult to capture empirically, particularly because it is a subjective experience which happens in the mind and body of an individual (Csikszentmihalyi et al., 2018). Therefore, the verbal or written comments describing flow might not have been exactly aligned with the feelings or states experienced by the students. Similarly, the students in this study described their flow states a few days after they occurred, and this time gap might have interfered with their memory or might have transformed their perspective, particularly in light of the questions guiding the students' reflections. To sidestep these limitations, although it would be nearly impossible to capture flow in real time as it unfolds (without interrupting the experience itself), it could be interesting for future work to look at L2 learners' flow descriptions a few moments after a flow state. Alternatively, researchers might create flow-inducing activities followed by an immediate verbal recall task, to elicit time-sensitive descriptions of flow from L2 learners.

To conclude, this study sought to explore, from the perspective of L2 learners, the dimensions associated with L2 learners' perception of flow inside and outside classroom activities. Through weekly diaries and interviews, the participants, who included five undergraduate students enrolled in L2 French and Spanish coursework at the intermediate or high-intermediate level, reported details of their flow states, highlighting various components of those experiences. The students reported flow experiences in various tasks, including speaking (both outside and inside language classrooms), taking a language exam, studying grammatical tenses, reading a text, listening to a lecture, or practicing an oral speech. The students' descriptions of flow revealed seven dimensions of flow, some of which were consistent with characteristics of flow reported previously in questionnaire-based research (skill–challenge balance, attention, interest, enjoyment, sense of accomplishment), whereas other dimensions

were either underrepresented (control) or emerged as new ones (stress, oblivion) in this dataset.

These established dimensions provide a starting point for understanding L2 learners' experiences with flow and contribute to the existing knowledge base about the relationship between flow and L2 learning.

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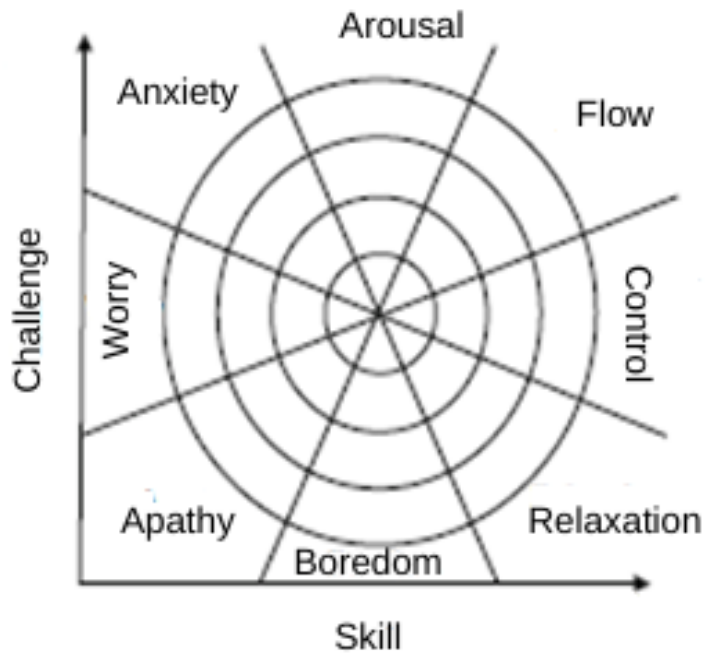
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Appendices

Appendix A

Visual Representation of Skill-Challenge Balance and Flow



Note. Adapted from Nakamura and Csikszentmihalyi (2014).

Appendix B

Summary Table of Flow Elements Measured and Accounted for in L2 Studies

	Attention	Loss of self-consciousness	Interest	Distorted notion of time	Action & awareness merge	<i>Sense of control</i>	<i>Clear goals</i>	<i>Immediate feedback</i>	<i>Skill-challenge balance</i>	Other
Aubrey (2017a)	✓		✓			✓			✓	
Aubrey (2017b)	✓		✓			✓			✓	✓
Azizi & Ghonsooly (2015)	✓	✓	✓		✓	✓				✓
Cho (2018)	✓		✓			✓			✓	
Cox & Montgomery (2019)	✓	✓	✓	✓		✓	✓	✓	✓	
Egbert (2003)	✓		✓			✓			✓	
Hong et al. (2017)	✓	✓	✓	✓						
Kirchhoff (2013)	✓		✓						✓	
Liu et al. (2016)	✓		✓							✓

Note 1. Characteristics of flow are bolded, while conditions necessary for flow achievement are italicized.

Note 2. Only elements of flow which have been explicitly measured as part of a survey or interview and/or discussed in detail are taken into account in this table.

Appendix C

Power-Point Presentation of the Introduction to the Concept of Flow

WHAT'S FLOW?

DEFINITION OF FLOW

A psychological concept, which refers to a mental state of complete immersion and concentration while performing an activity (e.g., reading, playing music, giving a speech, playing sports, etc.). A person in flow is often not receptive to their surrounding environment, because of their intense focus.

Other ways to refer to 'flow':

- Being in the zone
- Optimal experience
- Blinking out



WHO EXPERIENCES FLOW?

Anyone can experience flow in a variety of contexts.



Sports

Ice skater

“It’s a connection, you know when it’s working. It’s just really positive. It’s electricity. There’s not an inch of body space misplaced. You’re just there. You’re in the groove. Your knees are moving. Your nerves, you’ve taken them from where they’re practically freaking you out to put them into . . . they work their way up your body to your face so your face is just electric.” (Jackson, 1992)

MORE EXAMPLES

Arts

Visual arts student

“I’ll just be working and working and working and I don’t want to take breaks and that kind of thing. It’s actually a very amazing feeling when I feel it. But, if I don’t, right, I really can’t, then it’s quite torturous, so it’s like it’s either all the way here or all the way there, for me.” (Garces-Bacsal, 2013).



Amateur writer

“Because that’s what I’m doing, I’m just blinking out from everything else. . . . I’m basically talking to me and myself. Me, myself, and I, we’re having our own little conversation. . . . Like I’ll be writing and then I’ll look up and you know, just kind of get off my train of thought, by blank-out, and it might be 30 minutes later.” (Abbott, 2000)

IS IT FLOW?

To check your understanding about what flow is, read the following five passages and indicate whether you believe the individual describes flow or not and briefly indicate what's the reasoning behind your answer.

Passage I

"It's like a flashlight in my brain. And I just wrote it down....Dragging your hand along...I couldn't stop writing...It was weird. [...]Because I had written two pages or something like that...If they said, "You have to write another story," I could have written five more. I had so many ideas."

- Flow
- Not flow

Why?



Passage II

"It was just one of those programs that clicked. I mean everything went right, everything felt good...it's just such a rush, like you feel it could go on and on and on, like you don't want it to stop because it's going so well. It's almost as though you don't have to think, it's like everything goes automatically without thinking...it's like you're in automatic pilot, so you don't have any thoughts. You hear the music but you're not aware that you're hearing it, because it's a part of it all!"

- Flow
- Not flow

Why?

Passage III

"I liked the story we read yesterday in class. You know, it was interesting to see what each of the characters is going thorough and how they end up coping with life...I mean, I see how it's a meaningful story, it can help some people that can relate I think."

- Flow
- Not flow

Why?

Passage IV

"I felt relaxed more than anything when I watched the show. It was a good show, I liked that it didn't make me think too much about really intense stuff and just lay back and relax...I don't think I would necessarily watch it a second time, cause I kind of know what happens and stuff, but I still enjoyed it the first time."

- Flow
- Not flow

Why?

Passage V

"The focus was so narrow, because my partner was in the same focus, and it was just she and I skating. ... Everything else goes away, it almost happens in slow motion-even though you're doing things at the correct time with the music and everything. Nothing else matters, it's just such an eerie eerie feeling."

- Flow
- Not flow

Why?

YOUR FLOW EXPERIENCES

Related to the second language class you are taking this semester (inside and/or outside the class).

What you will do:

Complete **4 journal entries with descriptions** (on Google Doc) of any **flow experiences** you feel during **4 weeks** related to your **second language class**. Even if you don't feel flow, you need to report it on the page every week. You will receive a reminder each weekend to complete your entry.

How you will do it:

After you have access to your personal journal page, you will find on it questions that can guide your writing. No need to answer the questions one by one, simply use them as inspiration for your diary entry. What was the flow experience like for you?

Entry example (you will also find it on your Google Doc page for reference):

Last Friday I felt flow when I was reading a short story that my professor asked us to read at home. I liked the story so much that I didn't even realize I spent all afternoon reading. By the time I was done it was already dinner time. It was a weird feeling. I felt that in that moment nothing else mattered other than finishing the story and knowing how it ends. I think I felt flow while reading because the story really captured my attention and the plot was really intriguing. Also, the fact that I was alone helped me stay focused. If I would've read it at school, maybe the noise from other people would've interrupted my attention. I think it was helpful for my class, because I was really prepared the next day to answer to the questions of my professor as I remembered almost everything about the story.

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Appendix D

Sample Google Doc Page with Instructions for Participant Diaries

Instructions

Please use this page to complete your weekly diary entry regarding your flow states. In each entry, state whether you felt flow in the past week or not in relation to your second language studies (outside or inside the class). If you did, *describe in as much detail as you can how this experience made you feel, what you think contributed to it, and how this affected you or your learning*. Below, you will find guiding questions which you can use to inspire your entry. There is no need to answer all of them, or provide strict answers to the questions, rather use them as inspiration in writing your own narrative about the experience. Below the questions, you will also find a short entry as an example.

Guiding questions

1. When and where did the flow state occur?
2. For how long were you in the flow state?
3. What do you think helped you get into or stay in this state?
4. Describe in your own words what this experience was like for you and how it made you feel in as much detail as you can. You may relate this experience to previous flow states you felt during the duration of this study.
5. How do you feel flow is related to the work you were completing for the second language class?

Diary entry example

Last Friday I felt flow when I was reading a short story that my professor asked us to read at home. I liked the story so much that I didn't even realize I spent all afternoon reading. By the time I was done it was already dinner time. It was a weird feeling. I felt that in that moment nothing else mattered other than finishing the story and knowing how it ends. I think I felt flow while reading because the story really captured my attention and the plot was really intriguing. Also, the fact that I was alone helped me stay focused. If I would've read it at school, maybe the noise from other people would've interrupted my attention. I think it was helpful for my class, because I was really prepared the next day to answer to the questions of my professor as I remembered almost everything about the story.

Week 1

Experienced flow during the past week:

- Yes
- No

If yes, please write about your experience using the guiding questions:

Appendix E

Guideline Used to Create Unique Interview Questions

Questions relating to the flow experience:

1. Tell me in simple words what the flow experience you wrote about was like for you.
2. In your journal entry you wrote [...]. Can you elaborate on that?
3. Are there any specific aspects of this experience which seemed important or were more obvious to you (e.g., a feeling, a state of mind, a characteristic of the experience)? *(if not mentioned in the diary entry)*
4. What would you compare this experience to? *(if not mentioned in the diary entry)*
5. What was the context of this experience (e.g., time, location, activity you were doing)? *(if not mentioned in the diary entry)*

Questions relating to the researcher's understanding of the journal entries:

1. In this sentence you wrote [...]. I will tell you my interpretation of it, and I would like to know whether my interpretation is aligned with your intentions when writing the text.
2. In this sentence you wrote [...]. It seems to me that you are communicating feelings/emotions of [...]. Do you think my interpretation is correct?
3. In this sentence you wrote [...]. In my interpretation of it, this experience could be characterized as [...] (e.g., engaging, motivating, relaxing). Did you see it the same way?
4. I had trouble understanding what you meant by this [...]. Would you mind explaining it to me in other words?

Appendix F

Classification of Flow Dimensions and their Subcategories

The subcategories (which represent the coded segments of the data) are *italicized*, while the dimensions emerged by code combination in the axial phase are underlined. The other indicators appearing in this structure are relational or causal phrases, which link the subcategories more strictly within dimensions.

I Skill-challenge balance

i. Skill

- a. *Confidence in one's linguistic abilities*
- b. *Visualization*
- c. *Simultaneity*
- d. *Automaticity*
- e. *Preparedness/practice*

ii. Challenge

- a. From task complexity
 1. *Perceived level of complexity* (e.g., easy, moderate, high)
 2. *Time pressure/feeling of urgency*
 3. *Adequate language level*
- b. From the speaker's comfort/familiarity/knowledge
 1. *Familiarity with interlocutor*
 2. *Familiarity with task format*
 3. *Previously known information* (i.e., about the topic/content)
 4. *Familiarity/comfort with interlocutor's accent*
 5. *Overall feeling of relaxation/comfort/calmness*
- c. From the context (e.g., interlocutor)
 1. *Perceived interest in the conversation from interlocutor*
 2. *Perceived similar language level of interlocutor*
 3. *Personable interlocutor*
 4. *Less interlocutors*
 5. *Possibility of feedback*

II Oblivion

- i. *Distorted notion of time*
- ii. *Natural occurrence of flow*
- iii. *Lack of awareness of flow state*

III Attention

- i. *Task focus*
- ii. *Attention allocation: disregard of surroundings*
- iii. *Efficient environment for optimal focus*

IV Interest

- i. *Engagement*
- ii. *Navigating a diverse range of topics*
- iii. *Topic linked to personal experience*
- iv. *Topic is relatable*
- v. *Topic is of general interest*

V Stress

- i. *Anxiety*
- ii. *Stress*
- iii. *Feeling pressure to perform*
- iv. *Feeling pressure to impress instructor*

VI Enjoyment

- i. *Enjoyment*
- ii. *Feeling passionate*
- iii. *Feeling excited*
- iv. *Feeling of nostalgia*
- v. *Feeling of wonder*

VII Sense of achievement/accomplishment

- i. *Feeling of achievement/accomplishment/pride*
- ii. *Feeling of surprise*
- iii. *Productivity enhancement*
- iv. *Performance enhancement*
- v. *Willingness/desire to perform*