"Transported into like another space": Second language learners' perspectives of their experience of flow

Anamaria Bodea and Pavel Trofimovich

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'Transported into Like Another Space': Second Language Learners' Perspectives of Their Experience of Flow

This study explored the notion of flow, which refers to a person's sense of being completely absorbed in a task, as it applies to second language (L2) learning and use. Previously, flow has been mainly examined through researcher-generated descriptions to which learners reacted using Likert-type scales. In this study, we examined flow through the perspectives of the individuals experiencing it, by asking them to describe any insights relevant to their experience. During four weeks, five undergraduate students taking L2 French or Spanish coursework reported their flow states in weekly diary entries and interviews. Students described a total of 15 flow states, reporting them most frequently in interaction inside and outside coursework (e.g., speaking to a friend/stranger, in a paired task) but also while taking an exam, studying grammatical forms, listening to a lecture, reading, and practicing a speech. Qualitative coding revealed seven dimensions of flow, where five previously reported dimensions (attention, interest, enjoyment, sense of accomplishment, skill–challenge balance) were supported and clarified through our analyses while the remaining two (oblivion, stress) were identified for the first time. Flow appeared to be linked to proceduralization of L2 skills, as the element of automaticity was prominent in most descriptions of flow.

Keywords: flow; second language; learners; interviews; diaries; qualitative

Introduction

The concept of flow refers to a person's sense of being completely absorbed in a task (Csikszentmihalyi, 1975). Flow was originally proposed to explain why artists, athletes, and other professionals continue practicing careers from which they do not receive any external rewards such as recognition, money, or success. In these cases, people's experience of performing an activity is considered autotelic, meaning that the rewards that motivate them come from within. To date, multiple characteristics of flow have been established, including intense focus on a given task, loss of self-consciousness,

enjoyment, a distorted notion of time, and heightened autonomy or control (Csikszentmihalyi, 2014). With respect to second language (L2) learning, however, our understanding of what language speakers—and L2 learners in particular—feel during flow is limited because what is currently known comes largely from researcher-generated statements to which L2 learners react through Likert-type scales (Aubrey, 2017a; Cho, 2018; Cox & Montgomery, 2019; Kirchhoff, 2013). Therefore, to gain a refined understanding of flow as it applies to L2 learning and use, in this exploratory study, we provide a qualitative, longitudinal perspective on L2 learners' experience with flow through an analysis of diary entries, each followed by an interview.

Background Literature

Although flow occurs relatively rarely, it can be experienced in various domains, including sports, music, and language (Csikszentmihalyi, 2014). For instance, in a study of 205 musicians, 87% of the surveyed amateur musicians and 95% of the professionals experienced flow frequently, with multiple characteristics (e.g., loss of self-consciousness, perceived time distortion) associated with their flow states (Sinnamon et al., 2012). First introduced to the field of L2 learning by Egbert (2003), flow has not received much attention to date, likely due to the specifics of this field. For instance, a certain level of both challenge and skill is needed for people to achieve flow (Csikszentmihalyi, 2014), so beginner-level learners cannot be easily targeted. 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 learner's experience of flow (Egbert, 2003).

Nevertheless, flow is clearly relevant to L2 learning. As a subjective and personal experience, flow is part of a learner's affective domain (Csikszentmihalyi, 2014), which is an important component of L2 learning inasmuch as affect is

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inextricably linked to various cognitive processes that underlie learning, including those of attention, noticing, and memory (Swain, 2013). In fact, it is hard to imagine any aspect of language teaching and learning outside the affective domain (Shao et al., 2020). Learners' emotional states regulate what they notice in language input, how they orient themselves toward a given task, or what they retain and forget. Indeed, several aspects of learners' affect can impact L2 development, through the links between learning and attitudes (Zeinivand et al., 2015), learning and anxiety (Mills et al., 2008), and learning and motivation (Danesh & Shahnazari, 2020). In terms of flow, in particular, creating opportunities for L2 learners to experience flow might enhance their enjoyment of learning (Rogatko, 2009). Similarly, creating conditions for flow to occur might increase the likelihood that L2 learners become immersed in the learning process by being motivated and engaged (Csikszentmihalyi, 2014). However, to move beyond broad-level suggestions and to fully enable teachers to harness the benefits of flow for language learners, it is of key importance to gain a comprehensive understanding of flow and its characteristics in various contexts of L2 learning and use.

In her initial exploratory study, Egbert (2003) examined L2 learners of Spanish in seven different language activities, using questionnaires, interviews, and observations to understand their perceptions of flow. Some activities, such as computer-based tasks, appeared to promote flow more than others (e.g., listening to and discussing passages, reading and answering questions). However, regardless of the activity, L2 learners were most likely to experience flow when their skill level matched the challenge posed by the task, when they devoted sufficient attention to and showed interested in the task, and when they had autonomy to perform it.

Skill–challenge balance refers to an equilibrium between a learner's skill level and the challenge posed by a task. When the skill needed to perform the task is

perceived as greater than the task challenge, a learner will likely experience boredom. Conversely, when the skill level is low and the task is difficult, a person might experience worry, anxiety, or arousal. For flow to occur, individuals need to perceive their skill level as relatively equal to the task challenge, ideally, at an intermediate-to-advanced level to avoid the state of apathy (Csikszentmihalyi, 2014). In a study focusing on L2 interaction and flow, Aubrey (2017b) showed that skill–challenge balance, along with learners' sense of accomplishment (a previously undocumented dimension), was particularly conducive to L2 learners' experience of flow.

Attention, which concerns a learner's unintentional and largely unplanned focus on a task, is perhaps the most telling characteristic of flow (Csikszentmihalyi, 2014). According to Egbert (2003), attention was key to inducing flow, such that when learners were not paying attention to a task, they were also not experiencing flow. Similarly, Cho (2018) studied 141 Korean learners of L2 English completing several learning activities, to determine how modality (speech vs. writing) and perceived task difficulty (simple vs. complex) impact their experience of flow. Although more flow states were reported in writing than speaking, learners' questionnaire responses revealed attention as the highest rated and presumably the most important component of flow.

Alongside attention, an individual's interest in an activity, which includes perceived task meaningfulness, has also been identified as a key component of flow. Kirchhoff (2013) looked at flow in extensive reading assignments completed by L2 Japanese students over 14 weeks, using a survey to identify specific flow conditions through Yes/No questions. The condition leading to flow most frequently (40% of all responses) was book content, which is presumably related to learners' interest as they could select the books they wished to read.

Finally, control, which denotes opportunities for learners to be autonomous while completing a task, has also emerged as a prominent dimension of flow. For instance, in a survey-based study exploring flow in two L2 learner groups receiving either project-based or traditional instruction, learners' sense of control was the most important in promoting flow experiences for both groups, as they linked their feeling of control to their desire to perform well (Cox & Montgomery, 2019).

The Present Study

To date, most work exploring L2 learners' experience of flow has relied on discrete-point questionnaire descriptions to which learners react using Likert-type scales. This methodology is limiting because the predominant use of scalar ratings or researcher observations leaves the details of learners' experience scarcely explored. Although some researchers have included interviews alongside questionnaires (Egbert, 2003), interviews remain uncommon. In addition, diaries as a data-rich research tool have been largely overlooked, apart from a rare diary-focused study by Aubrey (2017b), who examined cultural differences in flow experiences mediated through specific oral tasks, including information exchange and decision-making activities. What is largely missing from the present literature is a rich description of learner experiences of flow, such as those arising from various language-related activities in instructed settings, as described by learners themselves with minimal researcher-imposed descriptions of flow and with a focus on several target languages.

Because flow is a subjective experience that occurs 'privately, in consciousness' (Csikszentmihalyi et al., 2018, p. 220), it would be important to gain personal insights into learner experience, which would contribute to a holistic view of flow. Such insights would allow researchers to understand how flow is experienced, perceived, and interpreted by a learner, which would in turn inform teachers about how to potentially

transform these experiences into pedagogical opportunities. For instance, conflicting evidence regarding which dimensions characterize flow in a given task (Egbert, 2003) or why control is more conducive to flow in one context (Cox & Montgomery, 2019) than another (Aubrey, 2017b) would be easier to reconcile through learners' first-hand reports rather than researchers' interpretations of survey responses. Moreover, it is essential that an exploratory study be carried out where participants directly contribute to the development and refinement of the construct of flow and its potential dimensions. In light of these methodological and conceptual gaps, we sought to provide a holistic, learner-centred perspective on flow in a longitudinal diary- and interview-based study. The study was guided by the following questions:

1. How do L2 learners describe their experience of flow?
2. Which specific characteristics of flow emerge as important in L2 learner descriptions of their flow states?

Method

Participants

This project received ethics approval from University X [blinded for review] ethics board (30015466). Participants were five undergraduate students, all volunteers from Spanish- and French-language programs at University X who self-identified as female (Students, 1, 2, 5) and male (Students 3, 4). Apart from one older individual (Student 4), who was 68 years old, the remaining were similar in age (20–29 years old). They came from diverse first language backgrounds, including English (Students 3, 5), Arabic (Student 4), Romanian (Student 1), and Russian (Student 2). Four reported knowledge and prior study of at least two L2s; for one (Student 3), French was the only L2. Consistent with our aim to collect detailed, qualitative information about instructed

learners' perceptions of flow, participants were enrolled in L2 coursework. All followed intensive courses, such that during the term when data collection took place, they completed two levels of the same course. Student 2 was enrolled in an intermediate L2 Spanish class focusing on a review of Spanish grammar, while the remaining four were taking L2 French courses. Of those studying L2 French, Student 4 followed an intermediate course, which targeted French grammar and vocabulary with the goal of enhancing communication skills. The remaining three (Students 1, 3, 5) were enrolled in a high-intermediate course targeting reading comprehension and writing skills. Participants' proficiency was determined through the level of the course they were taking. All were non-beginners, as low L2 proficiency is not conducive to flow (Egbert, 2003).

Materials and Procedure

At the outset of the study, each participant attended an individual Zoom session with a researcher (first author) to view a PowerPoint presentation (10 minutes) providing a layperson-friendly description of flow (Appendix A), using quotes from prior non-L2 interview studies to illustrate it (Abbott, 2000; Jackson, 1992). No specific characteristics of flow were itemized or defined, so as not to influence participants' perceptions and to allow for various dimensions of flow to emerge from their own experience. The presentation was followed by a brief quiz (5 items) asking participants to recognize whether a given description (adapted from prior research) illustrated a flow state. Four of the five participants scored 100% while one (Student 4) received 80% on this quiz, so all began the study with a comparable understanding of flow.

Participants were asked to complete a personal diary entry once per week for four weeks using the GoogleDocs platform, and were given a sample entry for reference (Appendix B). For each entry, they were requested to state whether they had

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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, they were asked to describe, in their own words, what this experience felt like. Participants received a weekly reminder to submit their entry, and if they forgot or were unable to submit it, they were accommodated with an alternative deadline.

Weekly semi-structured individual interviews (via Zoom) took place 1–2 days after participants submitted their diary entry. One purpose of the interview was to elicit participants' in-depth comments regarding the factors playing a role in their reported flow experiences. Although avoiding researcher influence entirely would be impossible in a researcher-conducted interview, we minimized the researcher effect through the second purpose of the interviews, which was to check the accuracy of the researcher's interpretation of the participants' diary entries, in keeping with the study's overall aim to limit researcher-imposed interpretations of L2 learners' experience of flow. Each interview featured a unique question set focusing on each participant's personal experience as described in the diary entry for that week (see Appendix C for guidelines used to develop person-specific questions). An individual exit interview was also conducted in the last week of participation to review the researcher's interpretation of the key characteristics of that participant's experience with flow during the four weeks. Each interview lasted approximatively 30 minutes. The total dataset consisted of 13 diary entries and 14 interviews, as not all participants reported a flow experience in a given week but all participated in the exit interview, regardless of whether they reported a flow state during the final week.

Data Analysis

All interviews, which were transcribed and verified for accuracy, and diary entries were coded qualitatively in MAXQDA 2022 (VERBI Software, 2021). With respect to

participants' experience of flow, the coding procedure involved recording all examples

identified as flow, along with all accompanying details (e.g., context, duration, task). In

terms of various characteristics of participant-reported flow states, it was important to

allow for themes to emerge in a data-driven fashion, so no preestablished categories

from prior work were used to code this dataset. Instead, data analysis followed

interpretive coding informed by grounded theory (Strauss & Corbin, 1998), across two

phases of bottom-up coding of diaries and interview transcripts. During the first phase

(open coding), a preliminary tally of similar words, phrases, and concepts was carried

out by the researcher to create an initial list of recurrent subcategories of various

characteristics, using participants' verbatim descriptions (see Table 1 for sample coding

decisions). During the second phase (axial coding), related discrete-point subcategories

were combined into general themes. For example, the subcategories illustrated in Table

1 were organized under the general dimension called 'oblivion.'

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.' (Student 2, Diary entry 1)	Distorted notion of time
'<u>I went into a flow state naturally</u>.' (Student 4, Diary entry 4)	Natural occurrence
'<u>I didn't realize that I was in flow</u> until I snapped out of it probably 20 to 30 minutes later.' (Student 1, Diary entry 4)	Lack of awareness

Note. Underlining designates excerpts contributing to each coded category.

To revisit the initial coding decisions and check for potential inconsistencies,

another trained coder coded a random sample of 23% of the dataset (three diaries, three

interviews) and discussed all decisions with the original coder to reach consensus, after

which the coding rules were updated, followed by a re-coding of the entire dataset by

the original coder. Then, all initially coded descriptors from participant narratives, such

as those listed in Table 1, were cross-checked by another researcher (second author)

against the identified categories to verify commonalities and differences across participants in reporting their flow experiences, specifically as they related to different tasks (e.g., studying grammar) or skills (e.g., speaking). To establish coding reliability, the second coder evaluated another random sample of 23% of the dataset, revealing the agreement value of 94% (see Appendix D for the final set of coded categories).

Results

Occurrence of Flow

The first research question asked how L2 learners describe their experience of flow. Participants reported 15 flow states (summarized in Table 1, along with their length and context) during the four-week study. Their average duration was 17 minutes, but it varied across individuals. For instance, Student 1 always reported longer flow states (30–40 minutes), whereas Student 2's flow experiences were brief (4–10 minutes). Flow also occurred in a range of contexts such as 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), and listening to a lecture (1).

Table 2 Flow states reported by participants during four weeks

Participant	Week 1	Week 2	Week 3	Week 4
Student 1	•Writing exam (30 min)	•Studying grammar (40 min)	•Writing text (30 min)	•Writing exam (30 min)
Student 2	•Communication task (5–6 min)	—	•Reading task (4 min)	•Communication task (7–10 min)
Student 3	•Listening to lecture (10 min) •Conversation with a friend (15–20 min)	—	•Conversation with a stranger (30–45 min)	—
Student 4	•Communication task (10 min) •Communication task (5 min)	—	—	•Oral exam (4 min)
Student 5	•Studying grammar (15 min)	—	—	•Practicing speech (8 min)

Participants' descriptions of flow differed in complexity and length. For instance, some flow states were described through individual phrases such as 'total enjoyment' (Student 4, Interview 4), 'intense focus' (Student 1, Interview 1), and 'immersive experience' (Student 2, Interview 4), while other states elicited longer descriptions:

> 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. (Student 2, Interview 3)

For Student 3, the experience of flow was linked to a sense of quiet and tranquillity:

> 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. (Interview 3)

Yet others found it difficult to describe flow, resorting to metaphors to explain how they

felt. For instance, Student 4 explained how the experience 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.
> (Interview 4)

Student 1 associated the experience of entering and exiting flow with that of riding a rollercoaster: 'But then as I'm going down the rollercoaster, it's a controlled going down the rollercoaster, 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' (Interview 1).

Dimensions of Flow

The second research question asked which characteristics of flow emerge as important in participants' comments. As summarized in Table 3, seven dimensions emerged from this dataset. SKILL–CHALLENGE BALANCE captured the relationship between participants' skill level and task difficulty, where a balance was achieved when they perceived that they had an adequate ability to complete a task. OBLIVION described the feeling of loss of self-consciousness in a flow state, such as not being aware of the state itself or losing track of time. ATTENTION encompassed various indicators of an individual's focus, both where participants stated that they were task-focused and where they provided evidence that they tuned out or disregarded other details of their environment. INTEREST characterized participants' feeling of captivation and interest, specifically as it pertained to a task topic. STRESS captured feelings of unease or anxiety associated with academic or linguistic achievement in a flow state. Although stress often has a negative connotation, for some, stress led to a more intense concentration and thus a deeper flow state, characterized by a heightened affective response (e.g., in

terms of alertness and emotional arousal) compared to other flow states unrelated to stress. ENJOYMENT encompassed feelings of joy or a generally positive emotional response to a flow state. Finally, ACCOMPLISHMENT, first reported in relation to flow by Aubrey (2017b), was also attested here, where it characterized participants' various feelings of achievement with respect to their L2 skills.

Table 3 Frequency and distribution of coded comments illustrating dimensions of flow

	Frequency		Distribution	
Coded category	*k*	*%*	Students	Flow states
Skill–challenge balance				
Perceived skill	97	16.6	5	15
Perceived challenge	166	28.4	5	15
Oblivion	32	5.5	5	11
Attention	61	10.4	5	11
Interest	70	12.0	5	11
Stress	47	8.0	3	6
Enjoyment	39	6.7	5	10
Accomplishment	73	12.5	5	12
Total	585	100.0		

Note. Distribution values designate the number of participants contributing relevant comments per category and the flow states (out of 15) described using those comments.

As shown in Table 3, skill–challenge balance emerged as the most frequent characteristic (45%), followed by accomplishment (12.5%) and interest (12%). The least frequent attributes of flow included attention (10.4%), stress (8%), enjoyment (6.7%), and oblivion (5.5%). Most dimensions were reported by all five participants, except for stress, only emerging in three participants' comments. Stress was particularly salient in relation to a high-stakes context, such as a written or oral exam, but it also characterized some of the most intense flow experiences.

Flow in Interactive Oral Activities

Although flow occurred in diverse situations, conversation-based tasks and interactive speaking activities were more likely associated with flow than situations without an

interactive component. Three participants (Students 2, 3, and 4) reported two conversation-centred flow states each (see Table 2) in communication tasks designed by a course instructor and in impromptu conversations with a friend or a stranger outside class. When describing these flow states, participants discussed their perceptions of skill relative to the task's challenge 96 times, expressed an interest in the activity 32 times, and noted their accomplishment 16 times. Other conversation-centred flow characteristics such as enjoyment (11), oblivion (8), attention (3), and stress (1) emerged less often.

For skill–challenge balance, participants commented on the relationship between their perceived language skill and task difficulty, with flow states occurring when task-relevant skill was high but task challenge was moderate or low. The ability to communicate effortlessly (without much planning or focus on language) was an important requirement of flow. For instance, describing a conversation with a friend, Student 3 argued that flow was linked to a lack of frustration: 'Well, for me, like, I didn't have to think too hard about what I want to say… If I wanted to explain something, I did it. And it just felt effortless. There was no like feeling of frustration' (Interview 1). Participants felt most prepared to engage in effortless conversations after a certain amount of practice or sufficient time to consolidate linguistic knowledge. Student 4, in particular, linked a feeling of effortlessness to what he called visualization, an immersive experience of understanding, visualizing, and making sense of the language, which enhanced his understanding of French in a paired interaction 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. (Interview 1)

A state of flow may have also contributed to a sense of (linguistic) confidence, as explained, for example, by Student 2: 'I have to be fairly confident in my vocabulary… 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' (Interview 1). In fact, in the interviews, participants always reported their confidence level to be seven or above (where 10 meant 'very confident') when reflecting on a specific flow experience. Thus, effortless, fluid speech (resulting from practice), coupled with confidence in one's skill, was a common attribute of flow in speaking.

Contrary to previous research (Egbert, 2003), where learners' skill needed to match the task challenge, participants mostly experienced conversation-centred flow when their skill was perceived as high while task difficulty perceived as low. Student 2 described how an increase in the difficulty of L2 conversations, in an in-class communication task, might prevent one from achieving flow by forcing the speaker to focus on language rather than interaction:

> I think if it [conversation] 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. (Interview 4)

Similarly, for Student 3, flow would not have occurred if he had felt disinterest from his interlocutor, a stranger he had interacted with in French on a long bus ride: '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' (Interview 3). Students 2 and 4, who reported their skill level as high, felt that matched language skills between them and their interlocutor were needed to make them feel less challenged (judged or intimidated). Student 3, in contrast, preferred an interlocutor with more advanced language, to be able to receive feedback, but nevertheless estimated the challenge of this situation as low (at two on a scale where 10

meant 'very difficult'). Thus, even though participants expressed different preferences for interlocutors, they reported their skills as high and perceived the challenge as low, which likely increased their comfort level and facilitated the experience of flow.

Participants' interest was the second most frequent characteristic of communication-centred flow, reported as general interest, relatability of a topic, and having a personal connection to it. Participants also referred to their interest in a conversation as an immersive experience, described through such terms as 'engaged,' 'engrossed,' 'involved,' or 'immersed.' For Student 2, an immersive experience occurred in a communication task with two other interlocutors during class time:

> 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 conversation. (Interview 1)

Another salient dimension of flow was accomplishment, reported as a feeling of pride in or surprise about L2 performance, for instance, as described by Student 4 in reference to an in-class paired communication task:

> You kind of feel proud of yourself that you beat, we beat the timeline. And because normally when, during those breakout sessions when the teacher comes in, we're still struggling… 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. (Interview 1)

This participant's feeling of achievement was related to his enhanced productivity, with the task completed faster than anticipated. Increased efficiency was an overarching theme across all participants, who believed that flow had a key role in their ability to complete interaction not just productively, but efficiently.

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Oblivion, enjoyment, attention, and stress were also brought up in relation to flow in speaking, although not as frequently. The most recurrent mention of oblivion was a distorted notion of time, which Student 4 described as 'moving at fast pace, time flew' (Diary 1). All participants also enjoyed their conversations during flow states, and they generally focused all their attention on the interaction, without regard of their surroundings. Lastly, stress was least mentioned, occurring mostly in relation to participants experiencing various pressures to impress their instructor, for instance, while completing in-class communication tasks.

Flow in Other Language Activities

Aside from interactive tasks, flow occurred in other activities, such as when taking a written test (two flow states for Student 1) and an oral exam (one flow state for Student 4). In these cases, skill–challenge balance (39), attention (23), stress (19), and accomplishment (18) were the most frequently reported dimensions, while interest (8), oblivion (8), and enjoyment (4) were the least common. The unique context of a written grammar test or an oral exam appeared to intensify the stress component of a flow experience, which has not been captured in prior L2 flow-focused work. For example, according to Student 4, even though the language activity performed during the exam was like those performed in non-assessment situations, the evaluative consequences of the experience made flow more powerful:

> I think this was a little more intense than the [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.
> (Interview 4)

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In fact, when participants were asked to compare their flow states in non-interactive tasks, the most salient dimension for them was the affective intensity of stress-related flow states (e.g., those occurring during exams) compared to flow experiences not identified as stressful. The affective intensity of stress-related flow states—in terms of participants' emotional arousal, worry, and alertness—was linked to the high stakes inherent in those situations of language use, where participants expected to be evaluated. For instance, for Student 1, it was the evaluation component that heightened her affective arousal and elevated the emotional intensity of language use, creating the conditions for her to experience flow. For this student, flow was only felt in the situation of a real exam, not in practice tests, and this insight was only available to her after she could compare the two experiences:

> You sometimes think that you're, you're giving 100%. And then when, when you're actually doing the task… because you take practice exams, you take the little quizzes and you think that you're giving 100%. But then when you're into the state have intense concentration, then you realize like, "Oh, this is my 100% that I'm actually fully capable of." And you can't feel that unless there's really, really stress associated with it, which the stress for me came from 14% of my grade versus the 5% of my grade that I had on the Monday before. (Student 1, Interview 1)

As stress was high, it is unsurprising that the enjoyment dimension was understated.

Reading was another activity associated with flow. For Student 2, flow occurred while reading a nonfiction text on Mayan ruins assigned for homework, and this state involved the dimensions of interest (13), enjoyment (13), skill–challenge balance (8), and attention (2). The enjoyment and interest components of flow were amplified for this participant because the reading resonated with her prior experience visiting those same ruins: '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' (Interview 3). The immersive,

personal nature of reading may have allowed interest and enjoyment to trump skill–challenge balance, which was the most frequent dimension of flow in other activities of language use. In this case, Student 2 perceived the task as fairly easy (at 3–4 on a 10-point scale) and estimated her confidence in her language skills as relatively high:

> 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… interrupt… yeah, the flow. (Interview 3)

Student 2's high perceived skills were related to the approachable text format (where unknown translated vocabulary was available) and her content familiarity, both of which likely contributed to a fluid, uninterrupted flow experience.

Yet another activity associated with a reported flow state was studying grammar. Student 5 reported flow while practicing conjugations (in Week 1), while Student 1 reported flow when reviewing future tense forms (in Week 2). For them, the flow dimensions associated with grammar practice included skill–challenge balance (20), attention (13), and accomplishment (10), whereas oblivion (6), stress (3), and enjoyment (3) occurred less often. As in speaking and assessment activities, skill–challenge balance remained important, with both participants rating their skill as very high and estimating task difficulty as moderate (at 4 and 5 on a 10-point scale). For Student 5, attention was another salient aspect of her flow state:

> 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… 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. (Interview 1)

Although these participants used overlapping attributes to describe flow, they predictably brought up individual dimensions. Student 1 noted on three occasions various feelings of stress and anxiety associated with her study session, while Student 5 found the experience pleasing, describing it as enjoyable in three comments. Thus, even though flow might feature similar characteristics for different people, there is likely a strong, subjective, and personal dimension of every flow state.

Discussion

Characteristics of Flow

Our goal was to provide a learner-centred perspective on flow in L2 learning and use. The dimensions of flow emerging from participant reports were skill–challenge balance, attention, oblivion, interest, stress, enjoyment, and accomplishment. Skill–challenge balance, attention, and interest are the characteristics identified previously in relation to flow (Aubrey, 2017a, Cox & Montgomery, 2019; Egbert, 2003), and they emerged in both diaries and interviews, providing qualitative evidence to support prior work predominantly using surveys with Likert-type scales to characterize flow.

Two other dimensions, accomplishment and enjoyment, first reported by Aubrey (2017b), were also present here. Accomplishment, which involved a sense of pride in learners' language skills, was often accompanied by a feeling of surprise, insofar as many participants, despite reporting high levels of language confidence, were also surprised by their achievement as they described their flow states. Being able to use their L2 while in a flow state may have exceeded their initial expectations, resulting in a feeling of success. Finally, in support of Aubrey's (2017b) conclusion that 'enjoyment is related but distinct from interest' (p. 684), participants expressed enjoyment through

positive emotions (e.g., joy, excitedness, passion) but described interest through task engagement, specifically with respect to relatability or relevance of a task topic.

Our findings also speak to several less commonly reported characteristics of L2 flow. For example, the dimension of control (Cho, 2018; Cox & Montgomery, 2019) was unattested in this dataset. Although some control was implied in participants' comments concerning their ability to make certain choices (e.g., Student 4 choosing a topic for his oral exam in Week 4), participants did not indicate how such task or language affordances were relevant to their flow states. Although information about control was not explicitly volunteered, its aspects were captured under such coded subcategories as preparedness and confidence (both under skill–challenge balance), which included a sense of autonomy and control while performing a task. The requirement for a task to have clearly stated goals (Cox & Montgomery, 2019) is another attribute of flow not identified here. Because flow was not elicited in a specific task and because many occurrences of flow happened outside instruction, it would be difficult to attribute a flow state to specific task goals. This dimension of flow may thus be specific to instructed settings or to particular teaching and learning activities.

Our findings also extend the scope of several previously reported dimensions of flow. In prior work, skill–challenge balance was described as a near-perfect match between a learner's (perceived) skill and the difficulty level of a task (Aubrey, 2017a, 2017b; Egbert, 2003; Kirchhoff, 2013). However, skill and challenge need not be equivalent; instead, what seemed important for our participants is that they perceive their skill level as high relative to the challenge that is sufficiently comfortable but not overwhelming. A moderate level of challenge, which enabled participants to complete tasks effortlessly, was conducive to flow. This finding appears to be novel, implying that flow states might be particularly likely in situations where the relationship between

a learner's skill (e.g., in L2 speaking) and the task challenge, such as engaging in an informal conversation, is imbalanced in favour of the language skill.

Finally, our findings revealed two new dimensions of flow. One was stress, described through feelings of anxiety or pressure regarding L2 use, especially in assessment contexts, as illustrated by Student 3: 'There is pressure… there's a feeling for me that like I just, I need to understand everything that she's saying' (Interview 1). Although stress might contribute to learner perceptions of task challenge and judgments of skill or confidence (as part of skill–challenge balance), stress also presumably adds an emotional component to a given flow experience (Lazarus, 1993) and can therefore be considered its separate characteristic. Here stress seemed to enhance participants' task-relevant focus, increasing the intensity of their flow. Thus, while some need the feeling of comfort to achieve flow (e.g., in a conversation with a friend), others might find high-pressure situations to be conducive to flow. In these cases, the stress component of flow could be described as eustress, or the kind of stress that is facilitatory rather than debilitating (Rudland et al., 2019), where affective intensity might lead to productive language performances, as described by the participants of this study. Needless to say, it would be important to isolate possible thresholds of stress, in specific contexts of language use and likely for particular levels of language skill and task challenge, beyond which the intensity inherent in high-stakes, stressful situations would no longer be conducive to flow.

The second novel dimension of flow, reported previously only in non-language domains, is oblivion, insofar as the person can lose track of time or fail to notice various aspects of the environment outside a task, likely due to focused task-relevant attention (Csikszentmihalyi, 2014). Our findings support this idea, as both attention and oblivion were identified as categories of flow. However, because participants reported various

aspects of oblivion 32 times without always expressly linking those to their descriptions of attention, oblivion was sufficiently salient to be considered a separate dimension.

Implications

Our participants often attributed their experience of flow to their ability to produce or perceive language effortlessly and fluidly, without attention to language forms (e.g., pronunciation of vowels or grammar rules). This relationship was captured through automaticity, which was the most frequently reported subcategory (with 46 comments) under skill–challenge balance and was conceptually linked to other elements, such as extensive language practice or ability to 'feel' or 'visualize' language. Because participants were intermediate or high-intermediate L2 learners, all with substantial prior 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, participants may have reached an advanced level of proceduralization or even attained automatized performance, and the accompanying feeling of ease or fluidity may have facilitated their experience of flow. The element of automaticity therefore suggests strong links between flow and a certain level of mastery in a specific language skill (DeKeyser, 2020). 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). Clearly, more research is needed to establish precise thresholds of L2 skill needed for flow to occur.

The finding that most flow states in this study involved language use in interactive contexts, such as conversations with strangers or in-class paired activities, highlights interactive practice as a key component of language learning and use. This finding also supports previously shown links between flow and interactive tasks, as captured through surveys (Aubrey, 2017a; Egbert, 2003) and diaries (Aubrey, 2017b).

Inside and outside language classrooms, interaction provides 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 speaking-focused activities, because these activities have high potential for language development (DeKeyser, 2020).

Limitations and Future Work

First, a limited participant sample, a mixture of L2s, and varying proficiency levels make it difficult to generalize the findings of this case study beyond its participants. In future work, it would be important to explore the extent and relevance of learner-reported dimensions of flow in different contexts (e.g., inside vs. outside instruction) for learners of different proficiency levels and target languages. Similarly, four weeks was insufficient to provide a nuanced look at potential dynamic changes in the incidence of flow and its dimensions. A longer timeframe is also needed to determine the link between flow and learners' developing L2 skills. Furthermore, the assignment of subcategories to specific dimensions was a subjective task. For example, oblivion is related to attention, and another coder might have chosen to capture it as a subcategory of attention. Therefore, the dimensions established here must be confirmed in subsequent work, and highly associated ones (e.g., oblivion, attention) must be targeted specifically to understand their distinctiveness in L2 contexts.

Flow is difficult to capture empirically because it is a subjective experience taking place in a person's mind and body (Csikszentmihalyi et al., 2018). Therefore, participants' verbal or written comments describing flow might not have reflected their feelings or states. Similarly, participants described flow states several days after they

occurred, and this delay may have interfered with their memory or transformed their perspective. To sidestep these limitations, although it would be nearly impossible to capture flow in real time (without interrupting the experience itself), future research could focus on learners' flow descriptions a few moments after a flow state. Alternatively, to elicit time-sensitive descriptions of flow, researchers might create flow-inducing activities followed by stimulated recall. Finally, regardless of the methodological approach taken to understand flow, it might be impossible to separate the researcher and their unique perspective on flow from the participant data. As a highly subjective phenomenon, flow might be experienced differently by different individuals; additionally, person-specific flow states might be coloured by how the researcher introduces or explains this concept to participants or how the researcher elicits and interprets participants' experience. Therefore, what we know about flow is likely co-constructed by researchers and their participants, and the present dataset must be viewed through this lens.

Conclusion

We sought to explore, from the perspective of L2 learners, the dimensions associated with flow inside and outside language instruction. Through weekly diaries and interviews, learners of L2 French or Spanish reported flow experiences in various tasks, including speaking, taking a language exam, studying grammar forms, reading a text, listening to a lecture, and practicing an oral presentation. Their descriptions of flow revealed seven characteristics, some of which were consistent with those reported previously in survey-based research (skill–challenge balance, attention, interest, enjoyment, accomplishment), whereas others were either underrepresented (control) or emerged as new ones (stress, oblivion). These dimensions provide a starting point for understanding L2 learners' experiences with flow and contribute to an existing

knowledge base about the relationship between flow and L2 learning.

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