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The Experience of Uncertainty in Foreign Language Learning within Dynamic Systems Framework

**Dinamik Sistem Çerçevesinde Dil Öğreniminde Yaşanılan Belirsizlik
Deneyimleri**

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Abstract

People experience uncertainty in every aspect of life and researchers have investigated the concept in domains of psychology and communication in various contexts such as decision-making, health contexts, business, organizational settings and relational issues. Uncertainty is also a key concept in educational settings as it is unavoidable in life and it is a natural characteristic of learning contexts. Thus, it seems significant to expand our understandings of how students experience uncertainty while language learning. From the complex dynamic systems perspective, language learning is characterized as meaning making and this process of meaning making involves uncertain situations. This study was designed to investigate how language learners experience uncertainty; that is how they appraise uncertainty and how they feel in uncertain situations. As the language classrooms are emergent, self-organizing systems, uncertainty stems from various sources in different forms. In order to find out about language learners' uncertainty experiences multiple data sources were employed. The results revealed that uncertainty was a pervasive experience for language learners. They experienced uncertainty related to the course, cognitive processes, and social factors and they develop positive and negative appreciations of uncertainty.

Keywords: *uncertainty experiences, complex dynamic system, course related uncertainty, cognitive uncertainty, social uncertainty*

Öz

İnsanlar hayatın her alanında belirsizlikler yaşıyorlar. Bu nedenle araştırmacılar belirsizlik kavramını psikoloji ve iletişim alanlarında, karar verme, sağlık, iş, örgütsel çevre ve ilişkiler konuları gibi çeşitli bağlamlarda araştırmaktadırlar. Belirsizlik eğitim alanında da anahtar bir kavramdır çünkü belirsizlik hayatın her alanında mevcuttur ve kaçınılmazdır, ayrıca öğrenme bağlamının da doğal bir özelliğidir. Bu nedenle, öğrencilerin dil öğrenirken belirsizlik durumlarını nasıl deneyimlediklerini, belirsiz durumların neden kaynaklandığı ve belirsizlik durumlarında ne hissettikleri konusunda anlayışımızı

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arttırmak önem teşkil etmektedir. Karmaşık dinamik sistem açısından, dil sürekli bir değişim ve dönüşüm içerisinde. Buna bağlı olarak dinamik sistemde dil öğrenme anlam yaratma sürecidir ve bu anlam yaratma sürecinde öğrenciler bir çok belirsiz durumla karşı karşıya kalmaktadır. Bu çalışma dil öğrencilerinin belirsizlik durumlarını nasıl deneyimlediklerini; belirsiz durumları nasıl değerlendirdiklerini ve belirsiz durumlarda nasıl hissettiklerini araştırmak amacıyla yapılmıştır. Dil öğrenme sınıfları gelişmekte olan ve kendini örgütleyen bir sisteme sahip olduğu için belirsizlik durumları değişik kaynaklardan çeşitli şekillerde ortaya çıkmaktadır. Dil sınıflarında öğrenciler, açık olmayan yönergeler, bilgi eksikliği, bir çalışmayı tamamlarkenki yetersizlikleri, öğretmenleri veya bağlam gibi çeşitli sebeplerden kaynaklanan belirsizlik durumlarıyla karşılaşabilirler. Belirsizlik durumlarının dil öğreniminin doğal bir parçası olduğunu göz önünde bulundurarak, öğrencilerin belirsizlik deneyimlerini anlamak amacıyla video kayıtları ve yansıtıcı günlükler gibi çoklu veri kaynakları kullanılmıştır. Çalışmanın sonuçları belirsizlik durumlarının dil öğrencileri için kaçınılmaz bir deneyim olduğunu ortaya çıkarmıştır. Dil öğrencileri dersle ilgili sebeplerden kaynaklanan, bilişsel süreç veya sosyal etkenler gibi nedenlerle ortaya çıkan çeşitli belirsizlik durumları yaşamaktadırlar ve bu belirsizlik durumlarına karşı olumlu veya olumsuz yargılar ve duygular geliştirmektedirler. Buna ek olarak, öğrencilerin belirsizlik durumlarında yaşadıkları deneyimleri öğrencilerin algıları ve duygusal tepkileri şekillendirmektedir.

Anahtar sözcükler: *belirsizlik deneyimleri, karmaşık dinamik sistem, dersle ilgili belirsizlik, bilişsel belirsizlik, sosyal belirsizlik*

Introduction

Researchers in the field of psychology have long explored uncertain conditions with a specific focus on emotions related to uncertainty and decision making and judgment in such conditions (Smithson, 2008). As Smithson (2008) also puts forth, personal propensities towards uncertainty are significant in explaining the behaviors of individuals. Researchers in the field of communication, at the same time, emphasize the role of uncertainty in interpersonal communication predicating that social interaction is regarded as both the source and the means of coping with uncertainty (Jordan & McDaniel, 2014), which has led to the development of theories on coping with uncertainty (Bradac, 2001). Although uncertainty is an interdisciplinary research topic (Bammer & Smithson, 2012), educational studies exploring the way students experience uncertainty and the ways they respond to it are rare in literature. Considering that uncertainty is inherent in language learning, we attempt to understand how learners experience uncertainty in the language classroom.

1. Literature review

1.1. Uncertainty and language learning

Researchers from different disciplines have conceptualized uncertainty and brought various perspectives. Uncertainty is a concept discussed in psychology in relation to how people perceive uncertainty and how they respond to it (Smithson, 2008). It has been explained as “the period of anticipation prior to confrontation with a potentially harmful event” (Monat, Averill, & Lazarus, 1972, p. 237). According to communication theorists, uncertainty refers to ambiguous, complex, unpredictable or probabilistic situations, generally when people cannot reach information or when the information available is inconsistent, or when people feel insecure due to their knowledge (Brashers, 2001). Jordan and McDaniel (2014) identify uncertainty in academic contexts as the individual’s being in doubt and unsure about the present, past and future with respect to environmental and relational factors. Uncertainty can also be related to the self, other people, relationships, and context (Brasher, 2001). Research on uncertainty has focused on the context and communication as sources of uncertainty including health, interpersonal, and organizational settings (Brashers, 2001; Brashers, et al., 2000; Krane, Johansen, & Alstad, 2014; Srinivasan, 2012).

In the language classroom, learners may feel uncertain for many reasons such as unclear instructions, lack of knowledge, and their inability to perform a task or their teacher, their classmates or the context. Learners’ familiarity with the task, their previous experience and their uncertainty about their ability along with the complexity of the task and the teacher’s unclear explanations affect learners’ behaviors (Blumenfeld, Mergendoller, & Swarthout, 1987) and can be considered as sources of uncertainty. When learners face uncertainty, they think wishfully, substitute prior beliefs, consider probability distributions, search for more data, and act more cautiously (Starbuck, 2009).

Educational studies related to uncertainty previously focused on individual differences exploring tolerance of ambiguity. According to Doyle and Carter (1984), classroom tasks are carried out under conditions of risk and ambiguity. Accomplishing tasks where students construct knowledge are sources of risk and ambiguity as there is no specific answer and the constructive process may not be reliable. In literature related to second language learning, this construct has been researched in terms of tolerance of ambiguity. Ely (1989), being the first researcher who took into consideration the contextual aspect of tolerance of ambiguity in second language acquisition as a personality variable, associates ambiguity with uncertainty. It is described as a lower-order personality trait within the *Openness* dimension of Big Five Model, which is widely used in personality studies (Dörnyei & Ryan, 2015). Uncertainty and

ambiguity are perceived as related concepts, but they are not synonymous. According to Furnham and Ribchester (1995), uncertainty implies known possibilities and it is more far-reaching than ambiguity. Khrono (1993) makes a clearer distinction and expresses that ambiguity is the property of the stimulus and uncertainty is the emotional state caused by that stimulus.

Although there are studies which investigated uncertainty in educational contexts such as science, current understandings how language learners experience uncertainty are narrow in scope. For example, Jordan (2010) explored how fifth grade students dealt with uncertainty in robotics engineering projects and found that they experienced uncertainty from different sources and used different strategies to deal with it.

1.2. Complex dynamic system and uncertainty

Complex Dynamic System (CDS) makes uncertainty more salient in all areas of language learning: instruction, communication, pair and group tasks, assessment, student reasoning and so on. Complex system views language as a dynamic system in constant transformation and development so it is never fully realized (Cameron & Larsen-Freeman, 2007). As emergent forms are taken up by the learners, uncertainties are likely to occur as a natural outcome. Learning in the dynamic perspective is not learning the structural forms of the language; rather it is an adaptation process through meaning making with respect to the affordances that emerge (Cameron & Larsen-Freeman, 2007).

An important feature of the CDS is that it involves interrelated variables and most of these variables are unstable in time (Verspoor, Lowie, & Van Dijk, 2008). Considering the language classroom complex and dynamic, we can say that being in continuous change and adaptation, one cannot avoid the dynamism of uncertainty embedded in the system. As a result of this, it is not possible to make generalizations within the complex system. Individuals continuously build a world around themselves and continuously adapt it. Additionally, the variables in the system are interconnected and context dependent. Thus, uncertainty is also considered context dependent and it is subject to change in the dynamic system.

Within the complex system 'development' refers to learners' creating their own meanings and broadening the meaning potential of the language (Cameron & Larsen-Freeman, 2007) and throughout this process of development learners face uncertain situations. From the dynamic perspective, uncertainty does not only stem from course content, but also it emerges from the target language culture, classroom environment and context, the teacher or other classroom members, and the feelings of the learners.

To sum up, although uncertainty is regarded as a topic that does not belong to a single discipline (Smithson, 2008), it has its roots in psychology and it is considered to be constructed or coconstructed in human interaction by communication scholars. Since dynamic systems view language learning as emerging through interaction within social contexts (De Bot, Lowie, & Verspoor, 2007), learners face with multiple sources of uncertainty and they have to deal with it. Considering this, the purpose of this study is to explore uncertainty experiences of university students in their language learning classroom environment. To better understand the language learning process in the uncertain classroom we need to address the following questions:

1. What are the sources of uncertainty in the language classroom?
2. How do the students experience uncertainty in the language classroom?
 - a. How do they appraise uncertainty?
 - b. How do they feel when they are uncertain?

2. Methodology

2.1. Research design

For the purpose of finding answers to the research questions, the study was carried out as a qualitative case study. The case study helps the researchers to investigate complex phenomena within their contexts (Baxter & Jack, 2008). Additionally, to capture the idea of dynamic research, the study was longitudinal, and it was carried out with a group of language learners studying at a pre-intermediate level classroom of a university.

2.2. Setting and participants

The present study was conducted at the Preparatory School of a university in the south of Turkey in the fall semester of the 2017–2018 academic year. The students of the preparatory school were pre-intermediate level students from various departments such as English Language Teaching, Psychology, International Trade, Management, and Law. The data were collected from 23 students, consisting of 6 males and 17 females, and ranging in age from 18 to 24.

2.3. Data collection procedures and instruments

The instruments used in the present study included five video recordings and five reflective journals. The students were video-recorded during collaborative group or peer work on different tasks. The given tasks were related to what the learners have studied in accordance with the schedule. For example, during task 3, the students were divided into groups of four or five and each group was given a sentence and one scene card at random. Groups discussed the topics in the two cards and tried to link them to a story. Then they

worked out their dramatized story in detail using the language for apologizing and giving excuses, as required in the syllabus. They needed to decide who the characters were, what happened, what the dialogue would be, how the scene was related to the given sentence. Each group performed their dramatized story for the other groups, followed by class discussion. Two cameras were set up in the classroom to record the students as they were working on the tasks. One camera was used to video the focus group working on a task, and the second camera was used to video the general dynamics of the classroom while working on a task. On each task, different focus groups or peers were recorded in order to see the variety in students' uncertainty experiences. Immediately following the video-recorded tasks, students were asked to write reflective journals, regarding their uncertainty experiences while completing the task. They were generally in form of a short paragraph including whether they experienced uncertainties personally or as a group during the task and how they felt in uncertain situations.

2.4. Data analysis procedures

The data analysis followed the semi-grounded approach using Atlas.ti. The analysis process was interpretive, which required the researcher to make inferences about students' discursive moves. When coding the data coming from the video recordings, uncertainty based on language and discourse was functionalized. Students' discourse, such as words, phrases and gestures, was an evident for their experiences of uncertainty. To support the interpretive analysis coming from video recordings and to capture different categories of uncertainty experiences and uncertainty appreciations of the learners, reflective journals written by the students were analyzed. The analysis started with open coding, in which the data from the video recordings and reflective journals were coded line-by-line. Axial coding was used to make connections between categories. As for selective coding, the codes were organized in relation to the core category of sources of uncertainty and it was systematically connected to other categories. Memoing was also used when coding the data to write up about codes and their relationships. Additionally, the codes, categories, and memos were examined considering the characteristics of complex dynamic system.

To provide the trustworthiness of the data peer debriefing and interrater method were employed. A colleague was provided with the raw data and the researchers' own interpretation and explanations. The colleague reviewed the interpretation and gave the researchers her comments and opinions. The interrater method was carried out by asking a colleague to code the data and then compare the coding with the researchers' codes to see if they found the same or different codes. For example, at first 'self' was considered as a category related to uncertainty, but feedback obtained through interrater method revealed that

uncertainty about ‘self’ pertains cognitive uncertainty or social uncertainty so it was eliminated.

3. Findings

The findings of this study are presented under two sub-headings in relation to the research questions: sources of uncertainty and learners’ appraisals of uncertainty.

3.1. Sources of uncertainty

Analysis of data revealed that uncertainty mainly stems from sources related to *the course, cognitive processes, and social factors*. Most of the sources which cause learners to experience uncertainty were course related. Course related uncertainty refers to the uncertainties that students experience due to the course content such as vocabulary or structure, course material, classroom activities, or the teacher. Students expressed that their uncertainty was due to the given task as the task was difficult, challenging, confusing or uninteresting. The following quotes taken from reflective journals illustrate how they experienced uncertainty related to the task:

It was difficult to write the dialogue including the given place and the given word. I wrote, erased, and rewrote. (St. 1, Ref. Journal 2)

At first, I couldn’t understand how to do the task and I did it in a wrong way because it was confusing. This led me to uncertainty. (St. 2, Ref. Journal 2)

In the quotations above, the students expressed that they experienced course-related uncertainty because the task was difficult or confusing.

Vocabulary was another source of uncertainty during the tasks. Language learners experienced uncertainty because of unknown, confusing words or the words that they forgot.

Student 1: I want a jacket except for [meaning “instead of] the camera.

Student 2: Except for? Is it true?

Student 1: I think so. Yes except for. I want to give the camera back and buy a jacket. (Video Rec.3)

In the dialogue above, which is taken from task 3, student 1 uses ‘except for’ but she actually means ‘instead of’; student 2 is not sure if ‘except for’ was the right word or not and he/she asks student 1. Student 1 doubts for a moment so he/she makes an explanation.

Students had also some doubts about the structure such as finding the correct grammatical form or using the right preposition. In the following dialogue the learners are not certain about the use of correct preposition ‘arrive in’ or ‘arrive at’ and one of the group members helps them reduce their uncertainty.

Student 1: Arrive in or arrive at the airport?

Student 2: I don’t know.

Student 3: Arrive at the station bur arrive in a city.

Student 1: OK. We arrive at the airport. (Video Rec. 2.)

The sources of uncertainty based on cognitive processes form the second category and it is related to thinking and action, which may influence academic success. Uncertainty sources related to cognitive processes include misunderstanding, lack of critical thinking skills, indecisiveness, lack of knowledge, and being mentally stuck. In some cases, learners did not understand or misunderstood how to complete the task. In relation to this, they could not decide how to start or how to proceed. In some other cases, uncertainty stemmed from lack of critical thinking skills such as finding new ideas, giving examples, or finding solutions to problems. It was also stated by some students that they were mentally stuck and had difficulty in expressing themselves or they were confused. In task 1 the students were given some situations and they were asked to make suggestions and offers. The following excerpt shows the uncertainty that the student experienced is due to lack of critical thinking skills:

...I realized that I had some problems. I could understand the given situations, but I had difficulty in finding solutions or giving examples. (St. 3, Ref. Journal 1)

In task 4, the students were given a picture of a new invention which would improve people's lives and they were asked to give a presentation of their new invention to impress sponsors. In the reflective journal student 4 expressed that he/she did not know how to start the task as a result he/she felt confused and uncertain:

The invention that we discussed was a little bit strange for me, so it caused uncertainty. At first, I felt confused and I didn't know how to start. (St. 4, Ref. Journal 4)

The third category is social sources of uncertainty and it revealed when students had differing ideas about what actions to take, how to proceed and when this had to be negotiated among group members. The students experienced social uncertainty about the group process such as disagreement among group members, turn taking, and distractions from inside or outside the classroom. This type of uncertainty was reflected in learners' dialogues while they were working on task 4. While they were discussing about the invention they were given, there was disagreement among the group members: They decided that the invention in the picture was a clock with bird sounds, and they had to impress the sponsors to sell their invention. When one of the group members disagreed and said that the product would not sell, they experienced uncertainty due to the disagreement among the group members.

Student 1: You have to sell this invention.

Student 2: Yes, but it won't sell.

Student 3: Why did you produce it then?

Student 2: We have cell phones, so this invention won't sell.

Student 1: You are the inventor of this device. You have to sell it. You have to think like that. (Video Rec. 4)

Another form of social uncertainty was distractions from inside or outside the classroom. In video recording 3, while the focus group was working on the task, a student from the other group came and waved to the camera, the focus group stopped discussing and forgot what they were talking about. In addition to this, in reflective journals few students expressed that other students were talking loudly so they could not concentrate on their work.

3.2. Appraisals of uncertainty

The second research question was about how students experienced uncertainty; that is how they appraised uncertainty and how they felt in uncertain situations. Responses to uncertainty are shaped by the perceptions and emotional reactions to the experience. Uncertainty is not only a cognitive process, but it is also emotional. According to Brashers (2001), responses to uncertainty are related to appraisals and emotions. Although the research on uncertainty and communication emphasizes uncertainty and anxiety (e.g., Gudykunst, 1995), different kinds of affective responses to uncertainty can be experienced. According to Brashers (2001), negative emotional responses appear when uncertainty is perceived as danger or threat and positive emotional responses such as hope and optimism reveal when uncertainty is appraised as beneficial. As it can be concluded from the reflective journals, students may have both negative and positive appraisals of uncertainty. Some students, who had positive appraisals of uncertainty, stated that uncertainty led them to find new ideas, triggered their imagination, challenged, or motivated them. The following quotations are taken from the students who had positive appraisals of uncertainty; they believed that the uncertainties they experienced affected them positively such as improving their skills or their ability to think.

I enjoyed my uncertainties. The task and the disagreements with the group members improved my ability to think. (St. 5, Ref. Journal, 4)

We discussed about how to complete the task, we had some uncertainties. I tried to talk. It was challenging, and I felt good while dealing with the uncertainties. (St. 8, Ref. Journal, 2)

On the contrary, it was also expressed by the students that uncertain situations caused anxiety or frustration. Additionally, students who had negative appraisals of uncertainty expressed that they were bored, nervous, restless, or unwilling to take part in the group work. The following excerpt shows that the student had uncertainty due to not being able to understand and as a result he felt bored.

I could not understand what the invention in the photo was. I was bored while thinking about what it was. (St. 10, Ref. Journal, 4)

In task 5, the students were given words or phrases which needed to be explained to another group, so they had to prepare definitions or explanations without referring to the book

or a dictionary. In the excerpt below, the student experienced course-related uncertainty (words with similar meanings) and cognitive uncertainty (not knowing how to define the words). As a result, the uncertainty he/she experienced made him/her feel nervous.

Some words in the task had similar meanings. We did not know how to define them. It was not allowed to look at the book or the dictionary so I felt a bit nervous. (St. 3, Ref. Journal, 5)

Discussion & conclusion

This exploratory study was an initial step to investigate uncertainty experiences of language learners. The findings suggest that language learners experience lots of uncertainty in the classrooms because learning is fraught with uncertainty. The results of the study revealed that as the students were working on collaborative tasks, co-constructing knowledge and making their own meanings during the learning process, they encountered various uncertain situations stemming from course-related, cognitive, and social factors. The findings show consistency with the literature on uncertainty, which points out that uncertainty stems from various factors (e.g. Brashers, 2001; Clampitt & DeKoch, 2001; Smithson, 2008). In addition to this, learners' appraisals of uncertainty and emotional responses to it displayed diversity. Recent theories of uncertainty have brought a new perspective and asserted that people may have positive appraisals of uncertainty as well as negative appraisals (e.g. Brashers, 2001; Babrow & Kline, 2000). In line with previous studies, the results of the study indicated that the students who had positive appraisals of uncertainty emphasized uncertainty as a desirable state, which contributed positively to their learning.

The unpredictable, dynamic, and interconnected aspects of uncertainty fit well within the framework of CDS. From CDS perspective, there is unpredictability in the reciprocal interdependency among group members. This unpredictability is a result of the dynamic relationships among the agents, which causes students to experience uncertain situations. Learning in each group was situated in the specific context of that group, so the uncertainty experiences were also specific to the context of the group. Uncertainty experiences evolved and changed as students were engaging in different tasks in different groups. The structure and type of the tasks and students' uncertainty experiences were interrelated. For example, task 2, in which the students were given role play cards as a shop assistant and a customer, was more structured. In other words, the objectives and the language to be used were predetermined and tightly defined by the teacher. On the contrary, in task 3 the learners were given a sentence and a scene card at random and they were asked to link them in a dramatized story. It was less structured and required the learners to be more creative, imaginative, and the

language to be used was not constrained. During task 2, most of the uncertainties that students experienced were more course related such as unknown words or structures. However, during task 3 students' uncertainty experiences were more based on cognitive or social factors besides course related factors. With the less structured tasks uncertainty sources changed: uncertainty revealed as a result of lack of critical thinking skills, being mentally stuck, or due to disagreement among group members.

Additionally, uncertainty within the CDS is multilayered. The layers of context suggest that people experience multiple sources of uncertainty at once. This is supported by Brashers and Babrow (1996) as they claim "participants are embedded in layers of context that can produce complementary and contradictory forces" (p. 249). In some cases, the source of the uncertainty was both related to the course and cognitive processes. In task 3, the focus group could not understand the instructions and they did not know how to complete the task because they found the task challenging. The group members simultaneously experienced cognitive uncertainty (due to not knowing how to complete the task) and course related uncertainty (due to the challenging task). As a feature of CDS, uncertainty changes over time. That is uncertainty can be short-lived or ongoing (Brashers, 2001), and is composed of multiple interacting time scales. When there is uncertainty about vocabulary or structure, the learners reduced the uncertainty immediately. However, when they needed to reach an agreement as a group, the uncertain state continued.

Appraisals and emotional responses to uncertainty can change across time (Brashers et al., 2000) depending on the context. Some students perceived uncertainty as something positive; they stated that discussing, trying to deal with uncertain situations made them enjoy the uncertain situations. On the contrary, when they found the activity useless, boring, or difficult to deal with, they developed negative appreciations of uncertainty. The dynamic nature of uncertainty was also reflected by Brashers (2001) in the field of communication; emphasizing the unpredictable, interconnected and temporal characteristics of uncertainty.

Regarding the limitations of the study, it could be argued that the collected data may not be perfect indicators of uncertainty as some students may not be aware of their uncertainty or they may hide it, so more research is needed to determine transferability of findings to other contexts. In addition to this, the analysis focused on focal students and may not be representative of every language learner. For future research, how learners experience uncertainty should be investigated over longer timescales. For example, how and in which situations uncertainty appraisals and emotions change over an academic year could be investigated. Moreover, individual learners could be followed as a case study taking into

consideration their individual differences and how they experience uncertainty in different tasks and in different contexts.

In conclusion, although the concept of uncertainty was investigated in educational contexts such as robotics engineering (e.g. Jordan, 2010; Jordan, 2015; Jordan & McDaniel, 2014), the current findings add substantially to our understanding of uncertainty in foreign language learning. If students become aware of the uncertainties in the learning process, they become confident in the face of uncertain situations, they also become prepared for the uncertain situations. As a result, they become less concerned about being told what to know and become more concerned about postulating, guessing, hypothesizing, conjecturing, and taking risks.

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