Examination of Primary School Students' Cognitive Structures Regarding Rules

Tuğba DÖNMEZ

Kırıkkale/TÜRKİYE

tugbacumhuriyet@gmail.com

ORCID: 0000-0002-5360-9835

Abstract

Rules are often created based on the needs and values of society. Social rules, on the other hand, are guidelines that state whether we should or should not do certain behaviors. In addition to educational activities, schools also include activities aimed at teaching social rules. The concept of rule, its formation, implementation, classification and diversity, its changing borders, its importance for human education, order, and life has a structure that is highly questioned among people. It is important to know the perspectives of primary school children regarding the rules, one of the ages where this questioning is made deeply, in order to plan educational activities. The aim of this research is to reveal the cognitive structures of primary school students regarding the rules through the Word Association Test (WAT). In this study, descriptive survey model, one of the quantitative research methods, was used. The study group of the research consists of 185 primary school second, third and fourth grade students studying in a Turkish province in the 2022-2023 academic year. The study group was selected according to easily accessible case sampling, one of the purposive sampling strategies. While primary school 2nd grade students associated the concept of rule with 52 different words, third grade students associated 56 different words and fourth grade students associated 75 different words. When the words with a cut-off point of 25 and above were examined, it was seen that school and traffic answers were given at every grade level. When the words at each grade level were examined, it was seen that the students generally did not write the concepts with close meaning and similar meanings related to the concept in which they explained the rules with examples. However, it has been determined that the written words are mostly associated with social and school rules.

Keywords: Society, Word Association Test, Value, Misconception

Introduction

Rules are dominant in many places where individuals, who are social beings, are in contact with other individuals in family, school, business life. However, there are rules that the person sets for himself, for his life, in order to ensure his inner motivation and discipline. Although the rules are

in different fields such as religion, etiquette, morality and law, they are of vital importance in all societies. The rules they set about one's personal responsibilities are different from the rules such as religion, etiquette, morality and law and focus more on self-regulation and individual lifestyle choices.

In the definitions made for the concept of rule, the power of rules in providing social order is emphasized. Rules are stable and predictable factors that regulate social life (Bierstedt, 1974). Rules provide social order and have many benefits. Rules have the function of connecting individuals in society and forcing individuals to comply with the necessity of this (Topçuoğlu, 1984). One of the functions of rules is to reduce the necessity of decision making faced by the individual in numerous social situations and situations (Bierstedt, 1974). Rules also reduce uncertainty and allow regular behavior to be maintained. However, it is one of the prerequisites for ensuring the freedom of individuals (Demir, 2003). The system of rules, which also has the function of regulating the activities of organizations, is applied in an imperative way to secure the existing structure.

Schools not only engage in educational activities but also aim to teach societal rules. One of the main objectives of both the curriculum and the implicit program is to ensure individuals comply with societal rules. These written and unwritten rules emerge from and shape social interactions (İçli, 2002). Rules are learned and internalized as habits within the process of socialization, particularly in schools, which are one of the most significant places for social interaction. Compliance with societal rules encompasses not only behavioral actions but also cognitive and emotional elements. Therefore, in order to address non-compliant behavior in society, it is essential to develop knowledge, attitudes, and behaviors that target these issues in the teaching of rules. Considering the aim of elementary education to foster a sense of responsibility and respect for moral values, it is believed that the cognitive structures related to societal rules should be examined and any deficiencies in these structures should be addressed.

The concept of rule, its formation, implementation, classification and diversity, its changing borders, its importance for human education, order, and life has a structure that is highly questioned among people. This questioning continues throughout a person's life, starting from infancy. The

middle childhood period, which includes children in the age group of seven and eleven, in which there is a significant change in the child's social competence and interpersonal communication, represents the transition from childhood to adolescence, but also has some developmental tasks such as establishing good relationships with peers (Garder & Gardiner, 1993). According to Piaget (1948), children of this period are considered to be in the concrete operational stage. In middle childhood, when children form high-level thoughts about justice by considering many factors, they explain and link moral obligations and social traditions (Berk, 2015). In this respect, it is important to reveal the ties and interpretations that children of this age establish regarding the concept of rules.

When examining the relevant literature, there are numerous studies on rules in the early childhood period (Senemoğlu, 2005; Corter & Doyle, 2006; Seven, 2010; Özyürek & Tezel Şahin, 2015). However, studies focusing on classroom rules have a wide area in the literature. These studies generally address classroom management and emphasize the need for clear expression of rules for the classroom (Erden, 2001; Şahin, 2002; Başar, 2003; Çelebi Öncü, 2011), the implementation of various methods and techniques in teaching classroom rules (Kılbaş, 2006), and understanding the underlying reasons for student behavior in complying with classroom rules (Özbay, 2001; Küçükahmet, 2005; Memişoğlu, 2005; Karslı, 2011). In the literature, although there are studies targeting groups other than early childhood (Boyacı, 2009; Akar & Öğretir Özçelik, 2017) and focusing on social rules other than classroom rules (Kaya Bağdaş, 2018), these studies are quite limited. This study aims to contribute to the literature by revealing the cognitive structures of elementary school students, specifically the middle childhood period, regarding rules.

The purpose of this research is to uncover the cognitive structures of elementary school students regarding rules through the use of the Word Association Test. In line with this objective, the following research questions have been addressed:

What are the cognitive structures of second-grade elementary school students regarding rules?

What are the cognitive structures of third-grade elementary school students regarding rules?

What are the cognitive structures of fourth-grade elementary school students regarding rules?

How do the cognitive structures of elementary school students regarding rules change across grade levels?

Method

Research Design

In this study, a quantitative research method known as the descriptive survey model was employed. Descriptive survey is a research approach that aims to describe a current or existing situation as it is (Karasar, 2020). The purpose of this research was to describe the cognitive structure formed by elementary school students regarding the concept of rules. Accordingly, the survey model was utilized in order to present the current state, attempt to define individuals within their own conditions, and ensure alignment with the research objectives.

Research Sample

The study sample consists of second, third, and fourth-grade students studying in the central district of Kırıkkale province during the 2022-2023 academic year. The study group was selected using the convenience sampling method, which is one of the purposive sampling strategies. Purposive sampling is an approach that allows for in-depth investigation by selecting information-rich cases based on the research purpose, and it is a non-probability sampling approach (Büyüköztürk et al., 2019, pp. 92-94). In convenience sampling, the researcher selects a situation that is close and easily accessible. In terms of both feasibility and practicality, the researcher conducted the study in a school located in the middle socio-economic region of Kırıkkale's central district. The demographic characteristics of the participating elementary school students are presented in Table 1.

Table 1

Demographic Characteristics of the Participating Elementary School Students (n= 185)

Grade Level	Female		Male		Total	
	f	%	f	%	f	%
2nd Grade	27	47	30	53	57	100
3rd Grade	28	44	35	56	63	100

4th Grade	30	46	35	54	65	100
Total	85	100	100	100	185	100

According to Table 1, a total of 185 elementary school students participated in the research, with 85 girls and 100 boys. Specifically, there were 27 girls and 30 boys from the second grade, 28 girls and 35 boys from the third grade, and 30 girls and 35 boys from the fourth grade.

Research Instrument and Procedure

The Word Association Test (WAT) was used as the data collection tool in the research. The Word Association Test (WAT) is a technique that allows for the direct examination of the associations evoked by pre-determined words in individuals (Şimşek, 2015). In this test, students transfer the associations in their minds related to a specific concept onto paper within a specific timeframe. WAT is one of the techniques used to uncover an individual's cognitive structure and the relationships between concepts stored in long-term memory (Bahar, Johnstone, & Sutcliffle, 1999).

Before proceeding to the implementation phase, a sample WAT application was conducted with the students using the concept of "school". The first part of the measurement tool included demographic information about the students, necessary instructions, and a sample application. In the second part, students were asked to write 5 words and 1 sentence related to the concept of "rules". The original version of the form before it was filled out is provided in Figure 1.

Figure 1

World Association Test

Before the implementation, a pilot study was conducted with 10 students from each grade level. After the pilot application, 2nd grade students were given 5 minutes, 3rd grade students 4 minutes, and 4th grade students 3 minutes to complete the WAT. The data were collected between 01-30 April 2023 in the spring term of the 2022-2023 academic year.

Data Analysis

The data obtained from the Word Association Test was analyzed using the technique of interval cutting proposed by Bahar et al. (1999). The analysis began by creating a frequency table of the responses generated for the key concepts. To ensure the validity of the created frequency table, two experts independently examined it. One expert was a research assistant with a doctoral degree in the field of classroom education from a state university. The other expert was a doctoral student working in values education. During the discussions with the experts, it was decided that words that were written in accordance with sentence structure but were meaningless should not be reflected in the concept network. Additionally, there was a consensus on merging the frequencies of words that had the same root but were written differently by using suffixes such as possessive (-m) and plural (-ler, -lar). Thus, the words to be reflected in the concept network were determined. Next, the cutting point was determined as below 10 for the response with the highest frequency. The response words above this frequency were written in the initial part of the concept network,

and then the cutting point was reduced by 10 for further processing. This process was continued until the frequency dropped to 5, ensuring that all response words were included in the concept network.

Results

The findings obtained in the research examining the changes in elementary school students' cognitive structures regarding rules through the Word Association Test (WAT) are as follows.
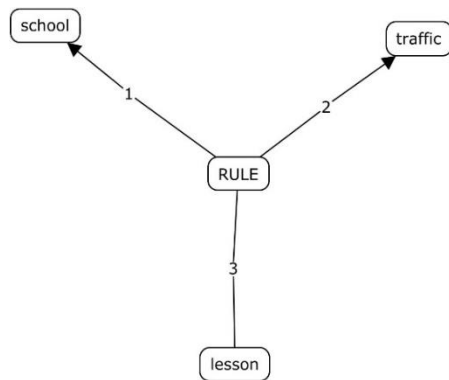
Findings regarding the responses of second-grade elementary school students

When analyzing the Word Association Test related to the word "rule" for second-grade elementary school students, it was observed that they associated it with a total of 52 different words. The words associated by the second-grade students in the WATs were examined using the cutting point technique, as shown in Figure 2.
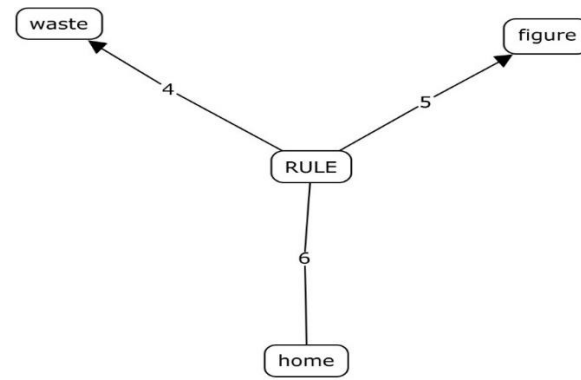
Figure 2

Concept Network Created with the Words Written by Second-Grade Elementary School Students in the WATs
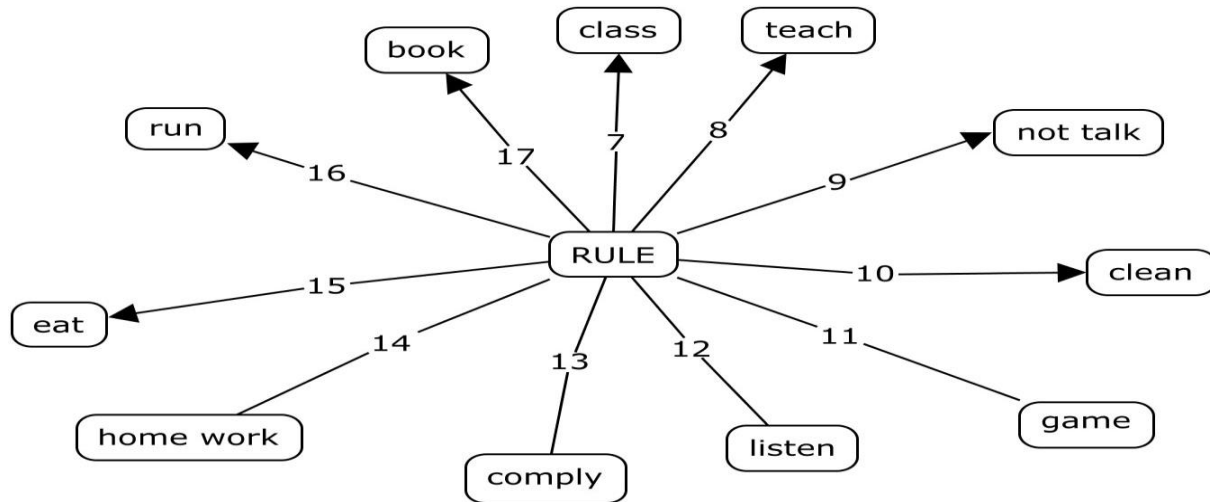
Cut off point 25 and above   Cut off point between 24- 15

Cut off point between 14- 5

When examining Figure 2, it can be seen that the most commonly associated words that come to the minds of second-grade elementary school students are school, traffic, and lesson, in that order. Other words that come to mind for second-grade students include waste, finger, house, class, teach, not talk, clean, game, listen, comply, homework, eat, run, and book.
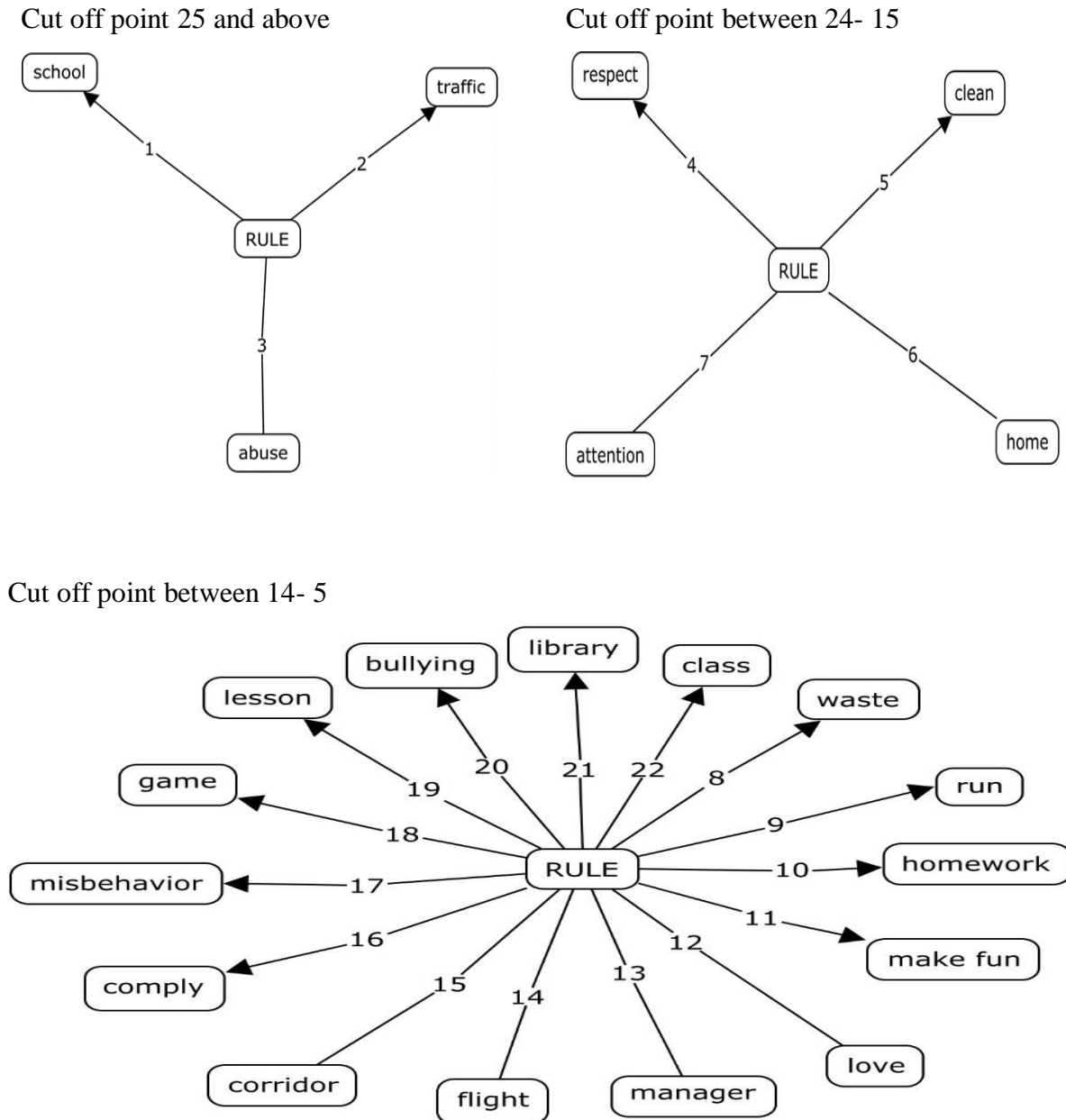
Findings regarding the responses of third-grade elementary school students

When analyzing the Word Association Test related to the word "rule" for third-grade elementary school students, it was observed that they associated it with a total of 56 different words. The words associated by the third-grade students in the WATs were examined using the cutoff point technique, as shown in Figure 3.

Figure 3

Concept Network Created with the Words Written by Third-Grade Elementary School Students in the WATs

Cut off point 25 and above

Cut off point between 24- 15

Cut off point between 14- 5

When examining Figure 3, it can be seen that the most commonly associated words that come to the minds of third-grade elementary school students are traffic, school, and abuse, in that order. Other words that come to mind for third-grade students include respect, clean, home, attention,

waste, not run, homework, make fun, love, manager, fight, corridor, comply, misbehavior, game, lesson, bullying, library, and class.

Findings regarding the responses of fourth-grade elementary school students

When analyzing the Word Association Test related to the word "rule" for fourth-grade elementary school students, it was observed that they associated it with a total of 75 different words. The three most frequently written words were traffic, school, and constitution, in that order. The words associated by the fourth-grade students in the WATs were examined using the cutoff point technique, as shown in Figure 4.
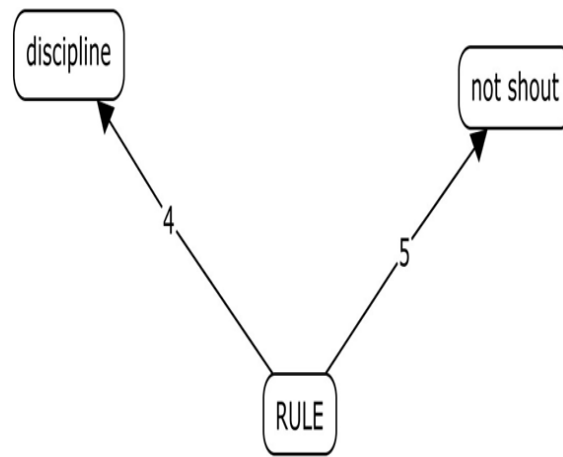
Figure 4

Concept Network Created with the Concepts Written by Fourth Grade Students in WATs
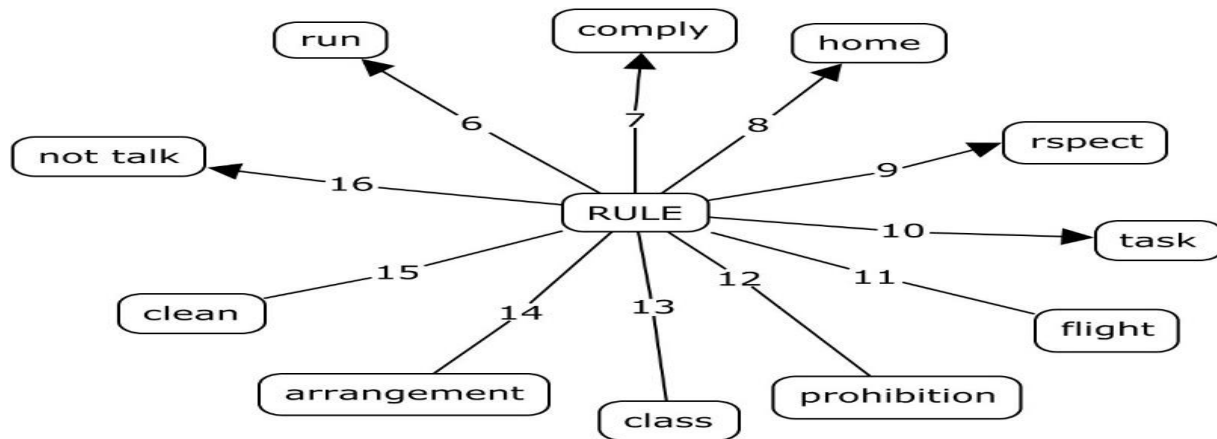
Cut off point 25 and above   Cut off point between 24- 15
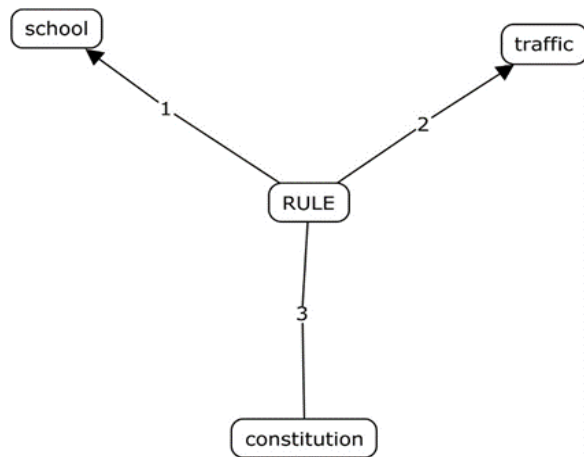
Cut off point between 14- 5

When examining Figure 4, it can be seen that the most commonly associated words that come to the minds of fourth-grade elementary school students are traffic, school, and constitution, in that order. Other words that come to mind for fourth-grade students include discipline, not shout, run, comply, home respect, task, fight, prohibition, class, arrangement, clean, and not talk.

Comparative Findings on Different Grade Levels in Primary School

Figure 5

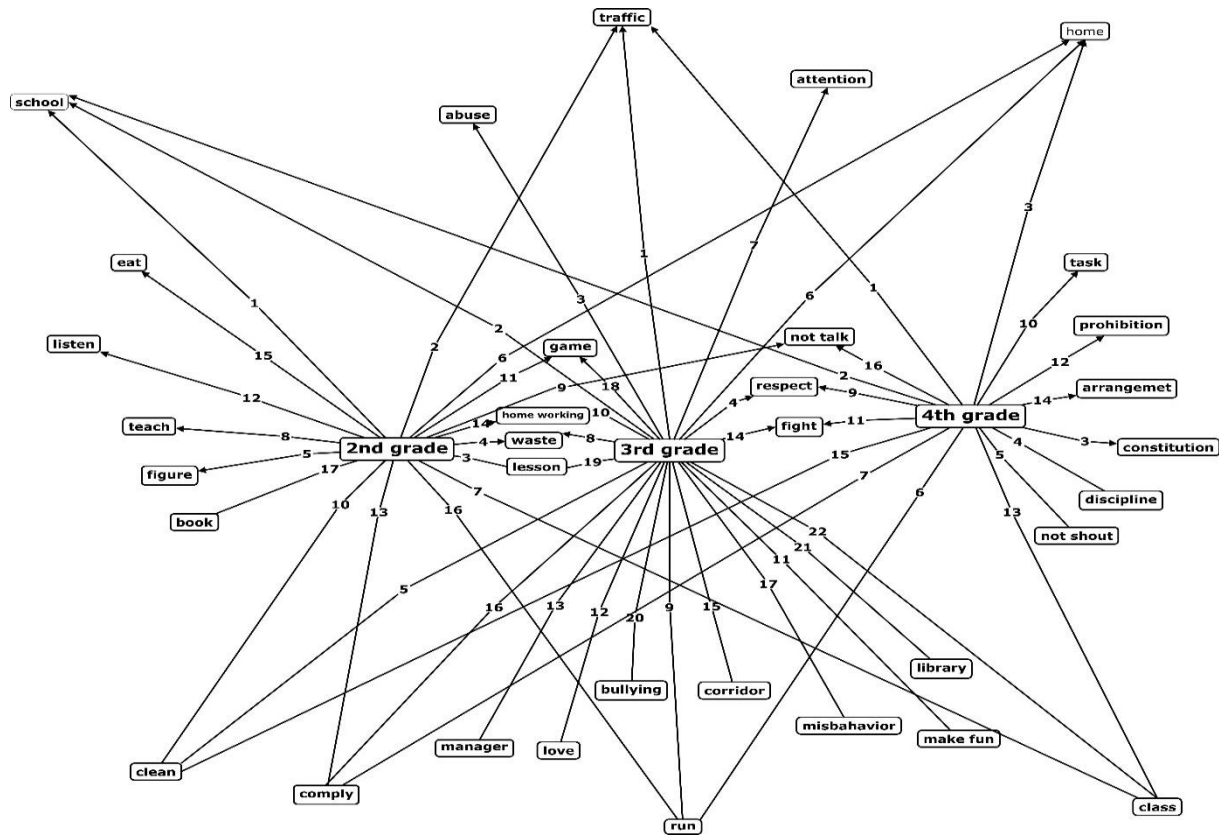*Conceptual Network Generated by Concepts Written by Primary School Students in WATs*

Figure 5 shows the words written by primary school students when the cutting point is above 5. According to this, second-grade students write 17 different words, third-grade students write 22 different words, and fourth-grade students write 15 different words. The common concepts written by second and third-grade students are homework, lesson, game, and waste. The common concepts written by third and fourth-grade students are fighting and respect. The common concept written by second and fourth-grade students is not talk. The common concepts written by second, third, and fourth-grade students are school, traffic, home, class, comply, run, and clean.

Discussion, Conclusion and Recommendations

Discussion

This research aimed to examine the cognitive structures of elementary school students regarding the concept of rules. The words associated with this concept and the number of words can be an indicator of understanding the concept. One effective tool used to measure this indicator is word association tests. In the context of the study, WAT was applied to reveal students' cognitive structures related to the concept, and it was found that there were no conceptual misconceptions. However, it was observed that students wrote a wide variety of words at the class level. McGuinness (1993) attributes factors influencing discipline perception or problems in the classroom to psychogenetic factors such as values related to the school, curriculum, teaching methods, self-esteem, and self-perception, as well as sociogenetic factors such as national and social values, culture, and so on. Considering that classrooms today consist of students from different cultures and family structures, it is natural to see such diversity. Indeed, Boyacı (2009) demonstrated in his study that culture played a significant role in the differentiation of opinions among primary school students living in Norway and Turkey. Furthermore, in a study by Kaya Bağdaş (2018) that examined social rule sub-dimensions based on the cultural backgrounds of Ahıska Turks and Turkish children, variations were observed in the dimensions of authority absence, rule absence, and punishment.

When examining the words with a cutting point of 25 or above at each grade level, it was observed that the answers "school" and "traffic" were given in every grade level. This can be associated with the fact that schools primarily focus on teaching rules related to school and traffic regulations. Additionally, if the research was conducted in a school located in the city center, it could be an indicator that students are exposed to traffic rules more frequently. The mention of "constitution" as an answer at the fourth-grade level could be seen as an indication that students are beginning to develop an understanding of legal rules. Within the scope of societal order rules, rules can be categorized as religious, moral, etiquette, and legal rules (Demirkasımoğlu, 2015). Although students mostly wrote "school" and "traffic" as their answers, it was observed that their other responses were more associated with moral and etiquette rules.

When examining the students' responses related to the concept of rules as a whole, it was found that the word "punishment" did not appear in a total of 183 words. This contradicts previous research that suggests rules are associated with the concept of punishment (Weiner, 2003; Akar & Öğretir Özçelik, 2017).

Conclusion

Although second-grade students associated the concept of rules with 52 different words, third-grade students with 56 words, and fourth-grade students with 75 words, the diversity of all the words written by students can be attributed to various factors that influence how they perceive class rules.

When examining the words at each grade level, it was observed that students generally did not write closely related or synonymous concepts that explain rules with examples. However, it was noticed that the written words were mostly associated with social and school rules.

Recommendations

Due to the multicultural nature of schools, students' perceptions of rules may vary across different cultures. Therefore, it would be beneficial to investigate cultural differences in the perception of rules.

In this study, first-grade students were excluded due to difficulties related to factors such as word structure. Future research could be designed to explore the cognitive structures of first-grade students regarding rules using different techniques.

This study is limited to students in Turkey. Considering that rules shape societies, the perspectives of students from different countries regarding rules could be compared on a country-by-country basis.

The research data was collected from a school located in the city center. The ways in which students in rural or remote areas perceive rules could be examined using different methods.

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