A Sociocognitive Account of Willingness to Communicate from the Perspective of Complex Dynamic Systems Theory

Farahman Farrokhi, Mohammad Zohrabi, Ali Gholizadeh Azarberis*

Department of Persian Literature and Foreign Languages, University of Tabriz, Iran

Abstract

This study investigates the dynamic nature of second language willingness to communicate (L2WTC) exploring the numerous factors that contribute to the construct. Drawing upon the sociocognitive perspective, we analyzed the environmental, individual, and linguistic factors that influence the development of L2WTC in an Iranian language learning context. Data were collected through interviews, stimulated-recall sessions, journal keeping, and observations from an intact class of five students. The environmental factors identified throughout the analysis stage were interlocutor familiarity, topic, teacher influence, task type, discussion dynamics, and family dynamics. The individual factors that were found to play a role in the development of L2WTC included anxiety, motivation, self-confidence, security, shyness, perfectionism, perceived need for the target language use, cultural identity, personality, interest in the topic, fear of failure, seeking validation, cultural adaptation, and emotional state. Finally, perceived and actual linguistic competence were among the linguistic factors that influenced L2WTC. Overall, the findings of this study confirmed that L2WTC is a multifaceted complex system that is constantly reacting to environmental changes.

Keywords: *Willingness to Communicate, Complex Dynamic Systems, Language Learning, Sociocognitive Approach, L2WTC*

Introduction

A great deal of emphasis has been put on the role of communication for fostering second language (L2) learning in the last few decades. Meaningful interaction has been identified as a necessary condition that needs to be met in order to improve the communicative competence of L2 learners (Sadoughi & Hejazi, 2023). However, L2 learners vary greatly in the amount of talk they engage in. MacIntyre and Charos (1996) have proposed willingness to communicate (WTC) as the factor that determines the amount of L2 communication that an individual engages in. WTC was first introduced by McCrosky and Baer (1985) to account for

the fact that individuals manifest varying preferences towards involvement in communication and defined it as a situationally dependent and trait-like construct that explains '…why one person will communicate, and another will not under identical or virtually identical situational constructs' (p. 30).

Extending the horizons of the original construct of WTC (MacCroskey & Baer, 1985) which was proposed with reference to L1 communication, MacIntyre et al. (1998) defined WTC in a L2 (L2WTC) as "a readiness to enter into discourse at a particular time with a specific person or persons, using a L2" (p. 547). L2WTC has been identified by many scholars as a crucial factor in the process of second language acquisition (SLA) (e.g., Kang, 2005; Yashima et al., 2004) as higher levels of L2WTC have been associated with higher levels of L2 achievement (MacIntyre et al., 2003). Some scholars have even gone as far to propose that L2WTC should be "the ultimate goal of the learning process" (MacIntyre et al., 1998; p. 547). Such ideas prompted scholars in the field of applied linguistics and other related fields to scrutinize the construct of L2WTC.

Complex Dynamic Systems Theory (CDST) and Sociocognitve Approach

There seems to be a preference for simplicity in every aspect of our lives. We tend to think of our lives as a combination of fixed entities such as trees, rivers, family, cities, etc. In addition, we also prefer to turn our continually evolving selves into fixed features such as motivations, attitudes, personalities, and identities. The same preference for simplicity is also reflected in our scientific enquiries for the truth. Particularly, change is an undeniable aspect of applied linguistics and yet we seem to prefer an over-simplified version of truth. A preference for a simplified view would not grasp the reality of the processes just like a picture of someone would not grasp his/her life experiences. Complexity theory, on the other hand, embraces complexity, interconnectedness, dynamism, and change. It attempts to provide a view of a system by accounting "how the interacting parts of a complex system give rise to the system's collective behavior and how such a system simultaneously interacts with its environment" (Larsen-Freeman & Cameron, 2008; p. 1). Complexity does not infer complicatedness or difficulty rather it simply means that the overall system behavior is a result of the interaction of its components.

Weaver (1948) attempted to provide guidelines to enable the distinction between complex and non-complex phenomena. He identified three categories of systems that later became known as simple, complicated, and complex systems. A simple system is always the sum of its constituent parts which interact in a mechanical, linear, and therefore completely predictable manner. One could, with high amount of certainty, predict accurately how the system will behave. Complicated systems also behave very similarly to simple systems in the sense that they also behave mechanically and linearly which makes its behavior predictable although with more difficulty as they have a significantly larger number of elements (McMurtry, 2009). Complicated systems are also the sum of their parts.

Complex systems, on the other hand, are not the sum of their parts and do not behave in a mechanical and linear manner. Therefore, its behavior cannot be predicted based on its components. The components of the system and its environment interact and as a result the whole system goes through a qualitative transformation through which the system might no

longer be what it was at an earlier stage. The change is reciprocal since the change in the system might lead to change in the environment. This is what complexity scientists call emergence. This emergence is where complex systems and determined systems part.

Having discussed this, we find it compelling that researching L2WTC as a complex system could lead us to unexplored areas and will open new opportunities for further research. Our tendency to oversimplify complex systems might have been the source of many exciting discoveries in science, but it is time we took one more step into the darkness and tried to shed light on it. This study will attempt to explore L2WTC from a CDST perspective to overcome the oversimplification that has been going on in our field and embrace L2WTC as it really is, complex, dynamic, and in constant flux.

As rightly argued by sociolinguists (e.g., Weinreich et al., 1968), humans learn and use their languages in linguistically diverse environments. This would highlight the importance of social factors in both language use and language learning. However, this seems convincing to admit a role for human cognition also to play a role in the process of language learning. After all, it cannot be denied that language acquisition occurs interactively and simultaneously both in the world and in the head (Atkinson, 2002). Hence, a sociocognitive approach postulates that the cognitive aspect of language is interrelated with experiences, cultural knowledge, emotions, and social identity (Atkinson, 2002). To do so, Cao (2014) defined interrelatedness as the interaction among individual characteristics, linguistic factors, and classroom environmental conditions. To clarify the point, as a result, a sociocognitive approach has been taken throughout this study to embrace the fact that the social and the cognitive aspects of language acquisition are not in action separately from each other.

Literature Review

Several studies have been conducted to explore the predictive variables of L2WTC (Lee & Drajati, 2019; Peng & Woodrow, 2010). Among these, the impact of motivation and anxiety on L2WTC have been more comprehensively explored and long-established (Lee & Drajati, 2019; Lee & Lu, 2023; MacIntyre & Gregersen, 2022; Zhou & Lochtman, 2023). Other studies have also identified other factors that are believed to influence L2WTC. Wang et al. (2021) found class social climate, foreign language mindset, and academic emotion to interactively affect L2WTC in and out of the classroom environment. Language attitudes and self-confidence also have been identified as potential factors contributing to one's L2WTC (Peng & Woodrow, 2010). Zarrinabadi et al. (2023) investigated the impact of praise for effort and praise for intelligence and concluded that while the former would increase L2WTC and decrease anxiety, the latter would negatively impact L2WTC and would lead to the arousal of anxiety.

However, studying any factor presumed to influence L2WTC in isolation seems implausible as the idea of treating it as a static variable has already been rightly obsolete. Kang (2005) proposed L2WTC to be a dynamic, situational concept that fluctuates from moment to moment. Cao (2011) has convincingly argued that L2WTC is in continuous flux, being shaped by constant interaction with both individual and contextual factors (Peng, 2020). In addition, L2WTC has already been found to be prone to momentary changes (Pawlak et al., 2016). Hence, L2WTC needs to be treated as a complex dynamic system (CDS) and would be better

described in terms of Darwinian evolution rather than Newtonian mechanics (Davis and Sumara, 2006). In other words, denying the dynamic nature of L2WTC would only provide us with a distorted image which looks nothing like the reality of the concept itself. Time and change as probably the most significant features of CDSs (Larsen-Freeman & Cameron, 2008) need to be brought back into the picture if any study intends to provide a valid image of a complex system.

In a CDS, nothing ever stays the same and the system and all its components which are probably CDSs on their own rights are in constant interaction to create a connected unity that forms the system's current state (Larsen-Freeman & Cameron, 2008). Having mentioned the social and cognitive factors that have an impact on L2WTC in one way or another, we have decided to approach it from a sociocognitive perspective (Atkinson, 2002) to highlight the importance of the fact that the social and the cognitive factors are intertwined with each other and with L2WTC as well. A sociocognitive perspective would entail that the cognitive aspect of language is not separable from experiences, therefore, a sociocognitive approach would allow us to investigate how the social and the cognitive factors interact synergically to shape the L2WTC. Having kept this in mind, this perspective seems to be significantly compatible with a Complex Dynamic Systems Theory (CDST) view of L2WTC (Larsen-Freeman & Cameron, 2008). By investigating the sociocognitive factors informed by a CDST perspective, we would like to attempt to directly address the issue of treating L2WTC and the factors impacting it as isolated components that are separate from each other. Instead, we intend to introduce a definition of L2WTC that is nested within an overarching system that incorporates a collection of other components which are intertwined and constantly interact to give rise to an overall system behavior that is more than the sum of its constituting parts. Regarding the gaps and shortcomings mentioned so far, the research question for this study would be as follows:

RQ: What are the factors that contribute to the shaping of L2WTC from a sociocognitve perspective informed by complex dynamic systems theory?

Participants

Five students from an intact free discussion class were asked to participate in the study. They all signed a letter of consent prior to the data collection. In addition, they were all informed that they could drop out of the study at any point during the study. A free discussion class consisting of 5 language learners (3 female and 2 male) were selected as the setting of the current investigation. The teacher knew every single of the participants as he had been teaching them individually for quite some time. However, none of the participants were familiar with each other prior to this class (except for two of them who were in fact a couple). The teacher suggested this class for data collection based on his belief that the diverse characteristics of its members would be of particular interest to this study. The demographic information of the participants is presented in Table 1.

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Table 1

Demographic Information of the Participants

Pseudonym	Nationality	First Language(s)	Language Learning Experience	English level (Teacher estimation)	Age	Gender
Hamid	Iranian	Azerbaijani-Persian	8 years	Intermediate	26	Male
Reza	Iranian	Azerbaijani-Persian	7 years	Intermediate	30	Male
Sanam	Iranian	Azerbaijani-Persian	5 years	Pre-Intermediate	25	Female
Sahel	Iranian	Azerbaijani-Persian	4 years	Pre Intermediate	22	Female
Negin	Iranian	Azerbaijani-Persian	5 years	Upper-Intermediate	27	Female

Setting

This study was conducted in a private free discussion class in Ardabil, Iran. The students were recruited by the teacher himself, who had taught them privately before the start of this class and was therefore well-informed about each of them. Therefore, after intensive meetings with the teacher of the class, we reached the conclusion that the diversity of the participants in this class regarding their personal characteristics outlined to us by the teacher would make this class a very interesting case for our study. We decided to start collecting data from the first session of the class to better capture the social relationships that might form among the participants from the onset. The class was scheduled to be held twice a week for 60 minutes each session.

Procedure

Data was collected using interviews, classroom observation, and journal entries. Overall, 25 minutes of classroom performance was recorded in three sessions throughout 2 weeks. Each session, the teacher introduced topics to be discussed and asked the students to talk to each other in a group and then share their ideas to the class afterwards. Each student was interviewed prior to the first session to reach an overall understanding of their individual experiences with language learning. Furthermore, all the participants were asked to keep a journal in which they recorded any language-learning related incident that could have occurred to them outside the classroom.

The whole data collection process was video-taped so that the researchers could observe them later and to use them in the stimulated-recall session interviews which were administered at the end of each session. A list of behavioral categories (Appendix 3) suggested to manifest an individual's L2WTC proposed Cao (2014) was used as a point of reference to have a more concrete image of L2WTC. In addition, the amount of time spent speaking was calculated for everyone for every speaking turn in which they participated during each session. The data was used on each stimulated recall session as a point of reference to enhance our analysis of the incidents that occurred during each session.

Data Analysis

Atlas.ti web was used to code and analyze the data obtained from interviews, stimulated-recall sessions, and journal entries to identify the possible contributing factors on L2WTC. Observation of the classroom performances was also used to enhance the data gathered. In addition to the coding conducted through Atlas.ti web, the transcribed data was carefully read by the researchers to ensure maximum precision during the process. All the factors mentioned by the participants through interview sessions and the journal entries were identified and categorized into environmental, individual, and linguistic factors. Environmental factors deal with everything external to the person that appears to have an impact on the learner. Individual factors are features internal to the individual that influences the L2WTC. Linguistics factors are concerned with the individuals' actual or self-perceived linguistic competence.

Results

This section provides an overview of the results obtained throughout the investigation. This chapter has been divided into two sections. The first section presents the descriptive numerical data regarding each individual performance as well as the overall L2WTC evolution during the data collection procedure. On the other hand, the second section is an exploratory account of the participants' L2WTC based on the data obtained from interviews, stimulated-recall sessions, observations, and journal entries. Therefore, a retrospective interview procedure (Côté et al., 2005) was employed to identify the key moments in the language learning history of the cases investigated in this study accompanied by a detailed scrutiny of their current performance. Even though recalling past events by individuals may be subject to flaws, it would still be able to provide some insight into how L2WTC evolved over time. However, other sources of data were utilized to minimize the risk of reaching premature conclusions.

As illustrated by Table 2 presents the data related to overall talk time, the overall number of turns taken by the students to participate in talking, and average talk per turn for each session at the classroom level. As illustrated by the table, it is clearly visible that the overall talk time, the average talk time per each turn, and the number of turns increased from session 1 to session 3. If one agrees that the amount of talk time could be attributed for the L2WTC level, this could be suggested as additional evidence for the dynamic nature of L2WTC. Therefore, multiple contributing factors must be in play that are in constant interaction with L2WTC that causes it to fluctuate on every possible timescale. The presented table provides support for the fluctuations of L2WTC on a session-by-session basis. However, the L2WTC was also seen to have gone through changes on shorter timescales as well. In addition to timescale, the level at which one examines L2WTC seems to be constantly changing.

Table 2

Student Talk Time, Number of Turns, and the Average Talk Time per Turn at the Class Level

Session	1	2	3
Overall Talk Time (in seconds)	202.26	323.73	499.27
Average Talk Time (in seconds)	28.90	32.37	41.60
Number of Turns	7	10	12

On an individual level also a great amount of variability was observed. Table *3* presents the data on a more individual level. The information provided by the table suggests that L2WTC is indeed more dynamic on an individual level than it is on a classroom level. This could be so since the classroom level data is the summed and averaged calculation of the data related to all the participants and as it has been previously stated, the averages tend to simplify complexities (Larsen-Freeman & Cameron, 2008). Average talk times could be misleading if it is isolated from the other information in the table as the value could be tightly tied to the number of turns. In other words, as the number of turns increases there is a chance that the average talk time is significantly reduced, and it creates the impression that an individual has participated in less conversation than he/she has in reality.

Reza has the highest amount of overall and average talk time while Negin was ranked 2nd in overall talk time and Sanam was 2nd in average talk time which is because Negin volunteered more answers than Sanam. Reza and Negin both spoke for 7 turns which places them in the 1st rank while Hamid and Sanam spoke for 5 times. Interestingly, Sahel is ranked the last in all categories which makes her an interesting case for more scrutiny. She avoided any sort of communication during the first session and at some points during the second and the third sessions blatantly ignored the questions addressed to her and withdrew from communicational incidents. However, she volunteered for discussion during the second session twice and she displayed a significant increase in her talk time during the third session.

Table 3

Student Talk Time, Number of Turns, and the Average Talk Time per Turn at the Individual Level

Pseudonym	Overall talk time (in seconds)	Average talk time per turn (in seconds)	The number of turns
Hamid	1st session: 19.58 2nd session: 67.81 3rd session: 39.84 Total: 127.23	1st session: 19.58 2nd session: 22.60 3rd session: 39.84 Total: 25.45	1st session: 1 2nd session: 3 3rd session: 1 Total: 5
Reza	1st session: 107.96 2nd session: 88.89 3rd session: 113.89 Total: 310.74	1st session: 35.99 2nd session: 44.44 3rd session: 56.94 Total: 44.39	1st session: 3 2nd session: 2 3rd session: 2 Total: 7
Sanam	1st session: 38.51 2nd session: 53.72 3rd session: 125.48 Total: 217.71	1st session: 38.51 2nd session: 53.72 3rd session: 41.83 Total: 43.55	1st session: 1 2nd session: 1 3rd session: 3 Total: 5
Sahel	1st session: 0 2nd session: 26.01 3rd session: 72.88 Total: 98.89	1st session: 0 2nd session: 13 3rd session: 36.44 Total: 24.72	1st session: 0 2nd session: 2 3rd session: 2 Total: 4
Negin	1st session: 36.21 2nd session: 87.3 3rd session: 147.08 Total: 270.59	1st session: 18.10 2nd session: 43.65 3rd session: 49.03 Total: 38.65	1st session: 2 2nd session: 2 3rd session: 3 Total: 7

As expected, the amount of variability in the data on individual levels points out to the fact that the decision to talk or to remain silent is a complex process that cannot be reduced to linear statistical analysis which at most would provide us with a distorted snapshot image of the moment at which data was collected. We believe the image would be a distorted one as the numerically collected data would not be error free and any error in measurement of a complex system would be magnified during data analysis (Davis & Sumara, 2006). Therefore, the following section will provide an in-depth description of the data collected for each participant to capture the variations in L2WTC through the data collection phase.

Negin

Negin (pseudonym) stated that she had a great amount of motivation to learn English since she was 6. Therefore, she insisted that her parents register her at a language learning center in their neighborhood. She had created a great bond with her teacher and her classmates and was very eager to continue learning English. However, a significant incident occurred and marked a great change in her attitude towards learning English. The language learning center had to close, and it caused Negin who was 7 at the time a great amount of emotional damage:

"I was really sad and didn't really want to learn English at all. I stopped learning English until I was a teenager." (Negin)

She signed up to an English class years later at the age of 15. She stated that she did so because her friends and her parents insisted that her future could greatly be impacted by this decision:

"I had lost all my interest in learning the language and I really did not cooperate with my teachers. My fear of learning a new language had only become greater throughout those years." (Negin)

Her teacher was very strict, and it caused her to experience panic attacks before her classes. This caused her to drop out only a year later. She claimed she did not learn anything and that the school policies made her decide not to ever go to any sort of English class before.

As the years passed, she decided to continue her education at a higher level. Therefore, she got admitted to a master's degree course at the same University. This is where another major factor changed her decision of not wanting to learn English. All her friends were considering immigration.

"I started talking to my friends about immigration. They could convince me that I could have a better future if I immigrated to a developed country like the USA and Canada.) (Negin)

It was not only immigration that made her start learning English again. She said that she felt embarrassed when all her friends could speak at least a little English and she could not. She made her decision to start learning English again. Nonetheless, she still had not overcome her old fear of learning a new language. Therefore, she decided to learn English with a private

teacher. However, her initial experience in a private class did not go well and she decided not to continue it:

"He was a very bad-tempered person and kept humiliating me for my mistakes. His attitude made me stop talking as I was too afraid of making mistakes. But this couldn't go on any further and I decided to stop going to his classes" (Negin)

She conducted more research and found another private teacher to work with. This is another turning point in her English learning experience:

"My new teacher is so nice. He encourages me to talk and tells me mistakes are a part of the process. I believe I have made a lot of progress with his help. He has created such a safe environment for me to talk and to learn that I had never experienced before. For me, learning English was equal to feeling anxious and stressed. But now I am always excited to be in his class." (Negin)

She said she was afraid of failure, and she felt like she did not have the aptitude to learn a new Language. She says she has now overcome her anxiety and has decided to join a public class alongside her private class. She believes her teacher helped her regain her confidence in herself. Another important statement was that she said she has always preferred talking to a teacher rather than talking to other classmates because she felt safer. This might be the reason why she has mostly studied English in a private context. She says she could talk to other people, but she decides not to because she does not want to make a mistake when talking. She believes this might be rooted in her shyness and the fact that she had teachers at high school that made her not like talking in a foreign language.

Hamid
Hamid (pseudonym) started learning English when he was 7 years old. During his interview, he clearly stated that it was his parents' decision, and he had no say in it. He said that he was afraid of language learning even before he stepped into his class for the first time.

"I was afraid of the outcome. I was afraid that my parents would judge me if I couldn't learn English." (Hamid)

His parents were extremely sensitive about his studies, and he said he had the same fear of disappointing his parents at school. This caused him to experience a tremendous amount of anxiety throughout his English learning journey.

"My anxiety made me not learn English and I was always looking for a way out" (Hamid)

He could finally convince his parents that he did not want to learn English. Seven years later at the age of 14, his parents signed him up for an English class again. He was still terrified of the classroom environment:

"I just tried to hide myself among other students so that the teacher wouldn't ask me anything in front of all my classmates" (Hamid)

Interestingly, he claimed it was not his teacher who made him anxious. According to his words, he feared being humiliated in front of his classmates. Apparently, his teacher was very understanding and tried to help him with his anxiety.

He tried to avoid any sort of conversation in English unless he was explicitly called by the teacher. Even then, he tried to make himself understood with the minimum amount of talking. He said the moments when his teacher asked him to talk about anything in English were the most stressful moments of his life:

"My hands were shaking every time my teacher asked me to say anything in English. I always tried to avoid it but sometimes it was just not possible. It still makes me uncomfortable thinking about it" (Hamid)

He was more comfortable with groupworks because it was easier for him to avoid speaking. He sat there silently while his partners did the assignments. Interestingly, if he had something to say and he was sure he had the linguistic resources to say what he wanted to say he even volunteered to provide an answer.

"If I was sure that I had the answer, then all my fear and anxiety would go away. It did not happen very often, but it happened a few times" (Hamid)

His second phase of language learning experience did not go very well and clearly, he dropped out of that class, too, only a year after. As an adult, he decided to learn English again. What makes this phase significant is the fact that this time the decision was made by him and not by his parents. He says his anxiety is gone for the most part because now he has vision of what he wants to do with English:

"I have a goal now. I speak more frequently now. I still don't like talking but I believe I have to do it because I really need to learn English. I want to migrate to Canada and I can't do it without learning English." (Hamid)

Sahel
Sahel (pseudonym) loves playing video games and watching movies. She had never been to a formal English class before, and she had mostly self-studied before she joined this class. She believes video games have been a great tool for her to improve her English. She describes herself as shy and reserved no matter what linguistic context she is in:

"I just don't like talking to people in any circumstances. It doesn't matter if I have to speak in Persian, Azerbaijani, or English. I am more talkative when I am playing video games online but that is because the people I play with don't know me." (Sahel)

She talks about her brother insisting that she goes to an English class and that she was never convinced. She knew that she would need English at some point in her life and that is why she decided to self-study. Even though she could improve her English to some extent, she reached a point where she realized she was not making any more progress. This is when she finally decided to go to an English class:

"I still feel very uncomfortable and anxious when I feel that I am going to be the next person to talk. But this is something I must do because of my dream of moving to the USA or Canada for my master's degree." (Sahel)

She still avoids speaking in the classroom if her teacher does not explicitly ask her to talk. She thinks she needs to come out of her shell if she wants to become a successful web developer in the future.

Reza
Reza (pseudonym) experience a lot of on-again off-again periods of going to English classes. He considers himself a sociable person with no fear of communicating in English. He explains his decisions to leave classes right after he signed up for them by referring to himself as a person with little will-power to sustain his language learning process:

"I have always been like this. I see something and I feel like I want it. Only a little time after, I realize that I never wanted it. It is not only English. I have dropped out of music classes, sports classes, and even businesses. It has been more frequent with English because I have felt the need to learn it more frequently." (Reza)

His parents sent him to an English class first when he was 8 years old. He started with a lot of motivation but stopped after 3 months. This happened a couple of more times until he graduated from high school. This was the first time his parents did not have an impact on his decision to go to and English class and he made the decision all by himself:

"I always wanted to immigrate to a foreign country. I didn't really have a certain destination in my mind. It could be Australia, the USA, or anywhere in Europe. I just knew I wanted to live somewhere else." (Reza)

Similar to his previous experiences, he could not continue his classes for more than 6 months but this time he blamed COVID for it. He experienced another failure after things were more normal this time with a private tutor. He only had 6 sessions with him before he decided to cancel it. One thing that changed it was a friend of him who immigrated to Canada:

"My friend moved to Canada and started posting pictures on social media. He told me it was impossible to survive if one doesn't know English. I talked to my wife Sanam (pseudonym) and we finally decided to start learning English together." (Reza)

They started a private class together and this has continued for over a year. He thinks his wife is one reason that he has not decided to quit, and the other reason is that now it feels more real because he has seen his friend move to Canada:

"Before it felt like a dream. Now I see my friend post pictures on his social media. He is in Canada now and so can I. This is no more a dream but something I can achieve if I work hard." (Reza)

They visualize their future in Canada, and he believes it has helped him sustain his motivation to learn English.

Sanam

Sanam (pseudonym) is Reza's wife, and they study English together in a private class. She is very motivated and studies very hard every day. She used to go to an English class before she was married to Reza for over 2 years. She stopped going to the class once she felt like she did not need to improve her English:

"I really liked my class. I just thought I didn't need to learn more than I had at the time. I could communicate in English and that was enough for me" (Sanam).

She never had a formal English class until they decided to move to Canada:

"When we saw Reza's friend's photos in Canada, we could finally make the big decision and started learning English again. We knew he could help us there, so it was less scary" (Sanam).

She speaks English with her husband, but she says they cannot do it all the time:

"Sometimes one of us makes stupid mistakes and it makes us laugh. Then, we stop speaking English and switch back to Persian or Azerbaijani" (Sanam).

She visualizes herself working in a good company in Canada. She also thinks about living in Canada every night before she goes to bed. She believes this has helped her stay strong and maintain her motivation.

An Overall Image of the Factors Contributing to L2WTC

Atlas.ti web was used to code and analyze the data obtained from interviews, stimulated-recall sessions, and journal entries to identify the possible contributing factors on L2WTC. Observation of the classroom performances was also used to enhance the data gathered. In addition to the coding conducted through Atlas.ti web, the transcribed data was carefully read by the researchers to ensure maximum precision during the process. Data emerged from observations and all factors mentioned by the participants through interview sessions and the journal entries were identified and categorized into environmental, individual, and linguistic

factors. Environmental factors deal with everything external to the person that appears to have an impact on the learner. Individual factors are features internal to the individual that influences the L2WTC. Linguistics factors are concerned with the individuals' actual or self-perceived linguistic competence.

Interlocutor, topic, the teacher, task type, the discussion dynamics, social influence, and family dynamics were among the environmental factors mentioned by the participants in the study or observed by the researcher to have impacted their L2WTC. The discussion dynamics refers to how the conversational exchanges such as agreements or disagreements among the participants impacted the participants' performances. Social influence is a factor that can impact how an individual approaches or avoids communicational incidents. Social context has been previously noted by MacIntyre et al. (1998) to be among the more enduring components influencing L2WTC. However, there might be aspects where the impact would be more immediate (e.g., social climate (Wang et al. (2021) and therefore lead to fluctuations in an individual's L2WTC on a moment's basis.

Gunn and Eberhardt (2019) defined family dynamics as the interactional patterns among the members of a family and their relationships. They also suggest that as the family members depend on each other for emotional, physical, and financial support, they could be considered as one of the main sources of relationship security and stress. Moreover, Papi and Hiver (2020) found out that family had a role to play on how language learning motivation was shaped. Therefore, we could conclude that family dynamics would have a somehow indirect impact on L2WTC through motivational propensities and anxiety.

Interestingly, each one of these factors affected everyone in a different way. For instance, while some mention interlocutor familiarity as a positive factor on their L2WTC, some mentioned it as a detrimental factor since it made them feel embarrassed to speak in a foreign language with a familiar person. As a different example, some of the participants claimed the sensitivity of the topic made them feel uncomfortable and less willing to participate. They said that if it was not a formal learning environment, there was no way they would participate in such discussions. Interestingly, others were more willing to converse in sensitive topics since it created an environment where they could naturally argue for their positions with those who disagreed with them.

The individual factors were of a more affective and cognitive nature. Anxiety, motivation, self-confidence, security, shyness, perfectionism, perceived need for the target language use, cultural identity, personality, interest in the topic, fear of failure, seeking validation, cultural adaptation, and emotional state were among the individual factors reported by the participants. As an instance, Hamid stated that a feeling of intense anxiety took over him even moments before he intended to share his opinions. He went through a lot of stress before he could finally make the decision to speak. According to Hadi, he was counting the moments for the end of his turn and that he could not look at anybody because it made him feel insecure. Another reason he mentioned for his lack of eye-contact with others during the class is the fear of being asked a follow-up question on his ideas. He gave an interesting answer when he was asked why he was continuing his English learning if he is so much at unrest with this process:

"Just because I don't like speaking to others specifically in a foreign language does not mean I don't like learning it. I don't enjoy the process, but I would really be happy if I could speak English fluently one day. Besides, I really need to learn it. I am planning to live abroad, and I won't be able to do it if I don't learn the language" (Hadi).

What Hamid articulated is a clear reference to his motivations of learning English. He has accepted the pain and hardship of being in an uncomfortable situation in pursuit of a desired end-state. With reference to three dimensions of Higgins's theoretical framework for motivation (2014), what Hamid has done and continues to do despite the undesirable efforts he has to make, is because of the value effectiveness of the hardship in comparison with a desirable end-state which he hopes to achieve one day. Control effectiveness dimension of Higgins's theoretical framework (2014) can be traced to the fact that Hamid believes he does have the autonomy and agency to go past this unpleasant stage to achieve his desired goal. The truth effectiveness dimension is not evident in Hamid's case as he clearly stated that he has a utilitarian approach towards learning English.

Self-confidence is another individual factor that has co-occurred with the decision to initiate or withdraw talk. A vivid example of this happened when Sahel justified his decision to remain silent by referring to her lack of ability to speak English well. She also said that she did not talk because she was afraid that her intentions would be misunderstood. Another interesting incidence occurred Negin said:

"I think I have a great command of English but still avoid communication because I feel very anxious when I speak in a foreign language" (Negin).

There seems to be a struggle in her head between her quite high levels of self-confidence and her anxiety levels where anxiety seems to be playing a stronger role, at least for Negin. She claims she evaluates the risk and then decides to initiate talk. That is the reason she has always preferred to learn in a private context than a formal English class. This is where the feeling of security as another individual factor is drawn into the picture for her.

Personality is still another factor that was mentioned by multiple participants as a crucial factor impacting L2WTC. They mentioned shyness, introversion, extroversion, and openness to new experiences as reasons for their inclinations towards communication. However, it is strongly recommended that the relationship between personality types and L2WTC be treated more carefully as these personality types themselves are not as static as they have usually been viewed and therefore the reached outcomes might tend to be a magnification of the reality.

The emotional state of the individuals also was found to have an impact on their L2WTC at a certain moment. This was both observed by the researcher and mentioned by the participants in both the stimulated-recall interview sessions and also in- their journal entries. During the second session, feelings of anger and tension were stated as the reasons for the participants' involvement in the discussion. At some point, this feeling of anger led to an intense and heated debate between the two participants.

The final aspect of the factors identified as influencing L2WTC is linguistic. Linguistics proficiency was the factor reported by all the participants in the study. What we realized

through our further analysis was that a distinction needs to be made between perceived and actual linguistic proficiency. While the actual linguistic proficiency impacts an individual's L2WTC at a more basic level while the perceived linguistic confidence does so at a more intermediate and above level. To be more specific, the participants did not have the linguistic resources to utter what they intended to utter and therefore simply decided to remain silent. They mentioned on the stimulated-recall interview session that they would have participated more if they had the right linguistic tools or if the conversation was conducted in their first language. As mentioned earlier, Sahel explicitly made it clear that she was afraid that she would not be able to articulate her opinion clearly and as a result preferred not to talk at all. On the other hand, sometimes the participants decided to share their ideas with major linguistic errors because they explicitly overestimated their ability in English. For instance, in response to an incident where Negin initiated to talk accompanied by linguistic errors, she said during the stimulated recall session that she knew she had the linguistic resources to share her idea and that is why she decided to talk.

To conclude this section, any of these factors need to be treated with great care as the relationships among them are not linear, nor unidirectional. For instance, if these factors affect L2WTC and the consequent change in the L2WTC does not affect these factors is an over-simplification of the matter. Besides, they do not seem to be working in isolation without having an impact on other components as well. L2WTC is affected by other factors just as much as it does indeed affect those very same factors.

Discussion

First, this study provided further evidence that the L2WTC is a complex dynamic system that is prone to moment-to-moment fluctuations. This is in line with the widely accepted fact that has resulted from the accumulated body of knowledge in the past few decades (e.g.,Kruk, 2022; MacIntyre & Doucette, 2010; MacIntyre & Legato, 2011; Pawlak & Mystkowska–Wiertlak, 2015; Peng, 2012; Ducker, 2022). L2WTC is in constant flux and could change in response to environmental, individual, and linguistic stimuli. However, one thing that needs to be emphasized more is the idea that L2WTC is not at the center of a communication session where every variable is at work to increase or decrease the amount of talk one desires to produce. Our study suggests that L2WTC is constantly shaping its environment just as much as it is being shaped by it. The studies on the impact of other variables on L2WTC have been quite limited though. Lee (2022) is among the few to probe into how grit and classroom enjoyment affect L2WTC but still they did not report how the impact of these factors on L2WTC would be bounced back to influence those very factors as well. We would argue that the future studies need to address this issue.

A few novel factors were identified and reported. They were grouped under three categories previously proposed by Cao (2014). However, we insist that these categories work in tandem and are not separate from each other whatsoever. Many of the environmental factors identified in this study concurred with the previously conducted studies (e.g., Cao, 2014; Lee & Lu, 2023). What we called the discussion dynamics is very similar to what Pawlak et al. (2016) called the stage of a class session; however, the discussion dynamics differs their term on its focus on the dynamic nature of a conversational event on its own right. To the best of our

knowledge, family dynamics has not been reported as a contributing factor on an individual's L2WTC.

The impact of anxiety and motivation on L2WTC has been widely discussed and established in earlier studies (e.g., Lan et al., 2021; Lee & Hsieh, 2019, Zhou & Lochtman 2023) and our study confirms the findings of those studies. The role played by self-confidence, security, shyness, perfectionism, personality, and interest in the topic has also been acknowledged by other scholars in the field (e.g., Dewaele & Pavelescu, 2021; Kang, 2005; Wood et al., 2019; Zhang et al., 2018; Zhang et al., 2023). However, perceived need for the target language use, cultural identity, fear of failure, seeking validation, cultural adaptation, and the emotional state were among the more novel factors that were introduced in the current investigation, and we would suggest that further investigations on them would provide more insight on our understanding of L2WTC.

The finals aspect was the linguistic aspect that has been widely recognized as an influencing factor on L2WTC by most of the scholars (e.g., MacIntyre & Clément, 1996; Peng & Woodrow, 2010; Yashima, 2002). In a nutshell, the actual and perceived linguistic competence affects one's tendency to approach or withdraw from communication in various ways. One way would be when they perceive themselves as more competent than they are and therefore attempt to participate in communicational events more openly. Another way would be when they feel less competent and try to avoid talking as much as they can. Any incident throughout the conversation may impact their perception of their own linguistic ability and as a result fluctuations may occur in their L2WTC. This corresponded with the findings of Zhou (2023) who found that the participants' worries over accuracy negatively influenced L2WTC. Our findings would extend their findings by suggesting that it at least it might not be unique to eastern Asian culture as they had suggested. Further research would help clarify the question of whether self-perceived communicative competence is culturally determined or not.

Observations, the stimulated-recall sessions, and the journal entries also revealed that L2WTC and any of the aforementioned factors were in constant interaction with each other. For instance, while higher levels of anxiety were reported by participants to reduce their L2WTC, arousal of L2WTC at certain times lead to the lowering of anxiety at other times. Specifically, Sahel's journal entry stated that during the third session she was so willing to share her ideas that completely forgot about her anxiety. The discussion dynamics impacted L2WTC while it was indeed shaped by it. Specifically, during the first session, lower levels of L2WTC lead to less complications in the discussion dynamics as no attempts was made to further the discussion and that lead to a shortened discussion where no comment was made on other participants points. Obviously, other factors were also constantly at work to influence other components of the system at varying degrees and no change in the system behavior could solely be attributed to a single factor. A simplified case could be made as an example where lack of interest causes low levels of L2WTC, the L2WTC impacts discussion dynamics, the lowered discussion dynamics influences L2WTC, this causes anxiety and lack of motivation, and this could go on until some form of perturbation in the system leads the system to a different direction.

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Conclusion

In conclusion, we would like to state that the findings of this study be applied to other contexts with care for two primary reasons. First, this is a basic premise of complexity theory that a complex system never remains constant and static and hence, what has been reported might have taken a completely different path if the data collection phase had been completed under different conditions. Second, any errors in data collection could have distorted the conclusions based upon the data. Therefore, we propose that more longitudinal studies are conducted to gain better insights into the role played by the factors proposed to have an impact on L2WTC.

As a practical implication of the findings of this investigation, we would like to propose that teachers take it into consideration that L2WTC is a very important component with a great deal of impact on an individual's language learning journey. They need to acknowledge that it is a complex phenomenon and could fluctuate during a very short timeframe.

ORCID

https://orcid.org/0000-0002-5701-0037

https://orcid.org/0000-0002-9717-9830

https://orcid.org/0000-0002-7438-0320

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Competing Interests

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Appendix 1

Stimulated-recall Session Interview Questions

1. General questions

1. How did you feel about today's class?
2. Was there anything that made you feel happy or unhappy about today's class?
3. Did anything happen before the class that could have impacted your performance?

2. Specific questions about the class

1. What were you thinking at this moment?
2. Why did you volunteer for the question?
3. Why didn't you volunteer for the question?
4. Why didn't you answer the question that the teacher asked you?
5. How did you feel after you answered/ didn't answer the question?
6. How did you feel at this moment?

Appendix 2

Interview Questions

1. Tell me about the time when you started learning English?
2. How did you feel before you attended an English class for the first time?
3. Did you decide to learn English yourself or was it someone else's idea?
4. How did you feel about your class?
5. How did you feel about your classmates?
6. How did you feel about your teacher?
7. How did / do you feel when you spoke/speak English?
8. What do you think makes you want to talk or not to talk in the class?
9. Tell me more about your experiences with learning English.

Appendix 3

Classroom Observation Scheme (Cao, 2014)

WTC behavior categories

1. Volunteer an answer (a comment).
2. Give an answer to (group, individual, teacher - private response).
3. Ask the teacher (a question, for clarification).
4. Guess the meaning of an unknown word.
5. Try out a difficult (lexical, morphological, syntactic) form. 6. Present own opinions in class.
7. Respond to an opinion
8. Volunteer to participate in class activities.

Student to student OR student to class (part of a lesson or informal socializing)

Talk to neighbor/group member/a student from another group (explain something, ask a question or initiate a conversation).

Additional categories for pair and group work

1. Guess the meaning of an unknown word.
2. Ask group member/partner a question.
3. Give an answer to (group, individual, the teacher).
4. Talk to the neighbor/group member/a student from another group.
5. Try out a difficult (lexical, morphological, syntactic) form.
6. Present/respond to an opinion in pair