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Multiple Components of Flow: Influences on Learner Perception and Learning in Classroom Activity*

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ABSTRACT

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Consistent with the growing interest in positive psychology, positive emotions such as grit, resilience, and flow have gained attention in L2 research. Csikszentmihalyi's (1990) flow refers to the optimal human experience in which one feels cognitively efficient and emotionally happy. Existing L2 research applied flow in L2 learning, yet due to the inconsistencies in conceptualization and methodology, there is a need to further explore the nature of flow. To address this gap, the present study investigates how flow is constituted by examining the underlying structures of diverse cognitive and emotional experiences of flow. It also explores how these experiences predict learners' perceived success in classroom activities and in their learning outcomes. Forty-four college students participated in a classroom activity where they practiced English speech patterns. Once they completed the activity, they completed a questionnaire about their task experience that asked about seven dimensions of the flow experience. These were based on Csikszentmihalyi's (1990) theorization of flow, including both cognitive and affective dimensions such as the merge of action and awareness, concentration, and intrinsic enjoyment. The learning outcome was measured via their score differences in the pretest and the posttest. The results showed that various dimensions of flow experience exist independently, which suggests the need to consider multiple sensations of flow in researching flow. Furthermore, regarding flow components and learning, the study found that only intrinsic enjoyment significantly predicted learners' perception of their success in the activity. However, the study failed to find any components of flow that predicted learning outcomes.

KEYWORDS

positive psychology, flow, classroom enjoyment, engagement

1. Introduction

Human emotions have traditionally been considered a crucial component in explaining human behaviors. Dörnyei and Ryan (2015) argued that emotion, cognition, and motivation are three distinct mental functions that differentiate individuals. The interconnectedness of emotion and cognition is emphasized by Piaget (1981) who stated that when "[s]tates of pleasure, disappointment, eagerness, as well as feelings of fatigue, effort, boredom, etc., come into play [in learning] … [F]eelings of success or failure may occur" (p. 3). Nonetheless, compared to studies on cognition, research on emotion has been relatively scarce in the field of applied linguistics partly because of the widely-held assumption that emotions are somewhat unscientific (Dewaele et al. 2019). Although there are only a few studies that tapped into the emotional dimensions of learning such as attitudes and classroom enjoyment, the field has been somewhat biased towards negative emotions. Thus, anxiety has become probably one of the most well-documented human emotions in applied linguistics due to its presumed negative, yet critical consequences for language learning, while positive emotions such as joy and happiness have received little attention (Dewaele et al. 2019).

In recent years, however, there has been growing interest in diverse aspects of learner emotions such as grit, resilience, and flow (Cho 2018, Derakhshan et al. 2022, Teimouri et al. 2022). This surge is in-line with the expansion of positive psychology in the field of psychology. Positive psychology concerns the positive aspects of human life that help people thrive and flourish (Csikszentmihalyi and Nakamura 2011), and it focuses on topics such as flow, hope, optimism, and flourishing. In applied linguistics, researchers have emphasized the importance of positive emotions such as well-being, happiness, and enjoyment in sustaining human life and language learning (e.g., MacIntyre et al. 2016, 2019). With the growing interest in positive psychology in L2 learning, MacIntyre and Gregersen (2012) argued that positive emotions are not just opposite ends of the spectrum of negative emotions, and that they function differently from negative emotions. Positive emotions can broaden learning opportunities and can help learners reduce the aftereffects of negative emotions. The complete absence of negative responses is not possible, but positive emotions can help learners balance their emotions. Likewise, positive emotions are integral parts of language learning as they help learners build resilience during dynamic language learning trajectories.

Different aspects of positive emotions of both learners and teachers have been the topics of previous research. Rather than focusing on their learning outcomes, they focused on student engagement (Ibrahim 2016), foreign language enjoyment (Czimmermann and Piniel 2016, Dewaele et al. 2019), and teachers' emotional regulations (MacIntyre et al. 2019, Mercer et al. 2016). In particular, classroom engagement and enjoyment have been examined through the notion of flow (e.g., Cho 2018). Flow is an optimal sensation humans can experience when they are in total involvement with an activity (Csikszentmihalyi, 1990), and it is believed that flow can push learners to engage more in the learning activity and to pursue a higher level of skills. Existing studies support the positive effects of flow experiences in diverse educational contexts (Aubrey 2017, Bassi and Delle Fave 2004, Egbert 2003). However, due to the limited research on flow in L2 learning as well as inconsistent flow measures in previous flow studies (see, Abuhamdeh 2020), flow in L2 learning remains relatively unexplored.

Therefore, addressing the concept of flow, the present study explores flow experiences manifested in the English-learning classroom through multiple emotional and cognitive sensations. It also explores how various dimensions of flow experiences affect L2 learners' perceptions of a task's success and learning outcomes.

2. Literature Review

2.1 Positive Emotions and Flow in SLA

Positive emotions have been fundamental in understanding human needs and experiences, but research on them "had remained somewhat in the shadow in a field dominated by a cognitive perspective" (Dewaele et al. 2019, p. 3). Recently, however, the field of SLA has started to observe the burgeoning of these topics with studies such as foreign language enjoyment (e.g., Dewaele and MacIntyre 2014) and positive classroom atmospheres (Gabryś-Barker 2014).

Along with the increasing interest in learners' positive experiences or enjoyment, the concept of flow began to gain attention in the field of L2 learning (Aubrey 2017, Cho 2018, 2019, Egbert 2003, Ibrahim 2020). Flow is a psychological concept developed by Csikszentmihalyi (1990) which represents a human's peak sensations when one is in total absorption in an activity. This experience is hypothesized to occur with an optimal challenge where a task is challenging enough to arouse the learners' attention, but which can be overcome by learners through executing their skills. Humans in the state of flow may feel emotionally happy while becoming cognitively efficient when doing a certain task.

Flow can occur in diverse human activities but it has been widely studied in physical and leisure activities such as playing musical instruments, sports, games, and even surgery. However, flow has been relatively unexplored in educational contexts including L2 learning. Only a few studies exist in L2 learning, and earlier L2 research on flow have examined whether students can experience flow in L2 learning (Aubrey 2017, Egbert 2003, Schmidt and Savage 1992). For example, Schmidt and Savage (1992) explored whether flow experiences can occur in L2 learning with Thai English learners. They found that the participants had strongly positive and enjoyable experiences in L2 learning compared to other daily activities, and concluded that flow can occur in L2 learning. A study by Egbert (2003) focused on task-specific flow experiences. She investigated whether flow experiences emerge in specific classroom activities such as reading, discussions, and chatting. While the study found that students experience flow in the instructional setting, flow experiences can be facilitated when learners have some control over the task and when the newness (e.g., the use of computers) was addressed in a task. The study thus revealed that L2 flow experiences can depend on the nature of tasks.

Recently, Czimmermann and Piniel (2016) investigated advanced learners' flow experiences in the EFL classroom and examined the factors that support or discourage the experience. They also examined how task-specific flow and classroom flow are related. The study found that over 70 percent of the participants experienced task-specific or classroom flow in L2 learning. Specifically, task-specific flow and classroom flow were positively correlated, and the study concluded that participation in intrinsically rewarding activities (i.e., task flow) can enhance learners' long-term learning process. The study also found factors that predict anti-flow experiences such as boredom and anxiety, which were attributed to a task's difficulty and learners' excessive focus on language components while performing a classroom task.

Studies have also attempted to identify conditions of flow by focusing on the characteristics of a task or an activity (e.g., Czimmermann and Piniel 2016, Egbert 2003). Other studies, however, turned their attention to the challenge level of a task as a condition of flow, as hypothesized by Csikszentmihalyi (1990). For example, Cho (2018) examined how a task's optimal challenge level affects the learners' flow experiences in task performance. The optimal level was calculated following the hypothesis that the perceived skill levels and the perceived task challenge should correspond, yet the challenge level should be beyond the perceived skill levels. The results supported the assumption that the skill-challenge balance significantly predicted flow experiences in both spoken and written task performance in L2.

In another study by Cho (2019), the relationships between the presumed conditions of flow and the experience

of flow were tested. The study conducted in the L2 writing class investigated whether a balance between challenge and skill levels predicts positive learner experiences in L2 freewriting activities. Contrary to Csikszentmihalyi's (1990) claim, however, the results of the study indicated that an optimal degree of challenge level failed to predict flow experiences. Rather, L2 learners demonstrated positive cognitive and emotional engagement when their skill levels exceeded the challenge level of a task. The results contradicted the hypothesized role of an optimal challenge in flow and research findings which supported the role of skill-challenge balance (e.g., Abuhamdeh and Csikszentmihalyi 2012, Cho 2018, Lambert et al. 2013). The different results can be attributed to the nature of a task. Freewriting helps learners become familiarized with writing practices without worrying about formal aspects of writing, and for that reason, the challenge of a task can interfere with the enjoyment of a task. The findings seem to support Egbert's (2003) claim for task-specific flow in L2 learning. Nonetheless, due to the conflicting results, conditions of flow need further investigation in the classroom contexts.

Along with the conditions of flow, there was an attempt to address the concept of flow in the long-lasting journey of L2 learning. Ibrahim (2020) used the term, *sustained flow*, to indicate the intense and prolonged engagement in a series of tasks, which was originally termed directed motivational current (DMC) by Dörnyei et al. (2014). According to Ibrahim, sustained flow is conceptually different from flow in that flow itself is a goal, while sustained flow is goal-oriented motivational current. He found that long-lasting positive emotions such as satisfaction and positive moods push learners to maintain the sustained flow and to move forward in their learning trajectories.

Similar to other psychological terms, issues exist in the measurement and operationalization of flow. Abuhamdeh (2020) reviewed 42 studies on flow from diverse disciplines and found that there are variations across different studies in measuring flow. He identified three major methodological inconsistencies among the studies. First, previous studies differed on whether research treated flow as a continuous or as a discrete concept. While the concept of flow is indeed a discrete experience – whether you are in a flow state or not – flow has been operationalized as a continuous variable in much research. The second inconsistent aspect of existing research is whether a study considered flow as inherently enjoyable or not. According to Csikszentmihalyi (1990), flow experience inherently includes enjoyment as its main component (i.e., autotelic experience), yet many studies have excluded this concept in measuring flow. Finally, differences existed in terms of whether the flow experience itself is independent of other flow conditions or antecedents. Although Csikszentmihalyi (1990) distinguished the conditions of flow and the flow experience, the distinctions were often vague in previous research. For example, some studies have used the challenge-skill balance as a manifestation of flow experience (Csikszentmihalyi and LeFevre 1989), although it is one of the antecedents or conditions of flow experience.

As this review suggests, compared to the conceptual understanding of flow, the operationalization of flow remains still uncertain. To discuss the first issue Abuhamdeh (2020) pointed out that existing L2 studies did not treat flow as an absolute experience (i.e., flow vs. non-flow) (e.g., Aubrey 2017, Cho 2018, Egbert 2003). While this becomes a limitation of studying flow, the flow concept is still useful in addressing positive emotions in L2 research. For example, Cho (2018) clearly indicated that the notion of flow was used as "a comprehensive conglomerate of cognitive and affective states that can address various domains of affect" (p. 164). This means that flow was adopted to represent comprehensive learner experiences.

Indeed, the original conceptualization of flow experience as an absolute affective state is much more comprehensive and diverse. According to Csikszentmihalyi (1990), flow is characterized by the following: (a) the optimal challenge level, (b) the merge of action and awareness so that the action becomes automatic, (c) the existence of clear goals and immediate feedback, (d) high degree of concentration, (e) the feeling of controlling the activity, (f) the loss of self-awareness, and (g) time distortion, in which time passes either quickly or slowly. Nonetheless, only several main dimensions have been addressed in previous research. For example, Egbert (2003)

adopted control, focus, interest, and challenge as the main operationalization of flow, and Cho (2018, 2019) adopted interest, attention, and control to indicate flow. As previous studies have neglected other characteristics of flow in the measurement and the operationalization of flow such as the distortion of time and the merge of action and awareness, there is a need to examine the construct of flow by examining its diverse aspects.

What needs to be further explored is the link between flow experiences and learner behaviors or learning outcomes. Csikszentmihalyi (1990) explained how flow can result in enhanced performance in two different ways. First, at the functional level, as flow involved cognitive efficiency and focused attention, it naturally heightens performance. Secondly, as flow is an optimal sensation, individuals who had experienced flow work hard to experience flow again, enabling one to grow. Regarding the influence of flow on learners' cognitive and affective experiences, inconsistent findings have been revealed. Whereas some studies reported the positive influence of flow on intrinsic motivation (Keller and Bless 2008, Keller and Blomann 2008), other studies failed to support motivational benefits of flow experiences (Bassi and Delle Fave 2004, Lambert et al. 2013, Montena and Csikszentmihalyi 1996).

Some researchers posited that the nature of tasks or activities can determine how flow functions in the cognitive and affective responses of individuals. Csikszentmihalyi and LeFevre (1989) argued that in work-related tasks, the conditions of flow (i.e., the skill-challenge balance) only facilitate cognitive domains of one's activities, but do not influence one's affect. On the other hand, flow experienced in the school-related domains only influence affective dimensions such as one's satisfaction and motivation, but does not enhance one's cognitive performance (Bassi and Delle Fave 2004). These studies further suggest that the hypothesized benefits of flow on learner behaviors may depend on the nature of tasks. Therefore, the relationships between flow and learning outcomes should be empirically tested in specific learning situations.

In summary, the review of the literature suggests that research on flow deserves further research attention, conceptually and methodologically. As flow has been simplistically defined and operationalized in previous research via a few key elements such as control, focus, and interest (e.g., Egbert 2003, Cho 2018), the components of flow need to be examined from a broader perspective. The nature of flow needs to be explored further, including how different emotional and cognitive sensations constitute flow. In addition, how flow is linked to learners' perception of their task performance and learning outcomes should be established for pedagogical applications. To this end, the following research questions are asked:

RQ 1. What constitutes flow experiences? In other words, how are subcomponents of flow (e.g., the loss of self-awareness, time distortion, concentration) structured?
RQ2. How do subcomponents of flow influence learners' perceived success in activity and vocabulary learning outcomes?

3. Methods

3.1 Participants

Forty-four Korean EFL learners who were taking Communicative English as a required course participated in the study. They were freshmen students who were placed into the beginner level of the course through an in-house placement test and based on the placement criteria, students had low-intermediate English proficiency. The English course focused on developing communicative language skills by engaging in various listening and speaking activities.

3.2 Learning Activity

The participants participated in the study as part of a large research activity. In the experiment, the participants practiced English prosody by learning about the characteristics of English speaking and listening to a model speech. In the class, the students learned about intonations, tones, and stress patterns in English and they also learned about the stress patterns of the English words. The activities students engaged in were listening to a model speech in English, and analyzing prosodic aspects of English. Afterwards t, the participants were asked to follow the speech as much as possible focusing on intonation, tones, and stress patterns. As the class focused on suprasegmental aspects of English, students were not guided to focus on pronunciation itself, but to increase the intelligibility of their speech by maintaining appropriate speech patterns in English.

As an outcome of motivated behavior, among various aspects of prosody, the present study focuses on the acquisition of lexical stress. The participants completed a pretest in which they were asked to choose the appropriate stress in a word. Words with two to six syllables were included, and a pretest was administered before the students engaged in the prosody activity. The posttest which contained the same items was administered one week after when they completed the activity. The pretest scores and the posttest scores were used to indicate students' learning of lexical stress.

3.3 Instrument: Flow and Task Experience Questionnaire

The participants were also asked to respond to a questionnaire that inquired about their experiences of engaging in the English prosody learning activity. Previous studies have conceptualized flow in different ways (for a review, see Abuhamdeh 2020), by operationalizing flow through a few main dimensions such as interest, attention, and control (Cho 2018, Egbert 2003). As the experience of flow is multi-sensational, following Csikszentmihalyi's (1990) flow state, the current study addressed several aspects of flow experiences. Csikszentmihalyi's description of flow included the optimal challenge level, but this challenge-skill balance is considered to be the antecedent of flow rather than flow itself (Keller and Blomann 2008), so this component was not included. In addition, the intrinsically rewarding experiences, termed as "autotelic" experiences, have been found to be associated with flow experiences (Csikszentmihalyi 1990, Engerser and Rheinberg 2008), intrinsically enjoyable nature of flow was included. Thus, the following seven constructs were adopted: (a) the merge of actions and awareness (MAA), (b) clear goals (CG), (c) concentration on task (CO), (d) transformation of time (TT), (e) sense of control (CN), (f) loss of self-consciousness (SC), and (g) autotelic experience, or inherently enjoyable and rewarding (AE). There were twenty-six items in total. Along with the flow experience, the participants' perception of the task's success was asked. Given the goal of reading over three-quarters of the sentences like a model speech, they were asked to indicate their perceived chance of achieving the goal in percentage.

3.4 Analysis

The participants' correct responses on lexical stress tests were tallied and used as their scores on lexical stress. The score differences between the pretest and the posttest were used as an improvement in lexical stress knowledge. For RQ 1 which attempted to examine the underlying structures of several aspects of the flow state, a factor analysis was conducted. This analysis was also used for the purpose of creating composite scores for each dimension of flow to see how subcomponents of flow predict learners' perceived success in learning and learning outcomes (RQ 2). For RQ 2, two separate multiple regression analyses were performed. The subcomponents of flow were entered as predictor variables, and the perceived success and the actual changes in scores in lexical

stress were entered as a criterion measure, respectively.

4. Results

RQ1. What constitutes flow experiences?

The first research question investigates the underlying structures of flow subcomponents. The assumptions of the tests were conducted. The Kayser Meyer Olkin Measurement of Sampling Adequacy (KMO) value was .806 and the Bartlett spherical value was less than .01, indicating good factorability for the survey items. Then, twenty-one questionnaire items were entered for the Principal Axis Factoring with Varimax rotation. Through the reduction of items, from nine constructs, a total of six factors emerged. Items for CG (clear goals) were removed, as they failed to successfully load onto the six-factor solutions. Table 1 summarizes the results with factor loadings and communalities of 18 items of flow experiences.

Table 1. Factor Loadings for Flow Experiences After Varimax Rotation

	Factor						commu
	1	2	3	4	5	6	-nalities
AE1I really enjoyed the experience.	**0.87**	0.07	0.11	0.13	0.18	0.13	**0.85**
AE2The experience left me feeling great.	**0.86**	0.09	0.09	0.18	0.20	0.10	**0.84**
AE4 I found this activity interesting.	**0.84**	0.18	0.13	0.10	0.17	0.23	**0.85**
AE3 The experience was extremely rewarding.	**0.72**	0.12	0.22	0.24	0.23	0.24	**0.75**
AE5 I was motivated by the activity itself rather than by external factors like rewards.	**0.56**	0.13	0.31	0.06	0.07	0.08	**0.44**
SC3 I was not worried about what others might be thinking of me.	0.17	**0.95**	0.13	-0.03	0.16	0.06	**0.97**
SC2 I was not concerned with how I was presenting myself.	0.16	**0.88**	0.14	0.00	0.05	0.13	**0.84**
SC1 I was not concerned with how others might be evaluating me.	0.04	**0.86**	0.06	-0.16	0.10	0.13	**0.80**
MAA1 I performed automatically, without having to think about it.	0.12	0.17	**0.80**	0.00	0.13	0.31	**0.79**
MAA2 Things just seemed to happen automatically.	0.31	0.10	**0.75**	0.20	0.11	0.02	**0.72**
MAA3 I did things spontaneously without having to think.	0.18	0.12	**0.71**	0.08	0.28	0.36	**0.77**
TT1 Time seemed to alter (either slows down or speeds up).	0.16	-0.21	0.01	**0.91**	0.10	0.17	**0.94**
TT2 The way time passed seemed to be different from normal.	0.24	0.01	0.19	**0.75**	0.12	0.01	**0.67**
CN1 I felt as though I had everything under control.	0.29	0.29	0.20	0.14	**0.82**	0.06	**0.91**
CN2 I felt that I had everything under control.	0.38	0.05	0.24	0.15	**0.71**	0.11	**0.75**
CO1 My attention was focused entirely on what I was doing.	0.20	0.41	0.26	0.04	0.07	**0.61**	**0.66**
CO3 I had total concentration.	0.47	0.06	0.42	0.14	0.10	**0.61**	**0.80**
CO4 I had no difficulty concentrating.	0.35	0.17	0.29	0.16	0.08	**0.52**	**0.54**
Extraction Method: Principal Axis Factoring	**21.92**	**15.91**	**13.27**	**9.29**	**8.51**	**8.11**	**77.02**

***** AE = autotelic experience; SC = loss of self-consciousness; MAA = the merge of actions and awareness; TT = transformation of time; CN = sense of control; CO = concentration on task

As Table 1 indicates, a six-factor solution was presented, and six factors together accounted for 77.02% of the total variance. The assumed subcomponents diverged from each other indicating discriminant validity. Factor 1 seems to indicate 'autotelic experience' accounted for a large proportion of the total variance (21.92%), followed by loss of self-consciousness (15.91%), the merge of actions and awareness (13.27%), time distortion (9.29%), sense of control (8.51%), and concentration (8.11%), in order.

RQ2. How do subcomponents of flow influence learners' perceived success in activity and vocabulary learning outcomes?

With distinct subcomponents of flow, the composite score of flow was calculated based on the sum of the subcomponents to indicate the overall flow scores. Descriptive statistics for subcomponents of flow, the overall flow scores, and the test scores in lexical stress tests were examined. Table 2 summarizes the results.

Table 2. Descriptive Statistics for Flow Components, Perceived Success, and Test Scores

	Mean	*SD*
Factor1_AE	5.96	1.48
Factor2_SC	6.29	1.95
Factor3_MAA	6.57	1.28
Factor4_TT	5.77	1.82
Factor5_CN	5.36	1.77
Factor6_CO	6.78	1.34
Overall flow scores	36.82	6.84
Perceived success	54.42	22.81
Vocabulary_pretest scores	28.34	8.19
Vocabulary_posttest scores	33.32	7.17
Vocabulary score improvement	4.98	4.37

* AE = autotelic experience; SC = loss of self-consciousness; MAA = the merge of actions and awareness; TT = transformation of time; CN = sense of control; CO = concentration on task

Overall, considering the 9-point Likert scales, the mean scores on the subcomponents of flow are located a little beyond the mid-point 5, between 5 to 7. Students showed improvement in their lexical test scores in the posttest with on average 4.87 more correct answers. The relationships among the variables were examined, and the correlations are presented in Table 3.

Table 3. Correlations among the Overall Flow Scores, Perceived Success, and Vocabulary Learning

	Overall flow scores	Perceived success	Vocabulary Score Improvement
Overall flow scores	1		
Perceived success	.52**	1	
Vocabulary Score Improvement	-0.25	-0.29	1

** $p < .01$

As Table 3 shows, the overall flow scores and learners' perceived success of the task were positively correlated ($r = .52$, $p < .01$). However, neither learners' overall flow score nor their perceived success in a task was significantly correlated with the score gains in the lexical stress tests.

Next, two multiple regression analyses were conducted to examine what elements of flow predict one's perceived success and learning outcome within the given activity. The normality and homogeneity assumptions for regression analysis were tested and found satisfactory. First, six sub-constructs of flow were entered as predictor variables, and the perceived success was entered as a criterion measure. The regression model was found acceptable ($F(6, 36) = 5.99$, $p < .001$, R-squared = . 50), and the coefficients are summarized in Table 4.

Table 4. Regression Analysis of Flow Subcomponents in Perceived Success

	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
	B	Std. Error	Beta		
(Constant)	-11.06	15.99		-0.69	0.49
Factor1_AE	6.49	2.96	0.42	2.19	0.04*
Factor2_SC	3.25	1.70	0.28	1.91	0.06
Factor3_MAA	-4.47	3.32	-0.25	-1.35	0.19
Factor4_TT	-0.68	2.08	-0.05	-0.33	0.74
Factor5_CN	-0.45	2.03	-0.04	-0.22	0.83
Factor6_CO	6.21	3.44	0.36	1.80	0.08

* $p < .05$

* AE = autotelic experience; SC = loss of self-consciousness; MAA = the merge of actions and awareness; TT = transformation of time; CN = sense of control; CO = concentration on task

As Table 4 indicates, the autotelic experience (AE), the intrinsic reward and enjoyment of a task, was the only variable that predicted perceived success in task performance. One unit increase in interest scores leads to the increase of .42 unit in perceived success. Other variables were not found significant at the $p < .05$ level.

Next, multiple regression analysis was conducted to see the effects of six flow components on the gain scores in the lexical stress tests. The regression model was not found to be significant ($F(6, 34) = .93$, $p > .05$), and coefficients were not examined further.

5. Discussions

The present study examined how L2 flow is constituted and investigated how several components of flow function in predicting learners' perceived success in their performance as well as predicting their learning outcomes. The study found six main components in flow experiences: the merge of actions and awareness (MAA), concentration on task (CO), transformation of time (TT); sense of control (CN), loss of self-consciousness (SC), and autotelic experience (AE). Among them, autotelic experiences seem to account for the flow construct the most. The study also found that among six subcomponents, only autotelic experience, but not others, predicted a learner's perceived success in the activity. Additionally, the study found that perceived success could not be explained by any flow subcomponents. The findings are discussed considering previous studies.

First, the emergence of six components indicates that flow consists of multiple cognitive or affective dimensions. This conforms Csikszentmihalyi's (1990) proposal of flow, which argued that flow is a holistic sensation when people feel emotionally happy, cognitively efficient, and focused while feeling control over the task. By being fully absorbed in the activity, people often lose self-consciousness and feel the distortion of time. The present findings also suggest that as cognitive and affective experiences do not necessarily go hand in hand, it can be

suggested that flow research should examine multiple dimensions of flow.

Next, when specific components of flow and their influences on a learner's perceived success and outcomes were examined, among six flow subcomponents, only the autotelic experience significantly predicted a learner's perceived success in the task. In other words, learners who demonstrated high interest and enjoyment in the task seemed to show enhanced confidence in their performance. As one's perceived success is related to one's satisfaction with the task, the result seems to be in line with Ibrahim's (2020) finding that emphasized the importance of affective appraisal in sustaining one's motivation. His study examined sustained flow as the extended motivational surge, and he found that affective obsession in the flow makes L2 learners maintain high motivation and demonstrate a high level of engagement in future learning. It is also the function of the affective appraisal that transforms learners' attitudes toward learning from homework into something intrinsically meaningful. As has been espoused in other studies (Cho 2018), autotelic experiences where tasks become the goal in and of itself seem to be a significant factor to build confidence and create positive memories in language learning. It should be noted, however, that the experience of flow should not be equated with fun, but as flow is a complex and engaging experience (Bassi and Delle Fave 2004), which pushes learners to move forward to have a happy life and cultivate well-being.

While the importance of autotelic experience on the perceived success was expected, the finding that other components of flow failed to explain either learners' evaluation of their performance or learning outcomes somehow contradict Csikszentmihalyi's (1990) theorization and other previous research findings (e.g., Bassi and Delle Fave 2004, Csikszentmihalyi and LeFevre 1989). It is possible that learners may not be able to be aware of or recall certain flow experiences such as the merge of action and awareness (MAA) and the loss of self-consciousness (SC) through the survey. Some flow experiences are hard to become aware of unless trained or experienced in some ways. Also, as the survey was a retrospective self-report, learners who did not have intense emotions or sensations had to rely on their general impression of their task experience. In this case, if a learner did not have intense flow experiences (i.e., flow as an optimal and peak experience), the person might not have experienced a loss of self-awareness or the distortion of time passing. Future research should address this methodological limitation.

Another interesting finding is that the study failed to identify any flow subcomponent that predicted the learning outcome of the activity. The relationship between learner experience or motivation and learning outcomes in a longer period can generally be expected (e.g., Ibrahim 2020), yet the influence of motivation in immediate learning outcomes from a particular activity seems unclear (Cho 2021). This is because although motivation and cognition are related to some extent (i.e., Piaget 1981), motivation is considered to lie in the domain of affect and learning is the byproduct of cognitive functions. Although motivation research emphasizes the motivational power in various types of learning, the direct link between them can be easily found in basic skill-based cognitive activities (Chen et al. 2016, Maddox et al. 2006), compared to more complex L2 learning activities (Cho 2021). In this sense, the learning focus of the present study--the acquisition of lexical stress--was predominantly cognitive in nature. Indeed, the amount of noticing or learning can be affected by student orientations and interests (e.g., Schmidt 2010), and the link may not appear in the immediate learning context. Therefore, tasks whose performance can directly reflect students' engagement could better illuminate the relationship between flow and learning outcomes. A task-based language learning can be such an example, where students' cognitive activities for learning are accompanied by their affective engagement. With that in mind, it is of interest to examine how sustained flow experiences in the class can lead to language learning within an extended period.

6. Conclusion

The present study investigated several components of flow and further examined whether flow can have some influence on student evaluation of their performance and learning outcomes. The findings showed that among several flow components only one affective dimension represented as autotelic experience predicted learners' positive evaluations of their performance, while cognitive dimensions showed no relations. This, to some extent, corresponds to research findings that showed flow in school activities is more closely related to affective dimensions rather than cognitive performance (Bassi and Delle Fave 2004). Regarding learning outcomes, the study failed to show that components of flow predict learning outcomes.

Despite the limited explanatory power of flow in L2 learning outcomes, the findings can give some pedagogical insights. As suggested in other motivation research, the finding that learners' intrinsic enjoyment (i.e., autotelic experience) is related to their perceived success indicates that teachers can utilize the idea of interest to help students build a sense of confidence. It was found that the more students see the value of engaging in the activity itself, the more they are to cultivate self-efficacy or self-confidence. Students who can accumulate such positive experiences can create a sustained flow that enables learners to push themselves to advance in their journey of language learning (Ibrahim 2020). Furthermore, the potential of positive emotions in changing learner attitudes has been empirically supported in previous research. Past studies that compared the positive emotion of foreign language enjoyment and the negative emotion of foreign language classroom anxiety demonstrated that teacher variables can have stronger power in foreign language enjoyment than in foreign language anxiety (Dewaele et al. 2019). Similarly, foreign language enjoyment was found to be a rather fleeting construct whereas foreign language anxiety seemed to be more stable (Dewaele and Dewaele 2020). It is suggested that teachers can actively utilize the potential of positive emotions in language learning, considering the susceptibility of positive emotion to the environment or a task's characteristics (e.g., Aubrey 2017, Egbert 2003),

Finally, the limitations of the current study should be addressed. One limitation concerns the operationalization of flow. In the current study, flow was treated as a continuous experience, yet by definition, the notion should be considered as an absolute and discrete experience (e.g., Abuhamdeh 2020). Future research should recruit participants who have experienced flow as an optimal and peak experience or solicit participants who have high scores in all facets of flow dimensions to better understand this particularly sensational experience of flow. Additionally, the effects of motivation on learning outcomes can be examined in diverse learning environments. For example, learning outcomes can be examined in a different explicit or implicit learning environment over extended periods of time. The notion of sustained flow can be addressed in longitudinal studies. Moreover, following the flow theory, the study assumed that autotelic experience affected learners' evaluation of their task performance, but it is possible that students reported having autotelic experiences because they felt that they were successful in performing the task. The causal relationship between autotelic experience and the perceived task's success should have been supplemented via additional data collection such as retrospective interviews.

In the end, it is hoped that the present study contributes to the existing literature through its attempt to understand the nature of flow and its influences on L2 learning. Positive emotions such as happiness and well-being create opportunities for upward spirals in life (MacIntyre and Gregersen 2012), and these emotions should be actively addressed in research and utilized in language learning trajectories.

References

Abuhamdeh, S. 2020. Investigating the "flow" experience: Key conceptual and operational issues. *Frontiers in Psychology* 11, 1–13.

Abuhamdeh, S. and M. Csikszentmihalyi. 2012b. The importance of challenge for the enjoyment of intrinsically motivated, goal-directed activities. *Personality and Social Psychology Bulletin* 38(3), 317–330.

Aubrey, S. 2017. Measuring flow in the EFL classroom: Learners' perceptions of inter-and intra-cultural task-based interactions. *TESOL Quarterly*, 51(3), 661–692.

Bassi, M. and A. D. Delle Fave. 2004. Adolescence and the changing context of optimal experience in time: Italy 1986–2000. *Journal of Happiness Studies* 5, 155–179.

Chen, L. H., Y. H. Kee, Y. H. Hung and S. H. Lin. 2016. Improving motor performance during initial skills acquisition through regulatory fit: An experimental study based on ball throwing task and small financial reward. *Current Psychology* 35, 403–409.

Cho, M. 2018. Task complexity and modality: Exploring learner's experience from the perspective of flow. *The Modern Language Journal* 102(1), 162–180.

Cho, M. 2019. Flow theory in the L2 context: Does "optimal challenge" apply? *Studies in English Education* 24(1), 97–120.

Cho, M. 2021. Regulatory fit effects on the acquisition of lexical stress: A classroom-based study. *Studies in Second Language Acquisition* 43, 1094–1115.

Csikszentmihalyi, M. 1990. *Flow: The Psychology of Optimal Experience*. New York, NY: Harper & Row.

Csikszentmihalyi, M. and J. LeFevre. 1989. Optimal experience in work and leisure. *Journal of Personality and Social Psychology* 56(5), 815–822.

Csikszentmihalyi, M. and J. Nakamura. 2011. Positive psychology: Where did it come from, where is it going? In K. M. Sheldon, T. B. Kashdan and M. F. Steger, eds., *Designing Positive Psychology: Taking Stock and Moving Forward*, 3–8. Oxford University Press.

Czimmermann, E. and K. Piniel. 2016. Advanced language learners' experiences of flow in the Hungarian EFL classroom. In P. D. MacIntyre, T. Gregersen and S. Mercer, eds., *Positive Psychology in SLA*, 193–214. Bristol: Multilingual Matters.

Derakhshan, A., J. M. Dewaele and M. A. Noughabi. 2022. Modeling the contribution of resilience, well-being, and L2 grit to foreign language teaching enjoyment among Iranian English language teachers. *System* 109. https://doi.org/10.1016/j.system.2022.102890

Dewaele, J. M., X. Chen, A. M. Padilla and J. Lake. 2019. The flowering of positive psychology in foreign language teaching and acquisition research. *Frontiers in Psychology* 10, 2128.

Dewaele, J. M. and L. Dewaele. 2020. Are foreign language learners' enjoyment and anxiety specific to the teacher? An investigation into the dynamics of learners' classroom emotions. *Studies in Second Language Learning and Teaching* 10(1), 45–65.

Dewaele, J. M. And P. D. MacIntyre. 2014. The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Studies in Second Language Learning and Teaching* 4(2), 237–274.

Dörnyei, Z., A. Henry and P. D. MacIntyre. 2014. *Motivational Dynamics in Language Learning* (eds.). Bristol: Multilingual Matters.

Dörnyei, Z. and S. Ryan. 2015. *The Psychology of the Language Learner Revisited*. Oxford: Routledge.

Egbert, J. 2003. A study of flow theory in the foreign language classroom. *The Modern Language Journal* 87(4), 499–518.

Engeser, S. and F. Rheinberg. 2008. Flow, performance and moderators of challenge-skill balance. *Motivation and Emotion* 32(3), 158–172.

Gabryś-Barker, D. 2014. Success: From failure to failure with enthusiasm. *Studies in Second Language Learning and Teaching* 4(2), 301–325.

Ibrahim, Z. 2016. Affect in directed motivational currents: positive emotionality in long-term L2 engagement. In P. D. MacIntyre, T. Gregersen and S. Mercer, eds., *Positive Psychology in SLA*, 258–281. Bristol: Multilingual Matters.

Ibrahim, Z. 2020. Sustained flow: Affective obsession in second language learning. *Frontiers in Psychology* 10, 2963.

Keller, J. and H. Bless. 2008. Flow and regulatory compatibility: An experimental approach to the flow model of intrinsic motivation. *Personality and Social Psychology Bulletin* 34(2), 196–209.

Keller, J. and F. Blomann. 2008. Locus of control and the flow experience: An experimental analysis. *European Journal of Personality* 22(7), 589–607.

Lambert, J., J. Chapman and D. Lurie. 2013. Challenges to the four-channel model of flow: Primary assumption of flow support the moderate challenging control channel moderate challenging control channel. *The Journal of Positive Psychology* 8(5), 395–403.

MacIntyre, P. and T. Gregersen. 2012. Emotions that facilitate language learning: The positive-broadening power of the imagination. *Studies in Second Language Learning and Teaching* 2(2), 193–213.

MacIntyre, P. D., T. Gregersen and S. Mercer. 2016. *Positive Psychology in SLA*. Bristol: Multilingual Matters.

MacIntyre, P. D., T. Gregersen and S. Mercer. 2019. Setting an agenda for positive psychology in SLA: Theory, practice, and research. *The Modern Language Journal* 103(1), 262–274.

Maddox, W. T., G. C. Baldwin and A. B. Markman. 2006. A test of the regulatory fit hypothesis in perceptual category learning. *Memory & Cognition* 34, 1377–1397.

Mercer, S., P. Oberdorfer and M. Saleem. 2016. Helping language teachers to thrive: using positive psychology to promote teachers' professional well-being. In. D. Gabryś-Barker and D. Gałajda, eds., *Positive Psychology Perspectives on Foreign Language Learning and Teaching*, 213–229. Cham: Springer.

Moneta, G. B. and M. Csikszentmihalyi. 1996. The effect of perceived challenges and skills on the quality of subjective experience. *Journal of Personality* 64(2), 275–310.

Piaget, J. 1981. *Intelligence and Affectivity: Their Relationship During Child Development, Annual Reviews Monograph.* Palo Alto, CA: Annual Reviews.

Schmidt, R. 2010. Attention, awareness, and individual differences in language learning. In W. M. Chan, S. Chi, K. N. Cin, J. Istanto, M. Nagami, J. W. Sew, T. Suthiwan and I. Walker, eds., *Proceedings of CLaSIC 2010*, *Singapore, December 2-4*, 721–737. Singapore: National University of Singapore, Centre for Language Studies.

Teimouri, Y., L. Plonsky and F. Tabandeh. 2022. L2 grit: Passion and perseverance for second-language learning. *Language Teaching Research* 26(5), 893–918.

Examples in: English
Applicable Languages: English
Applicable Level: All

