



Presenting a Profile of Flow Barriers in Modalities of Interaction during Covid-19 Pandemic among Iranian EFL Learners

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Abstract

Flow, introduced as one of the founding concepts in positive psychology by Csikszentmihalyi (1990), refers to the complete absorption in a challenging mental, emotional, or physical task to the exclusion of attention to any other surrounding thing. Since the Covid-19 pandemic, whole aspects of human life have changed, and language learning is no exception. The present study explored various obstacles in experiencing flow among Iranian EFL learners while completing tasks in three different modalities: face-to-face (F2F), text-based, and audio-based interaction during the Covid-19 pandemic. The data were elicited from 55 upper-intermediate learners divided into three groups completing the tasks in pairs, each through one of the three modalities, as a part of their classroom activity. Immediately following class time, they were interviewed individually or through group chats via WhatsApp. Under the three different modalities, the qualitative content analysis identified obstacles in achieving flow and categorized them into five themes. The results revealed that the main barriers in the face-to-face group were related to contextual or environmental factors as well as to task-induced issues. However, technological, task-based, and teacher-related factors gained higher percentages among text-based and audio-based interaction themes. The findings offer insight into flow perception by second language learners in different task modalities during the Covid-19 pandemic.

Keywords: Flow Barriers, Task Modality, The Covid-19 Pandemic

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With Covid-19 prevalent worldwide, every aspect of human life, including language learning, has undergone unprecedented changes. Learning a second/foreign language is a complex, time-consuming task requiring potent motivation. The issue gains particular significance at a time of widespread apathy, boredom, and anxiety brought about by the mandatory lockdown and government restrictions. Currently, due to the Covid-19 pandemic, the concept of learning within classroom walls has transformed into learning within the network halls. It is undeniable that the internet provides a multimodality world that increases users' interest in online platforms. Interest, enjoyment, engagement, motivation, happiness, and absorption are among the elements of positive psychology that might be touched in the World Wide Web interaction. Before the pandemic, mainstream learning occurred in concrete classes and through face-to-face interactions. Yet, upon the outbreak of the widespread infection, a prevailing multitude of internet platforms and applications came to the acme of attention in all aspects of learning, including language learning (UNESCO, 2020).

On the other hand, with the prolonged continuation of the pandemic, some learners and teachers, not accustomed to performing language activities through social platforms, started to feel that there was no suitable balance between the new challenge and skills; feedback in virtual learning environments was not as clear as in face-to-face interactions; concentration had decreased; and there was no complete control on what was going on. In other words, although education is flowing even during the pandemic, the quality of experience does not seem to flow smoothly. Particularly, the network discussions typically taking place among pairs in synchronous chat programs like WhatsApp have become the only source of learner-learner or learner-teacher interactions under the imposed conditions of the pandemic. In such a milieu, what seems helpful, or even necessary, is a sense of flow that brings learners to a total absorption that they feel time flies as they are enjoyably engaged in language tasks (Jackowicz & Sahin, 2021).

Several studies concerning synchronous computer-mediated communication (SCMC) features have shown the influence of modality on the quality of language learning and language learners' attitudes and feeling in such settings (Kim, 2014; Yuksel & Inan, 2014). With the widespread use of SCMC during the pandemic, the issue of involving learners in the learning process to represent their peak performance and high involvement has

become a concern of teachers, parents, students themselves, and the whole educational system. However, some barriers hinder the flow, which can bring a sense of accomplishment with exceeding enjoyment from smooth flowing. In the majority of studies on flow, the negative feelings of apathy, boredom, and anxiety have been identified as the main obstacles (Czimmermann & Piniel, 2016). Nevertheless, there seems to be little research on the modality-inducing flow hindering themes, specifically in EFL language learning contexts.

Positive psychology aims to flourish positive aspects of emotions, strengths, and other positive subjective feelings in human experience and psyche (Oxford, 2016). Therefore, language researchers and practitioners worldwide focus on applying positive psychology in L2 education. Among all, flow as a positive subjective factor has recently gained attention. However, little research has been done on flow in the domain of SLA (Liu and Song, 2021). The present study aims to explore the barriers of flow, which indeed is a founding concept in positive psychology, among Iranian EFL learners during the Covid-19 pandemic. Exploring the barriers to the flow assists both the teachers and students stay in the zone of flow and therefore paves the way for other positive aspects to pervade learners' experience during language interactions.

The efforts of teachers to motivate students are not always successful. Knowing the barriers to flow in different modalities assists teachers and students in designing and performing language tasks for the tasks themselves and designing more challenging tasks and performing them again (Csikszentmihalyi, 1975).

To further explore the issue, the present study aimed to seek answers to the following research questions:

1. What obstacles to achieving flow in face-to-face interactions are perceived by Iranian EFL learners during the Covid-19 pandemic?
2. What obstacles to achieving flow in text-based interactions are perceived by Iranian EFL learners during the Covid-19 pandemic?
3. What obstacles to achieving flow in audio-based interactions are perceived by Iranian EFL learners during the Covid-19 pandemic?

Conceptual Framework and Literature Review

The Concept of Flow

The flow hypothesis was developed from the work of Csikszentmihalyi (1990), inquiring about human's most agreeable minutes, which he labeled "optimal experiences." Csikszentmihalyi (1975, p. 34) outlines flow as "the holistic sensation that people feel when they act with total involvement". Flow is described as an optimal psychological state in which the experiencer feels cognitively efficient, motivated, and delighted (Csikszentmihalyi and LeFevre, 1989). Flow occurs when there is a right balance of challenge and skill, establishing a feeling that one is so absorbed in the task to lose the time track. More precisely, for a flow experience to happen, several criteria need to be present: goals must be clear and the challenge appropriate; there must be the opportunity for focus and intense concentration; a sense of control, as well as a level of interest and feedback, is needed, lack of self-consciousness is necessary, and autotelic experience must be present (Czimmermann & Piniel, 2016; Egbert, 2004). Flow experience might occur during several activities such as reading, sports, language learning or involvement in certain types of work. In the sense that involving tasks requires total concentration when challenges and skills harmony each other so that the experience becomes deeply and effortlessly involved in the task, while the sense of self is disappeared and time perception is altered during flow experiences.

Csikszentmihalyi (1990) accumulated data from individuals who wore an electronic pager through the Experience Sampling Method. All through the day, their movements, sentiments, and contemplations were recorded based on a questionnaire. Investigation from a wide assortment of individuals in several callings and societies uncovered comparable clarifications of life's most pleasant encounters: a strong center on an errand in which a person's vitality and capacity 'flow' unhindered.

Like other concepts in positive psychology, flow is a multi-dimensional and subjective experience that is difficult to be expressed in different situations. Specifically, and in the present research context, distinguishing how one feels in a learning context of face-to-face, text-based, or audio-based interaction when everyone's mind is preoccupied with the Covid-19 pandemic is an intricate job.

In order to experience an optimal experience, the task's imposed challenge must be in harmony with the learner's skill in language. If the

situation shrinks from the balance, the sense of apathy, boredom, and anxiety is replaced in the case of low skill and low challenge, high skill and low challenge, and low skill and high challenge, respectively. Learners need to devote complete concentration to the task at hand; hence, distractors should be controlled. The whole learning and task completion process need to have a clear goal and sub-goals. This may be achieved mostly by repeated feedback on how the learner is succeeding in the task. A sense of control over one's actions is also important. An autotelic experience alludes to an action that is significant in itself, in other words, inherently inspiring. 'Autotelic personality' is probably more connected to intrinsic enjoyment (Csikszentmihalyi, 1990; Hamilton et al., 1984). These factors might not be the only ones contributing to or leading to flow, but they have been reported as the most frequently exhibited ones.

Computer-Mediated Communication

Computer-mediated communication (CMC) could be simply defined as "communication that takes place between human beings via the instrumentality of computers" (Herring, 1996, p.1). It is the use of computer-assisted language learning (CALL) for communication, adding new modalities such as synchronous and asynchronous communication. CALL has drastically grown within language learning and teaching due to a number of reasons, among which is the increase in the number and range of technological tools and applications, the facilitative role of technology in the complex process of language learning through extending or overcoming humans' innate limitations, the contribution of CALL to the enhancement of personalized learning of language, and the countless resources provided via virtual environments. CALL can assume different modalities, including face-to-face, voice-, text- or image-based interaction, either one-to-one or as a part of a group through tele- or videoconferencing.

These modalities, differing in terms of the amount of control, planning, and monitoring opportunity, bring about strengths as well as limitations to the learning-teaching process. It is important to know how the quality and modality of an application can influence learners' attitudes and motivations. In SLA, the subject of CMC has been the focus of research to delineate its dimensions, taking an approach to increasing learners' involvement through different modalities other than the usual classroom environment. The

integration of fascinating CALL features, such as multimedia and the internet, has led to enhancing learners' motivation, decreasing their level of stress and anxiety, as well as attaining access to various resources with a high degree of control over the learning process (Dina & Ciornei, 2013; Bozdogan, 2015), paving the way for experiencing flow through language learning.

A body of research exists on the merits of CALL in facilitating the learning process and culminating in positive outcomes from computer and mobile learning. Swaffar, Romano, Markley, and Arens (1998, p.1) succinctly summarize the benefits derived from CMC as compared to oral exchanges in the L2 classroom: "Networked exchanges seem to help all individuals in language classes engage more frequently, with greater confidence, and with greater enthusiasm in the communicative process than is characteristic for similar students in oral classrooms." As it comes from the above quotation, it is understood that enthusiasm and engagement can increase due to CALL participation. The difference between CALL modalities raises an important concern in the study of language learning in Computer-Mediated Communication (CMC). Through text-based and audio-based interaction, synchronous computer-mediated communication can happen in applications (such as WhatsApp). WhatsApp is an instant messenger technology like SMS but with multimedia features enjoying certain advantages common to face-to-face interactions: it provides a synchronous interaction; it does not cost for learners and other stockholders; and it provides text and audio interaction as well as video calls and group chats (Kurniawati et al., 2018).

Empirical Background

Although there are so many studies related to flow in several fields, such as sports, everyday experience, leisure, work and occupation, artistic creation, and computer games (Csikszentmihalyi, 1990), these studies mainly focus on the concept of flow in fields which are beyond the intent of the present study. Over the past decades, there has been an increase in the number of studies focusing on the flow perception among second or foreign language learners (see, e.g., Amini et al., 2016; Egbert, 2003; Liu et al., 2016; Mirlohi et al., 2011; Tardy & Snyder, 2004). One of the current discussions on optimal experience, or flow, has been the barriers to the flow state, specifically in the case of language learning.

The pioneering study on flow in the EFL context of language learning was conducted by Egbert (2003), who investigated the flow conditions and their relationship to L2 classroom tasks to examine if certain kinds of activities would result in flow-like levels of engagement. The study was based on the assumption that if a language learning task is somewhat interesting, challenging, and controllable and contains feedback with the chance for learners to focus, the task can facilitate the flow experience and improve teaching efficiency. She observed that "flow and language acquisition occur under many of the same conditions" (p. 506). Later on, Egbert (2005) contended that applying computer technology to support language learning can help create optimal language learning tasks in which language learners feel more comfortable taking risks to avoid boredom.

Engeser and Rheinberg (2008) conducted a study in which learners voluntarily participated in a French class to learn how to apply for a job or scholarship in this language. The Short Flow Scale (SFS) was used to measure flow twice during class: once during the first half and another during the second half. The result showed that the challenge and skill significantly affected the intensity of flow: in both times, the flow was intense when a challenge was just right (in balance with skill). However, the flow was not high when the demand was too low (e.g., if skill exceeded difficulty). Also, the flow was less likely to happen in case the challenge was perceived as too high.

In another study, Zare-ee (2013) explored the flow experienced by undergraduate EFL students while reading different texts in English and the relationship between flow experience magnitudes and comprehension scores. The results showed that the learners experienced flow to different degrees during reading comprehension tasks. It was revealed that 22.2% of learners experienced flow while reading expository text, 25.9% while reading descriptive texts, and only 3.7% while reading narrative text. As they admitted, four main obstacles were identified as impeding the flow experience during the participants' reading tasks. They included task difficulty in terms of grammar and vocabulary (or what is called imbalance of challenge-skill), recurrent returns to earlier parts of the text, concern for the time and following activities, and lack of confidence to complete the task demands. It was also found that the amount of flow experience bore a strong positive relationship with learners' comprehension ability.

In a similar study, the perceived experience of flow was examined among Japanese learners of English in extensive reading classes by Kirchhoff (2013). His findings showed that learners who read graded readers perceived flow more often than those who did not. In addition, the study explored the parameters affecting flow perception in the participants and recognized content, reading location, book level, and time schedule as the most frequently reported ones. The study also revealed no meaningful relationship between L2 learners who perceived flow more often and desired to spend more time reading and those who had a less frequent perception of flow.

Along the line of inquiry, Czimmermann and Piniel (2016) focused on the relationship between the flow-enhancing and flow-inhibiting factors, including boredom, apathy, and anxiety, through correlational analysis among EFL learners while completing a narrative task in individual, pair, and group modes. Apathy was conceptualized as the antithesis of flow, while the challenge is less than the experimenter's level of ability. In line with the literature, it was also assumed that anxiety might arise if the perceived challenge exceeded the experimenter's level of ability. The analysis revealed that the factors of antiflow had a negative relationship with the flow during task performances. However, there was no significant difference between the three task modalities in this regard.

In another study, Amini et al. (2016) investigated the relationship between flow and vocabulary acquisition in terms of short-term and long-term vocabulary learning. They used Egbert's flow questionnaire to collect data concerning students' flow during task engagement. The results showed flow among Iranian EFL learners during vocabulary learning in the classroom. The analysis also revealed a difference between the level of flow in the immediate and delayed vocabulary measurement. The findings showed that flow-stimulating tasks not only motivated students but also involved them in learning and that the existence of a balance between the challenge and skills played an important role in the participants' perception of flow.

Continuing the line of research, Aubrey (2017) employed a quasi-experimental design to examine the effect of inter-and intra-cultural task-based interactions on flow and task engagement, which was operationally defined in terms of the number of words and turns in interactions. The results showed that inter-cultural contact in language classrooms significantly positively affected flow. That is, the inter-cultural task interaction generated

more flow-enhancing experiences and fewer flow-inhibiting experiences than intra-cultural task interactions did. Furthermore, the flow scores were found to have a significant positive correlation with the number of turn-takings in the intra-cultural mode and a weak non-significant negative correlation with words.

In another study, Cho (2018) investigated the effect of task complexity and modality on EFL learners' perception of task difficulty-skill balance and their flow experience. The results showed that task complexity and modality significantly affected learners' perception of task difficulty. Regarding difficulty-skill balance and flow perception, writing tasks proved more favorable than speaking tasks among Korean EFL learners. The study also revealed that skill-challenge balance could be a predictor of flow experience; however, the conditions of the study seemed insufficient to affect flow strongly. Most recently, Piniel and Albert (2019) studied the link between antiflow emotions and motivated language learning behavior in Hungarian ESL students. The two most frequently reported emotions experienced by the participants engaged in performing language tasks on different skills were apathy and anxiety. The two emotions, regarded as antiflow feelings, varied depending on the skill involved and the language use context, i.e., in or outside class.

As the literature outlined above reveals, flow is a subjective differential feeling, and its intensity depends on several factors pertinent to the flow precedents and antecedents. With the global prevailing of the covid-19 pandemic, the concern of several studies has shifted toward learning challenges and limitations in the lockdown and restriction of educational contexts of Iran (e.g., Derakhshan, 2021; Hassani, 2021; Shahnama, Yazdanmehr & ElahiShirvan, 2021). However, there seems to be no sizeable research on flow obstacles facing language learners, especially during emergency distance education (EDE) when an eye is on traditional face-to-face classes in the same situation. Hodges et al. (2020) defined EDE as “the temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances” (p. 6). To fill the gap and to bring more insight into the issue, the present study explored flow obstacles experienced by Iranian EFL learners at the present time of the pandemic.

Method

Participants

The participants of the study were 55 English language learners selected based on convenient sampling from a language institute in Isfahan, Iran, and aged between 20 and 29 ($M = 24.3$). The language school was located in the center of the city, next to the University of Isfahan. All participants were almost at the same socioeconomic level. All had been placed in the same level of intermediate based on the results of the Oxford Quick Placement version 1.1, and their scores on the final test of the institute were calibrated against American English File books. All had studied English before in the same institute except one student who studied in another institute before. Fifteen students participated in face-to-face classes during the Covid-19 pandemic when the Ministry of Health declared the situation yellow. The other participants were divided into two equal-size groups, each comprising 20 learners, taking part in online classes through text-based and audio-based interaction. In both groups of online learning, the platform WhatsApp was employed to establish patterns of interaction among the participants. All participants in both WhatsApp-mediated modalities were skillful in the online social media of WhatsApp. They reported that almost all of their messages among their friends were sent through this application.

Instrument

A semi-structured interview was recruited to elicit the necessary data for the current research. It focused on obstacles to flow experience during task completion through different modalities in the language learning process. The interviews were conducted immediately following task completion through either face-to-face interaction or online WhatsApp-mediated private or group chat. At the beginning of the interview, the researcher ensured the participants the confidentiality of their responses. Then a brief explanation of the flow experience was expressed by the researcher from Csikszentmihalyi and Csikszentmihalyi (1988). The Flow Questionnaire (Csikszentmihalyi & Csikszentmihalyi, 1988) was used as the main pillar of the interview questions. However, some modifications were done by the researchers because the original questionnaire was designed to find the flow experience, not the flow barriers. In this respect, all negative descriptions were changed to positive ones, such as “my mind was wandering. I was thinking of

something else,” and all positive clauses were shifted to negative ones, such as “I wasn't totally involved in what I was doing. My body didn't feel good.” In the second step, all informative clauses changed to interrogative ones. For example, “was your mind wandering during the task completion? If yes, why? Or what were the possible reasons?” (see appendix A and B).

The semi-structured interview included questions about flow state and specifically its barriers. During the interview, the researcher allowed the burst of thoughts in the experiencer without hindering them. The interview questions were pilot tested on four students who had experienced flow through language tasks. In addition, the logical validity of the questionnaire was confirmed by three psychology specialists. Whenever the researchers felt that students had problems comprehending the English version of interview questions, they were free to shift to Persian.

Procedures

The selected participants were divided into three homogeneous groups according to OPT version 1.1 and assigned tasks to be completed in pairs in three different modalities, including face-to-face (F2F), text-based, and audio-based interaction during the Covid-19 pandemic. Each group carried out the tasks through one of the modalities as part of their classroom activity. Immediately following class time, they were interviewed either individually or through group chats via WhatsApp messenger. Obstacles in achieving flow under the three different modalities were identified and categorized into several themes through qualitative content analysis, which was conducted in line with the thematic analysis method of Clark et al. (2015), in four stages: familiarizing with the data set not for immediate analysis but for carefully listening to the participants' stories, generating initial codes inductively, grouping codes into interpretable and meaningful themes, and revising themes. An external checker, who was familiar with the flow and helped to categorize the data into higher-order themes consistently, served as a reliability checker in this process.

Furthermore, the participants filled out consent and a background form to cater to ethical considerations. Also, issues of confidentiality and anonymity were ensured, and each participant was voluntarily involved in the interview. Identified factors influencing flow experience, such as the challenge vs. skills balance and absorption with a task, assisted the

researchers in persuading group discussions or individual interviews to have the participants reflect on their experience to determine inhibitors of flow. Additionally, the semi-structured interview was based on the concept of flow named: skill and challenge balance, high attention and concentration, clear goals, lack of self-consciousness, control over the task, immediate feedback, and lack of the concept of time.

Results

Having administered the interviews and conducted content analysis, the researchers came up with five general themes within each modality. Each theme has come up with different subthemes, as represented in Table 1.

Table 1
Emerging Themes in Face-to-face, Audio-based, and Text-based Modalities of Interaction

| Modality | Task-related factors theme | Student-related factors theme | Teacher-related factors theme | Contextual or environmental factors theme | Technological factors theme |
|-------------------------|----------------------------|-------------------------------|-------------------------------|---|-----------------------------|
| Face-to-face | 3 | 4 | 6 | 5 | 0 |
| Text-based synchronous | 4 | 5 | 7 | 1 | 3 |
| Audio-based synchronous | 4 | 5 | 7 | 2 | 4 |

Face-to-face Interaction

Content analysis of the interview data revealed four main themes causing flow obstacles within face-to-face interactions: task-related, teacher-related, student-related, and environmental or contextual factors. With regard to the task-related factors, the three subcategories of lack of sufficient guidance in performing the task, high demanding tasks due to students' different perceptions of task difficulty, and purposeless tasks were identified. The following extracts, translated literally into English, illustrate these concerns among students.

Extract 1: *"Most of the time we are communicating like always, no matter whether it is for essay writing or interaction, still I don't know what will be the difference! we need to be paired, by the way."* (lack of sufficient guidance)

Extract 2: *"Of course, we are at the same level in the same classroom but some performs better while the task challenge is complicated. I*

myself get stock in the task and interact with my partner with some yes and no answers." (high demanding tasks)

Extract 3: *"Well... we are performing the tasks and book exercises, but I don't get the purpose behind so many repetitions."* (purposeless tasks)

Regarding student-related factors within face-to-face interactions, four main subcategories were found. The first concern was pertinent to students' physical problems, such as fatigue. Most of the language learners participated in the classes after completing their work or spending long minutes or even hours on the way to the language classroom. Therefore, they were too tired most of the time, as evident in the following extracts.

Extract 4: *"Most of the time I am tired and I participate in the English class just in order to refresh my body in the language classroom chair as well as learning something useful."*

Extract 5: *"I like to learn language but unfortunately in the afternoons I have a terrible headache which makes the learning tough and as a result obstacle flow."*

Second, some inner disorders could cause flow stoppage in face-to-face interactions. In this regard, lack of concentration was the most prominent culprit of flow inhibition. Third were negative feelings and emotions toward language learning, the language context, the learner himself or herself, and the language teacher. For example, the learner who was too shy to speak in the classroom would hardly experience flow because of his/her inner obstacles. Finally, 13% of the interviewees expressed a lack of motivation as an inhibiting factor within face-to-face interactions. These subcategories are exemplified in the following extracts.

Extract 6: *"I really lose my concentration during listening tasks. I get overwhelmed by other thoughts. Sometimes when two pairs are communicating, I lose my own concentration and can't fulfill my own task."* (inner disorder; lack of concentration)

Extract 7: *"I think I do not have any problems with tasks but the biggest problem is my teacher who was my sister's two years ago. My sister always nags about teacher's bossy behavior. Honestly, I don't have positive feeling to her (teacher)."* (negative feelings and emotions)

Extract 8: *"I feel too shy to speak in front of others while at least 12 eyes are watching me in the activities. I'm not as good as others. I prefer*

to be silent and do not participate in voluntary activities." (self-imposed obstacle as a result of negative feeling)

Extract 9: *"Honestly speaking, I just participate in the class to fulfill my parents' expectations rather than my own ones. So even if you said that you would pay me to participate in the task, I don't find it motivating. If I have a second choice, instead of participating in the language class, I will spend time with my friends chatting about Perspolis football match."* (lack of motivation)

Regarding teacher-related factors, students mostly criticized physically and mentally inappropriate teachers who really impede the flow channel. Another subfactor was the lack of an organized schedule or lesson plan. Extracts 10, 11, and 12 below are taken from EFL students' interview data, with extract 10 overlapping with the student-related factor of lack of concentration.

Extract 10: *"Since the teacher came late to the class, it was too difficult to pay due attention to her because we were left together talking about nonsense stuff in Farsi."*

Extract 11: *"I find the times when teacher doesn't feel ok in the classroom mostly when she excuses us for recurring mispronunciations or misspelling. During this period, I neither experience flow nor learn anything."*

Extract 12: *"Our teacher is not really successful in teaching English and evoking flow within us coz she doesn't have any preplanned schedule for teaching and implementing new materials. She just teaches, nothing else."*

Another subcategory of teacher-related factors was a lack of experience and creativity on the part of teachers. Students who participated in the interview insisted that the most important factors determining whether to experience or not to experience flow are those related to the teacher. In this regard, teachers with insufficient experience, generally or specifically in teaching a particular level, slow down the achieving flow state for their students. When a teacher is experienced, s/he probably takes action on the basis of learners' strengths and weaknesses. The following three extracts depict students' concern for teachers' lack of experience and creativity.

Extract 13: *"Some teachers know how to insert us in the flow channel no matter how easy or difficult the task is. They lower our inhibitions*

by representing the task so skillfully and creatively that you simply enjoy it. Just this..." (then, a laughing emoji is sent).

Extract 14: *"Some teachers just have language knowledge, while others have knowledge as well as experience."*

Extract 15: *"Unfortunately, here, when a teacher is experienced, s/he thinks elementary and intermediate levels are not suitable to teach any more but for us the case is different. When teacher is creative and experienced, s/he flows the students to the heaven; we laugh and learn then we get motivated to continue higher levels."*

Other factors subsumed under this category included teachers' lack of language and linguistic knowledge as well as their lack of motivation. Extracts 16 and 17 below vividly show this.

Extract 16: *"It is true that teachers have passed classes, but honestly speaking during Covid-19 pandemic some knowledgeable teachers stay home or prefer not to have face-to-face classes, thus flow was farfetched. When the teacher doesn't know how to complete the task or almost all the time check teacher's book, this lack of knowledge interrupts our concentration."*

Extract 17: *"I never felt flow during school time because my language teacher always talked about financial problems. He was not satisfied with his income. He didn't have any motivation to come to school let alone teaching and caring for us to experience flow! The same is happening this term. The teacher always nags about both his income and his field of study."*

Contextual and environmental factors are highly influential in face-to-face classes. Since the present study was conducted during the Covid-19 pandemic of 2020, the main concern of environmental factors was sanitary considerations: using antibacterial liquids in classes, less populated classes, an appropriate air-conditioning system of classes, and the like. Beyond these, class time, temperature, sound pollution, and classroom atmosphere are among all-time determinants. That is, a stressful, under-pressure atmosphere in language classes might cut down the experience of flow. The following extracts illustrate such concerns.

Extract 18: *"In the first days of language class, I thought I might get infected with Corona virus just because of participating in class. At that time, I was way nervous and frightened by Covid-19. My mind was just*

concerned with sanitation rather than with language. Now regardless of Covid-19, I enjoy face-to-face classes and real teacher not computer teacher." (laughing sticker)

Extract 19: *"Mostly at this time (early spring) classes are hot, and the fans don't work appropriately or maybe it is not within the budget of institute to turn them on. When it is too hot, I couldn't concentrate and involve in a task appropriately."*

Text-based Interaction

From the second group, 20 students who completed the tasks via text through the WhatsApp platform were interviewed. The thematic analysis of the interview data revealed five main themes in text-based synchronous interaction leading to flow obstacles: task-related, student-related, teacher-related, environmental, and technical factors.

Task-related obstacles in text-based synchronous learning had much overlap with those of face-to-face interactions. In addition to the three previously mentioned factors, i.e., lack of enough guidance, high demanding tasks, and purposeless tasks, 'overwhelming pressure of tasks' was identified as another factor because of the modality type. The following extracts represent the overwhelming pressure of the task in text-based interaction.

Extract 20: *"I understand the task and I know how to perform it, but the problem is I don't know how to write grammatically as well as organized. In face to face speaking, we (pairs) just speak and the teacher monitors us generally, but in text-based chatting the teacher can read all comments and have the chatting texts in his/her cellphone forever! We need to know how to write, to type, to be polite, and to complete the task. It is too much."*

Considering student-related factors, the researchers found 'lack of social bondage' as another factor inhibiting flow in addition to the previously mentioned items of physical problems, mental problems of inner disorders, negative feelings and emotions, and lack of motivation in the cased face-to-face interaction. In the text-based interactions, learners' contact was only through small cellphone screens with a mostly fake profile image, such as a text or celebrity photo. Female learners rarely disclosed photos of their own faces due to cultural norms. Students simply did not know about each other. One of the interviewees said there was a safe feeling during the language time,

and negative feelings were alleviated. However, the irritation from the lack of social bondage between the students was bothersome. They desired to socialize with their partner, but the social interaction was limited within the limited time of class. Interesting to note is the professed reluctance of the participants when they were invited to chat among themselves beyond the class time in their free time. The following extracts represent the case.

Extract 21: *"It is frustrating that I just see a profile picture and nothing more. You know, I am chatting with a picture not a classmate. I mean, it is convenient because I'm not shy anymore to make a mistake nobody since can stare at my eyes, but it is hard to socialize with a talking picture."*

Extract 22: *"Currently I am writing to Sara, and Sara is writing to me. That's it. No more no less."*

Teacher-related factors were divided into five themes. In addition to the five previously mentioned sub-themes of face-to-face interactions, another factor mentioned by almost all interviewees was the "lack of technological knowledge of the teachers". Furthermore, 54 percent of students thought teachers were more nervous in text-based classes because they found writing without slips and mistakes difficult. Written texts do not fade like face-to-face interactions, and any small slips could have serious consequences. Regarding technology, about 85 percent of students believed that teachers were not technologically competent during class time, and hence they were not satisfied.

Concerning contextual and environmental factors, one theme was identified. The triggering factor, the outsiders' effect, was related to other people indirectly involved in the educational environment, such as families, and their point of view toward online education. The following extracts are pertinent to such concerns.

Extract 23: *"It is good to participate in the activity even in quarantine, but families still don't get used to online education. They think I am just looking around in my cellphone while I am in language classroom."* (lol sticker)

Extract 24: *"It took a long time till my mom got when I'm looking into my cellphone, it didn't mean I'm wasting my time. Finally, they didn't call me for the nonsense incidents at home."*

One important issue that broke text-based interaction with face-to-face communication was technological problems. Due to the strong influence of this theme, it was separated from environmental factors. Although technology provided the interactions with a new picture, it brought some difficulties with it. Network disconnection, application crashes, and limited capability of cellphones were reported as considerations related to this theme. The following extracts express the hindering aspects of technology in perceiving optimal experience.

Extract 25: *"It's frustrating that suddenly Internet was disconnected because of server problems which is out of my control. Then it means I was absent or I missed the task while I was struggling with my network."* (network disconnection)

Extract 26: *"Of course WhatsApp is a user-friendly mobile application. However, it sometimes crashed and got stuck... I couldn't type for a while."* (application crash)

Extract 27: *"We were asked to use WhatsApp through our cellphones or computers. I used my cellphone almost all the time. There is nothing worse than if you need to look at the tiny monitor of your cellphone for an hour while you need to open folders in word format or PDF to complete the tasks simultaneously. It (cellphone) crashed (angry emoji) while I was just enjoying the task."* (limited capabilities and accessibilities of cellphones)

Audio-based Interaction

In this group, the learners were supposed to complete the tasks through audio-based interactions on WhatsApp. The same themes found in the text-based synchronous interaction group were also identified in this group's interview data, although some details had some differences. Task-related, student-related, teacher-related, context-related and technological factors were identified as flow barriers in audio-based synchronous interactions. Among these, task-related, teacher-related, and environmental factors were the same as those of text-based synchronous interactions. Therefore, specific attention is paid here to student-related and technological factors.

With regard to student-related factors, physical problems were out of control at the time of the pandemic. That is, they could be attributed to external circumstances out of the learners' control. Nevertheless, inner

disorders, such as lack of concentration and negative feelings and emotions like low self-efficacy and anxiety, were less frequently mentioned to have occurred during the audio-based interactions. The following extract could be taken as an illustration.

Extract 28: *"I was so concentrated because if I missed one audio message, I couldn't follow the other parts."*

The main obstacle related to student-based factors was the weakness of auditory memory. While chatting, one partner could reply to the exact audio message through the reply key touch. The problem arose if the other part could not remember the main audio message due to lack of concentration or any other reason; s/he needed to play it again to remember what had been said and then continued the recent audio message. Therefore, the smooth flow stopped for a while. This seems to be evident in the following extract.

Extract 29: *"It was so fun to complete a task together in English, but it was better not to reply an audio message. You know why? Because firstly I forgot the point my friend had just made. Secondly, I missed the fluent flow of interactions."*

The next obstacle was the lack of enough competence among students, specifically in pronunciation and intonation. While chatting through voice messages, the only medium of sending and receiving messages is through the auditory channel, involving the mouth and ears. Gestures and lip-singings are absent. The challenge experienced in discriminating different voice qualities only through the auditory channel was reported as another obstacle for students who were already used to decoding the message with their ears as well as their eyes. The extract below illustrates the point.

Extract 30: *"I sometimes don't get what she says. Her accent was odd to my ear."*

Considering environmental factors, the noise pollution was mentioned by two interviewees to impede flow experience, as quoted below.

Extract 31: *"It was difficult to record audio message when I was in the same place with my family."*

Extract 32: *"I enjoy the activity, but my partner didn't send good-quality voice messages. When he sent voices, there were so many disturbing noises around."*

Interesting to note, others expressed their completely positive attitude toward the experience as engaged in sending WhatsApp voice messages in English.

Extract 33: *"I really liked the experience. Not only I but also my father did enjoy it. He constantly laughed out of enjoyment that I could send voices in English."*

Technological factors, such as network disconnection, application crashing mostly when both partners were recording audio messages, and limited capabilities of cellphones in audio-based interactions, were indicated as significant obstacles in experiencing flow. In addition, 'lack of accessibility to technical tools, such as headset and microphone for better chatting, was another impediment. Table 2 outlines the whole analysis of interviewees' comments on optimal experience obstacles and related percentages.

Table 2
Outline of Emerging Themes and their Percentages in Face-to-face, Text-based, and Audio-based Modalities of Interaction

| | Task-related issues | | Student related issues | | Teacher-related issues | | Contextual/ Environmental issues | | Techno logical issues | |
|--------------|----------------------|-------|---|-------|---|-------|---|-------|-----------------------|---|
| | | % | | % | | % | | % | | % |
| Face-to-face | Lack of guidance | 13.3% | Physical problems | 20% | Physical problems | 53.4% | sanitation | 93.4% | | |
| | High demanding tasks | 33.3% | Inner mental disorders, e.g. lack of concentration | 26.7% | Inner mental disorders | 6.7% | Class time | 13.3% | | |
| | Purposel ess tasks | 13.3% | Negative feelings and emotions, e.g., shyness in another language | 33.3% | Lack of experience and creativity | 93.4% | Class temperature | 6.7% | | |
| | | | Lack of students' motivation | 13.3% | Lack of planning, e.g. syllabus and lesson plan | 13.3% | Classroom atmosphere, e.g. supportive classroom climate | 26.7% | | |
| | | | | | Lack of linguistic knowledge | 66.7% | Noise pollution | 13.3% | | |
| | | | | | Lack of teachers' motivation | 6.7% | | | | |

PRESENTING A PROFILE OF FLOW BARRIERS IN MODALITIES

| | Task-related issues | % | Student related issues | % | Teacher-related issues | % | Contextual/ Environmental issues | % | Technological issues | % |
|-------------|--------------------------------|-----|--------------------------------|-----|---|-----|---|-----|--|-----|
| Text-based | Lack of guidance | 10% | Physical problems | 5% | Physical problems | 5% | Outsiders effect e.g. parents, siblings | 55% | Internet disconnection | 95% |
| | High demanding tasks | 10% | Mental disorders | 10% | Mentally inappropriate teacher | 40% | | | Application crashing | 85% |
| | Purposel ess tasks | 15% | Negative feelings and emotions | 15% | Lack of teaching planning, e.g. Online lesson plan | 15% | Mobile limited accessibility | 45% | | |
| | Overwhelming pressure of tasks | 95% | Lack of students' motivation | 15% | Lack of experience and creativity | 20% | | | | |
| | | | Lack of social bondage | 90% | Lack of language and linguistic knowledge | 15% | | | | |
| | | | | | Lack of teachers' motivation | 10% | | | | |
| | | | | | Lack of technological knowledge | 85% | | | | |
| Audio-based | Lack of guidance | 10% | Physical problems | 10% | Physical problems | 5% | Noise pollution | 15% | Network disconnection | 40% |
| | | | Inner disorders | 5% | Mentally inappropriate teacher | 10% | | | Application crashing | 45% |
| | High demanding tasks | 15% | Negative feelings and emotions | 15% | Lack of teaching planning in online format, e.g. online lesson plan | 20% | | | Mobile limited accessibility | 15% |
| | | | Weakness of auditory memory | 60% | Lack of experience and creativity in implementing old materials to new context. | 25% | | | Lack of technological facilities and tools such as microphone and headset s for better | 60% |

PRESENTING A PROFILE OF FLOW BARRIERS IN MODALITIES

| Task-related issues | % | Student related issues | % | Teacher-related issues | % | Contextual/ Environmental issues | % | Technological issues | % |
|---------------------------------|-----|--|-----|----------------------------------|-----|--|-----|----------------------|---|
| | | | | | | | | interaction | |
| Purposel ess tasks | 15% | Lack of language knowledge in this case pronunciation and intonation | 90% | Lack of language knowledge | 25% | Outsiders effect e.g. parents and family members | 15% | | |
| | | | | Lack of teachers' motivation | 15% | | | | |
| Overwhe lming pressure of tasks | 80% | | | Lack of technologic al knowledge | 80% | | | | |

Discussion

The present study endeavored to uncover the obstacles to flow experience within three modalities of face-to-face, text-based and audio-based synchronous interaction during the Covid-19 pandemic. The flow was defined as a total involvement of experiencers in an act for the sake of the act, because of enjoyment. It has a long research tradition in psychology, education, and learning (Csikszentmihalyi, 1975; Csikszentmihalyi & Larson, 2014; Egbert, 2004; Reid, 2004). Csikszentmihalyi (1997) expressed three main concepts of apathy, boredom, and anxiety regarding the antiflow model. Apathy, boredom, and anxiety are conceptualized as the suppressive factors of flow based on the flow parameters of challenge and skill level equilibration. In spite of the importance and applicability of knowing flow barriers in investigating the proper grounds of flow in the language learning process, there were relatively few publications on this issue and fewer in the context of Iranian EFL learners (Egbert, 2004; Piniel & Albert, 2017). The present study's findings revealed five main themes, including task-related, student-related, teacher-related, contextual or environmental, and technological issues, in the perceptions of Iranian EFL learners disturbing the experience of flow.

The most prominent factors were the face-to-face interaction, high demanding tasks, students' negative feelings and emotions, teachers' lack of experience and creativity, and environmental sanitation. Since the study was conducted during the Covid-19 pandemic, learners' reported negative feelings and emotions were partly due to the pandemic-ridden conditions. It is

understandable that the main concern of learners in the context of the classroom has been about their health at a time when the Delta variant of the disease, which is more deadly and contagious than the previous variants, has spread across the country. Although the number of learners has been limited according to the ministry of health protocols, and all students have had to wear masks, classes are closed environments, some classes do not have any windows, and opening the door brings noise pollution into the class atmosphere. Therefore, it is reasonable that the most concern of the face-to-face student group is to experience a safe experience under the pressure of the Covid-19-pandemic. The study's findings are harmonious with those of Allo (2020), who found that online learning, free from all the concerns mentioned above, could be a suitable substitution for effective learning during the Covid-19 pandemic.

Regarding text-based interaction, the overwhelming pressure of tasks, lack of social bondage, lack of technological knowledge of the teacher, mentally inappropriate teacher, outsiders' effect, and internet disconnection received greater attention, among all other factors. Teachers were sometimes more nervous plausibly because the researcher, and other outsiders, were also online and could check their language skills, language use rather than language usage, throughout the teaching time. Part of the lack of technological knowledge may be related to teachers' difficulty in implementing materials not designed for virtual purposes in virtual classes. The inadequate digital content in teaching online caused teachers to be more nervous or mentally inappropriate while implementing face-to-face techniques to computer-assisted learning. On the other hand, this may be attributed to the lack of teachers' computer science in virtual interactions. Anxiety was expressed by Csikszentmihalyi (1975) as the antithesis of flow in the sense that the perceived challenge exceeded the person's perceived level of ability. Although the present study studied the barriers to flow from the students' point of view, the result showed that the teachers' anxiety in the CALL context caused a big challenge to students' flow.

The overwhelming pressure of the task as an obstacle to flow in text-based interaction is justified on many grounds. Writing is almost our last alternative to explain something, even in our mother tongue. Written language production is also more cognitively demanding than the resources involved in speaking (Grabowski, 2010). Even more proficient language learners find

writing more complicated. Furthermore, both in their native language and second language, most students have received minimal or no instruction in learning how to write (Chastain, 1976). This implies that it is not just the cognitive demandingness of the task in itself that impedes flow but also the added pressure imposed as a result of modality type through task completion.

Language is a social phenomenon, and learning a second language is claimed to be a "social accomplishment" that is "situated in social interaction" (Firth & Wagner, 2007). In Vygotsky's view (1962, 1978), language is not only an instrument for thought but also it is an ability that develops through social interaction. From these perspectives, the significance of social interaction among members of a language highlighted the importance of the social bondage among interlocutors of a language. CALL provides the context in which language learners do not suffer much embarrassment as a face-to-face language interaction over making a faux pas in the second language, which is considered an advantage of this kind of interaction. However, the lack of social bondage among students makes the flow of interactions less easy significantly in situations in which all social behaviors of human life have altered. During the Covid pandemic, human interactions faced several demands imposed on them by World Health Organization (WHO) to control the pandemic. Therefore, there was a sense of regret in the old days without Covid in all aspects of human life and learning a language was not an exception. Making a social interaction with a real person in face-to-face encounters seemed to be farfetched during the Covid pandemic.

In terms of audio-based interaction, the overwhelming pressure of tasks, students' lack of language knowledge of intonation and pronunciation, teachers' lack of technological knowledge, others' point of view in the context of task completion, and lack of technological facilities received higher ranks. The result is consistent with a recent study with Norouzifard et al. (2021) on the effect of Augmented Reality (AR) on adult EFL learners' motivation and their challenges within AR. Among challenges, facilities and expertise or instruction in accessing the AR were dominant themes. The study's findings seem to generally agree with those of Cho (2018), finding a significant difference between modalities. On the other hand, the results are at odds with those of researchers like Czimmermann and Piniel (2016), who did not come to any meaningful differences between various modalities regarding the flow experience. Striking a balance between the two, one may consider both

commonalities and differences between the three modalities regarding the barriers to flow.

Conclusion

It is believed that experiencing flow can evoke positive effects in learners, including feeling happy, satisfied, cheerful, and efficient learning (Esteban-Millat et al., 2014). This study explored the factors that slow down flow among Iranian EFL learners. While some of the findings regarding technological issues were specific to online learning, other themes, such as task-related, student-related, teacher-related, and contextual or environmental issues, are almost shared in all modalities. High-demanding tasks, students' negative feelings and emotions, teachers' lack of experience and creativity, and sanitary considerations in the classroom were the most predominant sub-themes that emerged from the face-to-face group of learners. In text-based interaction, the overwhelming pressure of tasks, lack of social bondage among the students, teachers' lack of technological knowledge, outsiders' effect (who are indirectly involved in the educational context), and network disconnection were the most prominent sub-themes. Finally, in audio-based interaction, the overwhelming pressure of the task, lack of language knowledge, especially correct pronunciation and depth of vocabulary, teachers' lack of technological knowledge, noise pollution, as well as outsiders' effect, and lack of technical facilities farfetched the peak performance.

Based on the study's findings, the following suggestions are made to minimize or even remove probable obstacles to the flow experience. Instructing teachers on the optimal use of technology, including the internet and various applications (increasing digital teacher competency); preparing materials that are specifically designed for e-learning rather than using the same materials used in concrete classes; increasing public knowledge on CALL learning via computers and other gadgets such as mobile phones and tablets; providing nonstop access to the internet for all learners specifically during Covid-19 pandemic; providing a supportive atmosphere for learners who are mostly under the stress of online learning and Covid-19 pandemic; and empowering teachers with the new methods and concepts or new ways of implementing old methods into the new context of CALL (alignment of practice and theory).

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Appendix A

The Flow Questionnaire (Csikszentmihalyi & Csikszentmihalyi, 1988)

"My mind isn't wandering. I am not thinking of something else. I am totally involved in what I

am doing. My body feels good. The world seems to be cut off from me. I am less aware of

myself and my problems.

My concentration is like breathing I never think of it. When I start, I really do shut out the world.

I am really quite oblivious to my surroundings after I really get going. I think that the phone

could ring, and the doorbell could ring, or something like that. When I start, I really do shut out

the world. Once I stop, I can let it back in again.

I am so involved in what I am doing. I don't see myself as separate from what I am doing."

Have you ever had similar experiences IN THE LAST TASK?

Yes, I have experienced similar experiences in the last task.

No, I have NOT experienced similar experiences in the last task.

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Appendix B

Semi structured interview: A modified version of The Flow Questionnaire (Csikszentmihalyi & Csikszentmihalyi, 1988)

"was your mind wandering during the task completion? Were you thinking of something else? weren't you totally involved in what you were doing? If yes. What are your reasons?"

Did your body feel good during the task? did you feel that the world seemed NOT to be cut off from you. Were you more aware of yourself and your problems?"

Wasn't your concentration in your control (was it something different/like from breathing). Did you absolutely think of it (keeping yourself concentrated)? When you started, didn't you really shut out the world? If yes, why?"

Were you quite aware to your surroundings during the task (were you absolutely conscious about your surrounding). For example, did you hear that the phone ring in the office, and the students of the next class called the teacher, or something like that.

Weren't you really involved in what you were doing? Did you see yourself as separate from what you were doing? "

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