CHAOS AT SCHOOL: A QUALITATIVE STUDY ON ITS CAUSES AND EFFECTS

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ABSTRACT

When the reflections of postmodernism on education are examined, the issue of "uncertainty and unpredictability in education" draws attention. Managing uncertainty and unpredictability in social sciences with classical approaches is no longer effective. Therefore, this requires the need for a postmodern perspective. Chaos theory and approach is one of these perspectives. This study aimed to examine the factors that cause chaos at school and the effects of this chaos. The participants of the research consist of 18 teachers who have 10 years or more professional seniority and have been working in the same school for 10 years in Gaziantep, Turkey in 2016-2017. Research data were obtained through semi-structured face-to-face interviews. The qualitative data obtained within the scope of the research were analyzed and subjected to thematic analysis. According to the results obtained, 4 categories (prerequisites, educational environments and situations, negative behaviors, internal-external factors) that cause chaos in school emerged. As the starting point of the chaos in the school, two important effects were identified, and these are the butterfly effect and the behaviors of getting rid of the chaos. This study reveals the result that at schools butterfly effect and chaos somehow affect students and teachers. It is important to gain experience about starting point issues for school administrators and teachers. It has been noted that the behaviors and situations that create a butterfly effect at school are at the forefront. In the light of these findings, various recommendations have been presented for school administrators, educators and researchers.

Keywords: Chaos, chaos in education, chaos at school, butterfly effect, uncertainity.

INTRODUCTION

The issue of chaos and complexity in the education can be studied by analyzing the structure of schools, which typically symbolize educational organizations. The fact that schools are a social system brings their dynamic and at the same time complex structure (Khanal, Bento & Tagliabue, 2021) to the agenda. When schools are seen as a tool to reach the educational goals of societies, the necessity of examining the events and situations that occur in schools becomes even more meaningful. This point of view makes it necessary to analyze these events and situations in schools deeply. We need to examine the school from a different perspective in order to determine the real reason behind the problems such as recent incidents and situations of violence in schools (Arslan & Toprakci, 2021; Matsuda, 2021; Messman et al, 2022; Vanner, 2021), student absenteeism (Dag, 2018; Uzun & Kemerli, 2019), school dropouts, loss of teacher's dignity, school security, the decrease in the quality of teaching, and increase in the negative emotions of students and teachers at schools. This point of view is that "small changes lead to big problems". The fact that educational organizations have a complex structure makes such a point of view necessary. This complexity feature of educational organizations is due to the fact that they are full of people (Bolman & Deal, 2003). Because human is complex by nature (biological, intellectual, emotional, spiritual and social dimensions). In today's world, classical theories are not always sufficient to understand and analyze this complex structure of human beings. More contemporary approaches and theories are especially needed (Saylik, 2020) to understand and analyze educational organizations and schools which have a complex structure (Schuelka & Engsig, 2020) in today's conditions. The complexity and unpredictability of human behavior leads to the butterfly effect and chaos theory. Chaos theory stands out as a subject studied by mathematician Henri Poincare and meteorologist Edward Lorenz in the late 19th century (Forgues & Thietart, 2016). While explaining the chaos theory, Lorenz mentioned that it resembles the "butterfly effect" (Parra & Tan, 2021). In this study, the concepts of chaos and butterfly effect are discussed together. Chaos theory has recently come to the fore in social sciences. To understand this theory, one should focus on the concept of chaos. Understanding chaos will also help us understand many aspects of the universe on a small and large scale. Although the concept of chaos is usually perceived as obscurity and unpredictability, among scientists, it refers to a regular disorder in which irregular but similar shapes occur, in short, a confusion with a purpose (Tetenbaum, 1998, p. 25). We can exemplify this as follows: When we look at the crowd of people running around on a crowded street, it seems as if there is a tumult and confusion, but in reality, each of them is moving towards a goal in line with a certain purpose. Chaos theory is a result of natural scientists' discoveries in the field of nonlinear dynamics (Kiel & Elliott, 1996). While even artists are inspired by the complexity of the world (Kappraff, 2019), chaos and complexity in the field of education stand before us as a subject that needs to be emphasized and examined. Thus, the problems in the field of education will be examined with the theme of "school through the perspective of chaos and butterfly effect". In this study, the events and situations that cause chaos and butterfly effect in the school are discussed in terms of revealing the problems in the education.

In this study, the causes and effects of chaos in school are examined. Within this framework, the answers to 2 basic questions were sought:

1. What are the factors that cause chaos at schools?
2. What are the effects/results of the chaos at schools?

Chaos in Education

Expressing that chaos theory is an interdisciplinary concept that defines dynamically complex systems (Baker, 1995, p.3), Baker mentioned that an example of this dynamically complex system is the school system. For this reason, schools present a special structure in which chaos theory should be examined. Education is a dynamic structure. Administrators say that big problems do not come with ready packages and ready to be solved. In addition, even if they are very few, there are hints of symptoms of these problems at unexpected times and unexpected places. School administrators run from one crisis to another in their daily work and experience chaos rather than stability. Therefore, school administrators should be ready for unexpected situations in their daily work (Altun, 2001).

Trygestad (1997) stated that definitions of what chaos theory means in education have been made, but its implementations have not been fully studied (Cronbach, 1988; Cziko, 1989; Doll, 1988; Salomon, Perkins & Globerson, 1991). Chaos theory emerged when scientists discovered that ignored random and unexplained situations made sense. Considering the research findings on this subject, chaos in education suggests Loree & Stupka (1993) us; student achievement should no longer be evaluated in the short term by different approaches that improve educational outcomes and often have statistically significant results. Learning is a complex area, and while some components of teaching and learning are understood according to chaos theory, there are many other factors whether the learner is influenced or not (Davis, Smith & Leflore, 2008). In Lorenz's metaphor of the butterfly effect, it is emphasized that a very small change shows a very large change in the long run, depending on the delicate situations in the initial state. This situation is of great interest to the teacher because an unexpected reaction from the teacher in the classroom affects the entire classroom system (Cvetek, 2008).

Learning and thinking are nonlinear processes. Educators should know that confusion and contradictions create environments that are very suitable for creativity (Demirtas, 2006). Einstein emphasized not giving up when he said "the important thing is to keep asking questions". Since the increase time in individual success in education varies, it should be taken into account that success comes or decreases over time. The suggestion of chaos in our educational world is that we should not eliminate unsuccessful students, and over time, improvements can be seen in these students. Chaos theory states that the data obtained through a long process will show significance. In that case, students who are considered unsuccessful may also become successful one day (Loreed & Stupka, 1993). This situation is also called nonlinearity for chaos theory. Therefore, the teacher should set aside the role of the knowledgeable executive person in the classroom and use various pedagogical learning methods for individual learning experiences (Davis et al., 2008). Baker (1995), in his study researching the place of chaos theory in education systems, concluded that the butterfly effect tends to start in schools and school systems in general. In his study, he emphasized that school principals may be affected by a number of events in the decision-making process. This may be a decision based on the butterfly effect and thus a seemingly simple one, but indeed

it can have a huge impact on result. Events create effects in the form of waves. This influence extends beyond the school system. Many incidents involving the principal can have positive or negative reverberations on the school and school systems from the moment the incidents occur. School principals, who are more flexible and more adaptable, can handle the reverberations and fluctuations of these events.

METHOD

Study Design

In this study, since it is aimed to research the causes and effects of chaos in school, a case study that is most suitable for the research topic and purpose was used. A case study is defined as "a qualitative approach in which the researcher collects detailed and in-depth information about real life, a current limited system (a situation) or multiple constrained situations in a certain time, and puts forward a situation description or situation themes" (Creswell, 2015: 97). Merriam (2019) stated that the most important feature of the case study is the "limitation of the case". In this study, "chaos at school" is handled as a case. Thus, "chaos as a situation" was examined and tried to be explained wtih the dimensions of "factors causing chaos and effects-results of chaos" at school. These two dimensions are considered as a "cause-effect" relationship. Thus, the causes of the condition and the effects caused by the occurrence of the condition were evaluated together.

Participants

This research was conducted in the 2016-2017 academic years. The participants of the research consist of 18 teachers who have 10 years or more professional seniority and have been working in the same school for 10 years (with criterion sampling) in Gaziantep city, Turkey. "Experience at school" is taken as a criterion. In-depth analysis is the basic approach in qualitative research (Patton, 2014). It is not expected to represent the universe, as generalizations are out of the question. Therefore, the study group is preferred instead of the sample. The interviews started with 8 participants first, and then the number of participants was increased to 18 in order to ensure the diversity of the data and increase the depth. In the analyzes made, it was seen that the data were repeated and sufficient saturation was achieved.

Data Collection

In the case study design, interview, which is one of the data collection techniques, was preferred. A draft interview form has been prepared before starting to collect data. The prepared draft interview form questions were subjected to a detailed examination by two faculty members who are experts in qualitative research methods. In accordance with the expert opinion, the interview questions have been reshaped. In order to obtain information about the quality and adequacy of the questions in the interview form, a pilot scheme was conducted by the researcher with the teachers who were not among the participants. The data obtained during the pilot scheme process were used only in the process of shaping the interview form. As a result of the pilot scheme, the questions in the interview form were rearranged by considering language and expression, fluency, meaning and

context. In the research, a semi-structured interview form consisting of open-ended questions was used to determine the views of the participants. The semi-structured interview form was preferred in order to examine the reasons underlying the answers given by the participants during the interview and to pose new questions to the participants depending on the process.

In the study, 7 questions in the interview form were asked to the participants. During the interviews, additional explanatory questions such as "like what, can you give an example, did you mean that" were asked to the participants in order to examine the superficial parts in depth and to understand them better. Interviews were conducted individually and face-to-face with each participant. The semi-structured interviews were conducted for periods ranging from 25 to 60 minutes. A total of 680 minutes of interviews were conducted.

Data Analysis

The data were subjected to content analysis and continuous comparison technique was used throughout the analysis. The written data was started to be deciphered and then thematic analysis was started. The thematic analysis stages can be summarized as follows: First of all, before the raw data were coded, the interview forms were read repeatedly by two different researchers in the field of education, who knew the qualitative analysis process, without skipping any details. In addition, the dimensions that are important within the scope of the purpose of the research were determined and the meaning of each dimension was tried to be found. In the coding, the words and concepts expressed by the participants were tried to be used as codes as much as possible. However, when the words and concepts used by the participants were insufficient in the coding process, other concepts that could best express the situation/thought were used as codes by the researchers.

In the coding of the data, the line-by-line analysis approach expressed by Patton (2014) was used. Sometimes a word, phrase, or a sentence formed a unit for data analysis. In order to clearly reflect the views of the participants, direct quotations are included from time to time. The decodings made separately by two different researchers were then combined and compared and it was seen that approximately 90% of the compliance was achieved. The consensus among these coders was considered as the internal consistency rate of the research (Miles & Huberman, 1994). The coding took its final form when the data started to repeat and the saturation point was reached (Charmaz, 2006). All codes were combined under sub-themes and main themes were created. The data were classified to be compatible with each other, and sub-themes were determined in this way. After the first draft was completed, the analysis was revised again, the themes that were repetitive or incompatible with each other were reclassified. Thus, a structure consisting of two main themes and six categories has emerged.

Participant Confirmation

After the face-to-face interviews of 18 teachers who participated in the research were transcribed, they were read and confirmed. Some of the participants made corrections in some of their statements. For the most part,

the statements are affirmed. During the coding process, all of the participants were reached and they were informed which expressions were coded and how in written forms via e-mail. Participants reviewed the code lists and gave a brief (appropriate/I didn't mean it) feedback. In particular, more feedback has been received on the creation of codes obtained when creating the category "creating a starting point: butterfly effect" ('Well, can this event be a starting point?' was asked and the feedback was received).

Position of the Researcher

The researcher has worked as a school principal and teacher in different schools for 5 years and is in a position to constantly examine school environments. Therefore, he is in a position to know the teacher and student environment. At the same time, he has been teaching graduate-level courses to principals and teachers in the field of education management for about 12 years and has been working with them constantly. The researcher also had the opportunity to observe the schools while collecting the data. The researcher also works on the quantum paradigm, which is thought to be related to chaos, and has two publications on this subject.

FINDINGS

As a result of the content analysis of the data obtained through the interviews, two themes and 6 categories were reached. The first theme; factors causing the formation of chaos, and the second theme is the effects of chaos. The naming of these themes was decided by the deductive method in accordance with the purpose of the study. There were 4 categories (prerequisites, educational activities and environments, negative behaviors and internal-external factors) in the theme of factors causing chaos at school, and 2 categories (creating a starting point: butterfly effect and emerging behaviors) in the theme of the effects of chaos at school. The "prerequisites" category, which appeared on the theme of factors causing chaos at school, and the "creating a starting point: butterfly effect" category, which appeared on the theme of the effects of chaos at school, are interconnected and have similarities. In the figure below, "chaos at school as a case" is discussed.
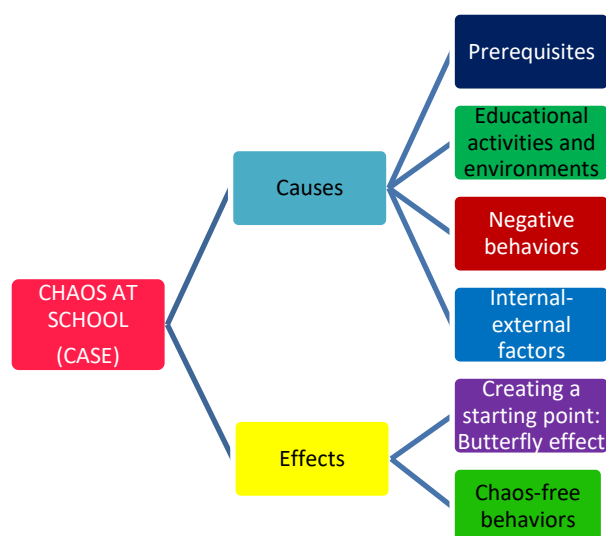
Figure 1. Chaos at School: Causes and Effects

As can be seen from Figure 1, chaos at school has been treated as a situation. Accordingly, 4 categories that cause chaos in the school (prerequisites, educational activities and environments, negative behaviors and internal-external factors) and 2 categories created by chaos in the school (creating a starting point: butterfly effect and chaos-free behaviors) attract attention. Almost all of the categories that appear in this figure are related to each other. This relationship is like a cause-and-effect relationship. For example, the prerequisites and butterfly effect categories are in a cause-effect relationship with the chaos-free behaviors category. Educational activities and environments and negative behaviors also have a cause-effect relationship. But each category reflects its relevant codes according to its own characteristics. For example, the "mislearning" code has been considered as a code both at the level of factors causing chaos at school and at the level of effects caused by chaos at school. This code draws attention as both a cause and an effect. Teachers evaluated this code both as a reason that creates a starting point with the butterfly effect feature and as an effect that occurs in the educational environment. The themes, categories and codes that emerged in line with the findings are given below as a table (1-2).

Table 1. Factors Causing Chaos (Theme I)

	Category I: *Prerequisites*	**Category II:** *Educational Activities and Environments*	**Category III:** *Negative Behaviors*	**Category IV:** *Internal and External Situations*
CODES	Physical conditions Contagious effect Individual differences Readiness Lack of planning	Failure Mislearnings Miscommunication Lack of Belonging Teamwork-Failure to Act Jointly Non-Adoption Non-identification	Violence Absenteeism The Spread of Undesirable Situations Abuse Late arrival to class	Environmental Cultural School Management Parent System

As can be seen in Table 1, according to the teachers, there were 4 categories and 21 codes that caused chaos in the school. It is seen that the factors causing chaos in the school are "prerequisites, educational activities and environments, negative behaviors and internal-external factors". The codes that constitute each category are also specified under the categories.

Table 2. The Effects of Chaos (Theme II)

	Category I: *Creating a starting point: Butterfly effect*	**Category II:** *Chaos-free behaviors*
CODES	Inability to learn Mislearning Waste of time Infestation Consciousness Giving importance Giving value Adoption Key point and critical touch	Tenacity Labor/ effort Perpetuity Dialogue/communication Exploring Teamwork- Act Jointly Help/support

As can be seen in Table 2, the effects of chaos in the school are classified into 2 categories and 14 codes according to the teachers. It is seen that the effects of the chaos that occurred in the school are called as "Creating a starting

point: Butterfly effect and chaos-free behaviors". The codes that make up each category are also specified under the categories.

Theme I: Factors Causing Chaos

In this theme, the factors that cause chaos in the school are discussed in 4 categories as "prerequisites, educational activities and environments, negative behaviors and internal-external factors".

Prerequisites

The first of the factors that cause chaos in school are the conditions that create prerequisites. It has been revealed that the "prerequisites -related situations" that cause chaos in school are caused by pre-education factors such as "physical conditions, contagious effect, individual differences, readiness and planning".

Overcrowded classrooms are a fact of our country. In the interviews, the participants stated that healthy and balanced communication cannot be done in crowded classrooms. For example, one of the teachers T1:

> … I taught 1st grade in a class of 67 people. Due to the crowd, I did not have the opportunity to deal with some students adequately." he states. Because of this, s/he states that some of his/her students are not able to reveal their potential... "... I witnessed that some students from that class did not continue their school life. In a crowded environment, either hardworking or naughty students attract more attention. (T1)

One of the situations that creates chaos in the school is behaviors that have contagious effects. This contagious effect is manifested in the prejudices felt at school. T2 from the participants stated that prejudices can create chaos situations:

> … A student who encounters bad examples in his first experiences develops a phobia towards school. In addition, the child shows this approach to school and every factor that reminds him of the school. Over time, these experiences cause behavioral disorders in the child. A "self-fulfilling prophecy" takes place, as behavioral disorders will show a negative response. This greatly shapes the child's perception of school. (T2)

It has been revealed that a negative situation in this category has a contagious effect. A student crying at school can cause another student to cry. This effect has been called as contagious effect. Participant T3 stated that one of her/his students started to cry because s/he was afraid of the health professionals who came for the vaccine, and the other students who saw this started to cry as they were affected negatively. T17, one of the teachers, drew attention to the importance of the student's preparation from home to school, from the garden gate to the first entrance of the school. "… for example, seeing a child crying when s/he enters school." (T17)

> ... School administrators should work on this issue. They should try to make the first day of school fun. The student turns inward, approaches with fear, becomes irritable because he cannot express himself, does not use the tools correctly, breaks his pencil, may show a tendency towards violence... In short, in order to change the results, it is necessary to make the beginnings properly. (Teacher 12).

(S/He stated that the last sentence did not belong to her/him, and that it was a quote without specifying the source..) In this category, it is seen that prejudices have a "contagious" effect.

Individual differences can negatively affect the learning environment. Every human being has been created with differences, from tone of voice to fingerprints, from understanding to intelligence. Therefore, each person's learning style and speed is different. The abundance and diversity of these differences also affect learning.

"… I think the fact that all individuals are different is the situation that starts the chaos. The differences are not detected, the education system is not suitable for this. Everyone's reaction will be different." (T3)

Regarding this, one of the teachers

> … for example, I think that inclusive education creates an environment of chaos. I believe that every student can be educated... ...When the teacher separates the hardworking students from the lazy and behaves differently, s/he creates an atmosphere of chaos, and the inclusion student causes chaos with his vicious behavior. (T4).

Teachers see individual differences arising from students in this way as situations that cause chaos. The lack of readiness of the students or the lack of the same readiness level can also create chaos in terms of education. Some of the teachers mentioned that while students with high readiness in the classroom stand out, students with less readiness can fall behind. They interpreted this situation as the beginning of chaos.

"A student with incomplete knowledge has difficulty following the class, cannot keep up with the speed of learning with her/his friends." (T14)

Teachers also mentioned emotional readiness. In particular, they mentioned the behavior of students who are not ready for "love" and "interest".

> There are significant differences between students who are interested in the course and students who are not interested in the course. This is also felt in the classroom environment. Students who are uninterested during the lesson show more undesirable behavior. (T10).

"I see very noticeable behavior of students who do not like school. In the classroom, they attract attention with a word or behavior that disrupts the order of the lesson. This can also clutter the peaceful environment." (T5)

The plan is an essential prerequisite for education. A good plan is essential in order to predict and prevent sudden situations and not to waste time. Encountering many situations that are not calculated otherwise can be a prelude to chaos.

Educational Activities and Environments

Inability to learn or mislearning is also one of the chaos situations that the participants stated that they experienced. T5 of the participants stated that the efforts of families to teach children to read and write before

they start the 1st grade create chaos. He states that teaching in the system is "sound-based" and that families teach children letters according to how they are pronounced, which hinders teaching. "Rebuilding something on a foundation that has been laid wrong causes strain and stress." Failure to establish adequate and healthy communication is important for students to adopt the school-class, identify themselves and feel belonging. Participants state that when these do not happen, negative behaviors begin to emerge and chaos situations occur. They state that when adoption and belonging occur, harmony and participation are achieved and teamwork emerges.

Negative Behaviors

In this category, it has been stated that undesirable situations such as abuse, violence, absenteeism and late arrival to class create an environment of chaos. T5, one of the participants, said that s/he had to give toilet permission to a student with diabetes every time, this situation was abused by other students, and s/he was faced with complaints such as "Do we have to be sick too" for permission, and s/he stated that the requests for leave, even by students who do not need them at all, have come to such a level as to disrupt the course flow. In this sub-theme, the participants stated that similar chaos situations can occur, with the prevalence of negative behaviors such as abuse, violence, absenteeism and late arrival to class.

> …I have a student with diabetes. I have to give toilet permission. Over time, I realized that this situation attracts the attention of other students, and they also ask for and use time off with various excuses for illness. When I don't allow them, they can verbally abuse their friends whom I allow. This situation created a chaotic situation in the classroom after a while. (T5)

… "When I don't warn the late student, the number of late comers starts to increase. In this way, undesirable behavior in the classroom begins to increase. Students start talking more among themselves." (T9)

In this category, it can be realized that negative behaviors trigger and reveal negative behaviors. This raises the need for a positive environment and desirable behavior in the classroom.

Internal and External Factors

In this category, it is seen that factors such as environmental, cultural, school management, parents and system can also cause chaos. T2, one of the participants, states that as a result of the research he conducted on a student who was harmful to the environment and prone to violence, he learned that his mother got married at a young age, the child was raised unconsciously, and that the child was exposed to violence in the family. After T2 pointed out the importance of detecting individual differences, he stated that the structure of the system was not suitable for this. It has been stated that the fact that the school administration's having an unfair management approach also causes chaos.

…When the school principal favors some teachers, an atmosphere of gossip begins to form. This can cause chaos. Some teachers cannot accept this situation and be negligent to their duties. The school principal can be more autocratic with these teachers. (T7)

…Sometimes, students can behave in a culture specific to their own culture in the classroom or during break. For example, a male student of mine never spoke to his girlfriends and was criticized by his girlfriends. Her boyfriends would also make fun of this student. From time to time there would be conflict between these students and the student I was talking about. (T11)

Theme II: The Effects of Chaos

The effects of the chaos in the school classified in two categories. These are *the creating a starting point: the butterfly effect and the chaos-free behaviors*. Creating a starting point: Negative features such as "mislearning, inability to learn and waste of time" which are in the butterfly effect category, and "tenacity and labor-effort behaviors" which are in the category of chaos-free behaviors can be associated with each other. Because it has been determined that these negative features can be managed with these positive behaviors. Teachers expressed this association while describing the events. The categories in this theme are explained in order below.

Creating A Starting Point: The Butterfly Effect

In education, sometimes situations such as inability to learn-mislearning, waste of time can have a chain effect. T1 of the participants states that "on a meeting with the family of a student who has a habit of being late, his/her parents asked for permission by saying "forgive us", but being late for class increased among the other students who saw that there was no reaction to this student who was late. T8 of the participants stated that there was a student who cursed, that this behavior started to be seen in other students over time, and that he had to warn the students constantly, which caused a waste of time, and that he had time problems in complying with the program.

A person's awareness, caring (or being cared for), and valuing about a subject can have great positive or negative effects on the future. T15, one of the participants, stated that when a student whose father was a drug addict and whose mother was a prostitute was about to drop out of school but they made him/her feel valued by enabling him/her to research the lives of people in similar situations. S/He stated that the child decided to continue his/her education, that his/her mother had never been informed of this situation, and thus they made the student feel valuable.

…The student was an absentee for the first time. I was wondering why s/he's absent. Then I contacted the school administration, found out about his/her parents' situation. I can't tell you how I felt at that moment (Feeling emotional, eyes filled). I'm glad I checked it out, I said to myself. Otherwise we would have lost that child. (T15)

Making the critical touch on a key point in education can change many beginnings. T4, one of the participants, stated that after the death of one of the third-year students, s/he observed that s/he started to regress in classes and became withdrawn. Thereuopn, s/he stated that the student's failure situation disappeared a few months

after placing him/her in another class where s/he could make new friends. It seems that critical touches to the key point give positive results.

Chaos-free Behaviors

In this category, it is generally seen that the behaviors such as *labor, effort, tenacity, more dialogue and communication, teamwork, acting jointly, help and support* come to the fore. T2, one of the participants, states that s/he cooperated with the parents of a student who was inclined to violence and harmed his/her friends and environment. In her/his interview, s/he stated that s/he learned that the student was exposed to violence at home and after that s/he recommended the parents to resort to punishments other than beatings, by this way the tendency of violence in the child decreased with the cooperation of the parents by following this advice. T1, another of the participants, stated that s/he put more effort so that a student who failed in the class two years in a row would not fail in the class again, thus helping the student to be successful in passing the class. Years later, the same student came to visit him/her and said, "If I had failed the class that year, my father would have taken me out of school, but now I am an accountant".

It is seen that the participants resort to overcoming and eliminating the situations that create chaos in education by labor, effort, tenacity, more dialogue and communication, perpetuity, teamwork, acting jointly, help and support. In this sub-theme, it was concluded that it is necessary to start well in order to change the results. Critical touches to a key point in time can lead to very different results for the future.

CONCLUSION and DISCUSSION

The main question of this study is about what problems in education are caused by the events and situations that cause chaos and butterfly effect in the school. In the light of this basic question, data were collected through face-to-face interviews with the teachers and the results were reached in the light of these data. The first purpose of the study is to determine the factors that cause chaos in the school, and the second purpose is to determine the effects and consequences of the chaos that has occurred in the school. This study, which was carried out in line with these two purposes, also revealed some problems in education. In this study, "chaos at school" was handled and analyzed as a case. The results of this study have a feature emphasizing that the butterfly effect and chaos theory at school are issues that should be taken into account for teachers. When the results are examined, it also gives information about the question 'what is going on at school? from the teachers' point of view. In this context, this study is important in terms of revealing that simple words, attitudes, behaviors, events or situations that we do not care much about lead to results that we never thought about.

The chaos theory, which started to be examined based on the problem of this study, was tried to be explained in the field of social sciences (Akcin & Zengin, 2020; Aricioglu & Karabiyik, 2019) and started to be examined in the field of education as well. Studies on chaos theory and butterfly effect in education (Ge et al., 2021; Goksoy, 2020; Erturk, 2012; Kearns, Gallagher, & Cronin, 2021; Klasen & Lingard, 2021; Ly et al., 2021; Parra & Tan, 2021; Seven-Sarkaya & Cobanoglu, 2020; Sarigoz, 2022; Schuelka & Engsig, 2020) have led to various perspectives and

recommendations in the field of education. In this study, especially the situations and events that cause chaos in the school and create the butterfly effect were examined. Then, the effects of these situations and events were analyzed. Thus, the aim of establishing a basis for understanding and explaining behavior patterns in school and in the classroom has been achieved.

The categories of "*prerequisites and creating a starting point: butterfly effect*" that emerged as a result of the study are similar to Baker (1995)'s *initial ripple effects and emotional ripple effects* categories. Although there is a very long time period in between, it can be said that Baker's study in 1995 and this study, which was conducted in 2017, have some common features in this sense. Based on this knowledge, it can be said that some aspects of chaos theory do not change from time to time. Goksoy (2020) also identified "misleading knowledge and skills" in the butterfly effect category in his study with school administrators on chaos at school. In this study, it was concluded that mislearning creates a butterfly effect. This shows that mislearning in the education process is an issue that should be taken into consideration seriously. Mislearning can lead to irreparable results in the future. One misconception of a student can have serious consequences for his or her future. Baker (1995), in his research on chaos in school, concluded that the butterfly effect is caused by decisions rather than behaviors. However, in this study, the behaviors that cause the butterfly effect came to the fore. When trying to reach a basic result in line with the purpose of the study, the concept of "learning", which is the key issue in the education process, comes up. Student learning constitutes the ultimate goal in education. For this reason, the factors that provide learning and prevent learning are considered as the issues that are taken into account to study and explain chaos in school in this study. When teachers explained the chaos in the school, they first perceived the "crowded classrooms" as an obstacle to learning and evaluated it as the factor causing the chaos. Overcrowded classes are expressed as a fact of some societies. It has been determined that the participants consider physical conditions such as crowded educational environment, contagious effect or individual differences, readiness or lack of plans as prerequisites that cause chaos in education. The class is defined as an open and nonlinear system and is characterized by a set of complexity, unstability and unpredictability variables (Trygestad, 1997, p.8). For a good educational environment, such pre-education conditions must be in the best condition. One of these conditions is the elimination of uncertainty (Baranowski, 2017).

The fact that students feel safe and comfortable in the classroom environment may also depend on the elimination of uncertainties in the classroom environment. Tise (2021) expressed the importance of reducing this uncertainty in the classroom environment with the uncertainty reduction theory. One of the ways to reduce the uncertainty could be the introduction of short-term rather than long-term plans (Su, 2021) in terms of learning goals in education. The concepts of unstability, unpredictability and uncertainty in chaos theory can be thought of as interrelated in this sense. Teachers also see imislearning, inability to learn, and failure as chaos situations. Individual learning has a variable and unpredictable feature (Trygestad, 1997, p.8). In this case, mislearning and failure to learn is like defining and examining an unpredictable process. Sometimes lack of communication, sometimes not adopting the school-class, and not feeling of belonging also lead to situations of chaos. The healthy communication established with the students will create a sense of belonging by making the student

adopt the school, and accordingly, it will be possible to increase learning and success by ensuring participation and cooperation. It has been concluded that undesirable disciplinary events such as violence, absenteeism and swearing at school, as well as the abuse of goodwill and understanding, spread rapidly from time to time, resulting in a state of chaos. Ly et al. (2021), as a result of their research on chaos at schools, determined a relationship between chaos at school and adolescent risk behaviors and emphasized the improvement of school climate. In this sense, first of all, what to do at the school administration level should be discussed. In addition, as a result of the study, it has been concluded that the environment, culture, family and the attitude of the school administration and the system play a key role in the occurence/non-occurrence of chaos environments. It has been determined that these factors sometimes cause the formation of a chaos environment and sometimes affect the prevention of chaos.

Two categories emerged related to the second aim of this study: *'creating a starting point: butterfly effect and chaos-free behaviors'*. These categories are the categories that come to light regarding the consequences of chaos in school. As a result of the initial effect of the chaos in the school, it has been determined that the chaos situations and events in the school have a chain effect that spreads in waves from time to time. It has been observed that sometimes the student's awareness of a subject or valuing the student, taking care of him/her, caressing his/her head, in other words, the critical touch made to the key point creates a sensitive beginning and the effect of this touch spreads in a chain manner. It is determined that this chain effect sometimes reflects positively and sometimes creates negative reflections such as mislearning, waste of time and transmission of negative behaviors.

The other result is chaos-free behaviors. These behaviors can be classified as *labor, effort, tenacity, more dialogue and communication, perpetuity, teamwork, acting jointly, help and support*. Teachers evaluated these behaviors as a way out of chaos environments or as a mitigating effect. In this framework, it becomes clear that chaos is not disorder but unpredictability (Trygestad, 1997, p.10). Trygestad states that the critical point of the learning process is the junction point or bifurcation of the imbalance.

When chaos theory is studied and explained in a classroom setting, the complex and unpredictable aspect of learning attracts attention (Trygestad, 1997). Trygestad mentions that learning occurs in nonlinear complex systems at unpredictable bifurcation points for each learner (p.10). At the same time, the complexity of the classroom environment is an aspec that teachers have to deal with (Huang et al., 2021). Goksoy (2020) in his study on chaos in school concluded that school administrators consider school management as a complex process. It is at this point that Davies' (2021) opinion that schools need to reach the limit of chaos in order to reach constructive positions becomes meaningful. The complexity of schools is also due to the fact that they are social systems. For this reason, we can consider this feature natural and consider chaos as a natural feature. School administrators can execute a more effective leadership behavior in the creation and management of chaos environments, with the measures they will take by taking into account this border point of chaos (to see stability in unstability). They can even be expected to develop a behavior of tolerance towards uncertainty.

Peschl, Deng & Larson (2021) interpreted uncertainty tolerance as the ability to accept some degree of uncertainty, to test ideas despite future threats and uncertainty, and to be motivated to move them forward. In this case, educators' uncertainty tolerance behavior may be more effective in managing chaos.

The finding that the characteristics of male and female school administrators such as "communication, strong social relations and teamwork" come to the fore during the periods of chaos revealed by Seven-Sarkaya & Cobanoglu (2020) in their research reinforces the above proposal. Although chaos is inevitable, its negative impact can be minimized with timely critical moves. Critical touches to the key point can lead to sensitive beginnings. Baker (1995) mentioned that knowing the effect of the butterfly effect on schools will benefit school administrators. Baker made a critical observation regarding the study of chaos and the butterfly effect in school. This finding is that flexible and adaptable school principals can better predict and manipulate the "ripple effects" that chaos will cause. For this reason, the words, behaviors, decisions, situations and events that can create the "butterfly effect" and "starting point" in schools and classrooms should be determined well and these determined issues can be a guide for the management of today's schools.

RECOMMENDATIONS

After all, chaos is a fact of life. It can be seen in all areas of our lives, as well as in educational environments. Education is a dynamic structure and does not always follow a linear course. Educational organizations also have a complex feature of people, due to the fact that they are an open social system. Hence, it is not clear when and what the school administrators, teachers and students will encounter in schools. Therefore, it is important to manage chaos in educational environments and schools correctly and to minimize its negative effects. In this sense, school administrators and teachers need to gain knowledge and experience about which situations and factors create chaos and what the effects-results of this chaos can lead to. For researchers in the field of education, the results of this study have also led to a discussion on the issues of recognizing the starting points that create chaos in the school, managing unpredictability and uncertainty, determining and managing the factors inside and outside the school that cause chaos.

ETHICAL TEXT

"In this article, journal writing rules, publication principles, research and publication ethics rules, journal ethics rules have been followed. All responsibility for plagiarism and unauthorized data use in the study belongs to the author of the study. Since the data for this article were collected in *2017*, it does not require an ethics committee certificate of approval.

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