



## The Concept of Hygiene of Primary School Students in the Scope of Social Studies Teaching

Özcan PALAVAN<sup>1</sup>

### Abstract

The aim of this study is to determine the perceptions of Turkish Cypriot students about "hygiene", which is an important subject in the learning field of My Health, within the scope of Life Studies (1st, 2nd and 3rd Grade) course in primary schools. It is to evaluate and offer suggestions according to the situation that will arise. In this context, the study group of the research consists of 4th grade students in the 2019-2020 academic year whose Life Studies program has been completed. This study has been carried out using the phenomenological research design, one of the qualitative research designs. The sample of this study was formed using the convenience sampling method. Accordingly, a total of 185 4th grade students enrolled in the elementary schools located in TRNC comprised the study sample. Of these students, 107, 47 and 31 students were enrolled in the elementary schools located in Kyrenia, Nicosia and Morfou districts of TRNC, respectively. Content analysis of the answers given by the 185 students revealed that students used a total of 58 valid metaphors for the concept of "Hygiene" in different frequencies. These 58 metaphors were categorized into 8 themes of Cleaning, Cleaning Materials, Living Things, Family, Health, Non-Living Things, Abstract Things and Germs. Students were found to have used cleaning (f=65) the most, followed by broom (f=9), mother (f=8), white (f=8), water (f=8) and medication (f=6), as the metaphors to explain their hygiene perceptions. A review of the frequencies of the metaphors put forward by the students regarding the theme of family within the scope of this study gave rise to the question of whether there are sufficient role models in terms of hygiene in students' environments, within their families in particular. Further studies are needed to find an answer to this question.

**Keywords:** Hygiene, Metaphor, Elementary School, Student, Teacher, Family

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## Hayat Bilgisi Öğretimi Çerçevesinde İlkokul Öğrencilerinde Hijyen Kavramı

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### Öz

Bu çalışmanın amacı KKTC’de öğrenim gören ilkökul öğrencilerinin Hayat Bilgisi (1.,2. Ve 3. Sınıf) dersi “Sağlığım” öğrenme alanı çerçevesinde öğrendikleri “Hijyen” konusunda düşüncelerinin ortaya konulmasıdır. Bu çerçevede Hayat Bilgisi programını tamamlamış ve 4. Sınıfa geçmiş öğrencilerle çalışma gerçekleştirilmiştir. Nitel araştırma desenlerinden fenomenoloji deseni kullanılarak gerçekleşen bu çalışmada örnekleme Girne (n = 107), Lefkoşa (n = 47) ve Güzelyurt (n = 31) ilçelerinden seçilen ve dördüncü sınıfta öğrenim gören 185 öğrenci oluşturmaktadır. Örneklem seçiminde uygun örnekleme kullanılmıştır. 185 öğrencinin verdiği cevaplar analiz edildiğinde “Hijyen” kavramına yönelik farklı frekanslara sahip toplam 58 geçerli metafor belirlenmiştir. Metaforlar özellikleri bakımından incelendiğinde sekiz temada toplanmıştır. Bu temalar Temizlik, Temizlik Malzemesi, Canlı Varlık, Aile, Sağlık, Cansız Varlık, Manevi Boyut, Mikrop olarak isimlendirilmiştir. Metaforlar frekans olarak sıralandığında Temizlik (f=65), süpürge (f=9), anne (f=8), beyaz (f=8), su (f=8) ilaç (f=6) en çok geliştirilen metaforlar olarak belirlenmiştir. Çalışma verileri neticesinde hijyen konusunda öğrenciler önemli bir oranının temizlik ile hijyeni bağdaştırmıştır olduğunu söyleyebiliriz. Burada belli ölçüde bir dil birlikteliği sağlanması birbirlerini anlamada daha faydalı olabilir. Hijyen türleri konusunda da detaylı bir bilgilerinin olduğuna yönelik sonuç elde edilememiştir. Temizlik noktasında çevrenin rol model alındığını ve onların hijyen oluşturmak için yaptıklarının zihinlerde yer ettiğini görmekteyiz. Temizliğin nasıl yapıldığı noktasında derinlemesine inceleme yapmaları hatta laboratuvar deneyimleri ile durumu tespit etmeleri yararlı olacaktır. Burada eksik kalan noktalardan birisi hijyenin sadece köpüren malzemelerle sağlanmadığı noktasının açıklığa kavuşması gerektiğidir. Öğrencilerin ortaya koyduğu ifadelerden hijyen konusunda belli orada bilgi sahibi oldukları belirlenmiştir. Fakat hijyen türleri konusunda detaylı bir bilgilendirme yapılması gerekmekte olup bu noktada bir eğitim faydalı olacaktır. Ayrıca doğru ve yeterli temizliğin nasıl yapılacağına yönelik uygulamalara ihtiyaçları olduğu söylenebilir. Bu çerçevede hijyen uygulamalarına yönelik uzun vadeli çalışmalar yapılmalıdır.

**Anahtar Kelimeler:** Hijyen, Metafor, İlkokul, Öğrenci, Öğretmen, Aile

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## Introduction

Hygiene is generally perceived as a comprehensive term to include all practices aimed at protecting health. The concept of hygiene is an old concept that pertains to personal and professional care as well as medicine (Nurudeen & Toyin, 2020). Hygiene is essential for the protection of personal and social health (Ural, 2007). When it comes to hygiene, the first thing that comes to mind is cleanliness. We may think that we provide hygiene when we wash our hands with water or wipe the dining table with a cloth, but in fact, we do not provide hygiene by doing so (Parlak, 2020; Kahveci & Demirtas, 2012). As a reason, hygiene can only be achieved by cleaning many microorganisms that are too small to be seen with the naked eye. Undoubtedly, the most important of these practices is personal hygiene, as it is key to preventing many health problems. The COVID-19 pandemic revealed once more that insufficient personal hygiene puts not just the personal health but also the public health at risk. Therefore, it is crucial to teach the necessity as well as the importance of hygiene. Personal hygiene usually brings to mind especially hand, foot, nail, face, eye and ear hygiene, hair care and cleansing, oral and dental care, regular bathing, using soap and water in cleaning processes and using clean laundry (Kaya et al., 2006, Aslan et al., 2006; Onsuz\_&\_Hidiroglu, 2008; Ozkal, 2020). It is also important that the tools to be used in these cleaning works are used personally and cleanly. The COVID-19 pandemic revealed the vital role of cleaning and personal hygiene once more (Ozkal, 2020). Hygiene is not just about personal hygiene. Among other components of hygiene are food hygiene, home hygiene and general hygiene (Stevenson et al., 2009). It is obvious that attention should be paid also to food and home hygiene in the fight against the pandemics.

In a study conducted in the United States, it was estimated that poor hand hygiene and inadequate hand washing resulted in approximately 1 million cases of gastrointestinal diseases, of which 250 cases were mortal. It was also estimated that the associated treatment expenses reached 400 million USD treatment as of the time of the study (Wenzel, 1995). The earlier, consistent and healthy the studies on hygiene are, the more beneficial will be the respective reflections on the economic activity. From this point of view, it is essential to assist children in comprehending the concept of hygiene and adopting the hygienic behaviours, as appropriate. Based on the studies it has conducted, the WHO (World Health Organization) considers inadequate hygiene as an important problem in terms of lifelong disease burden, especially in the developing countries, where inadequate hygiene is one of the first ten most important health issues(2002).

It is easier to transform knowledge and skill into the targeted habitual behavior at elementary school ages (Can et al., 2004). Besides, the stronger the foundation laid at school, the more the future health of the person will be protected (Cetinkaya et al., 2005). Wide usage of social networks in today's world can be utilized to create a ripple effect in spreading the good hygiene behaviors exhibited by conscious individuals to the general population. Thus, it is probably more possible today than ever to create a healthy society.

In daily life, all individuals must wash their hands using soap and water when they wake up, after using the toilet, before and after meals, after contact with genital and anal areas, animals and dirty surfaces and substances (Handwashing Liaison Group, 1999). Children take the first step towards becoming a healthy individual by adding

what they learned at school on top of the health information they learned from their parents. It has been reported that the level of awareness about hygiene behaviors is high in families with high socioeconomic status, and that there are deficiencies in hygiene behaviors in families with low socioeconomic status (Onsuz & Hidiroglu, 2008; Ulukanligil & Seyrek, 2003). Children take the first step towards becoming a healthy individual by adding what they learned at school to the health information they learned from their parents. Acquisition of the personal hygiene habits correctly at school age will directly affect the health of the person in the following years (Aslan et al., 2006; Cetinkaya et al., 2005). In particular, hand washing is accepted as the first condition of preventing infectious diseases and the most effective way of contagion control (Dennehy, 2000; Wong & Wai-san Tam, 2005). It has been reported in many studies that infections and hygiene habits are related, and infections increase in case of lack of hygiene habits (Mbakaya et al., 2019).

As the institutions where the individuals learn about their duties and responsibilities, schools are key to the formation of a hygiene culture in the society (Kanatli & Schreglmann, 2017). In this context, it is important first to know about what students think of, and imagine about, "hygiene", before taking any step in that regard. As was the case from past to present, the issue of hygiene will maintain its place without losing its importance for human health in the future, as well. For this reason, it is necessary for the states to implement long-term solutions in accordance with the existing needs instead of day-to-day solutions. Every country has to provide its citizens with the necessary knowledge, skills and attitudes about cleanliness and hygiene via education in schools (Ozkal, 2020). Studies have shown that hygiene education has a positive effect on children's school success (Mermer et al., 2016). In this context, revealing the perceptions of children towards "hygiene" in the first step of the education level, the results of this study can assist in the clarification of what has been gained positively, what has gone wrong, and what needs to be addressed with respect to the concept of hygiene.

### **Objective of the Study**

Text It has been reported in a study that a review of health reports of the children who receive basic education revealed that children most frequently experience infectious diseases (Kitis & Bilgili, 2011). On the other hand, it has been reported by the World Health Organization that it is possible to prevent many infectious diseases and reduce the related mortality rates by getting individuals adopt the habit of cleaning and hygiene (WHO, 2009). In this context, the aim of this study is to determine the perceptions of Turkish Cypriot students about "hygiene", which is an important subject in the learning field of My Health, within the scope of Life Studies (1st, 2nd and 3rd Grade) course in primary schools. It is to evaluate and offer suggestions according to the situation that will arise. In this context, the study group of the research consists of 4th grade students in the 2019-2020 academic year whose Life Studies program has been completed. In line with the above-mentioned objective, answers to the following questions were sought:

- 1- Which metaphors do the elementary school students in TRNC use to explain their perceptions towards the concept of hygiene?
- 2- Which groups can these metaphors be categorized into on the basis of their common characteristics?

## Material and Method

### Research Design

This study has been conducted as qualitative research utilizing the “phenomenological research design”, a research design that focuses on phenomena that we are aware of but do not have an in-depth and detailed understanding. Phenomenology constitutes a suitable research ground for studies that aim to investigate phenomena that are not completely foreign to us however that we cannot fully comprehend (Yildirim & Simsek, 2016).

### Study Group

The study group of the research comprised 183 students who completed the Life Studies program enrolled in the 4<sup>th</sup> grade level during the 2019-2020 academic year in the elementary schools located in the Nicosia, Kyrenia and Morfou districts of the Turkish Republic of Northern Cyprus (TRNC). Selection of the schools and students included in the study group was made using the convenience sampling method. Convenience sampling is defined as a sampling method in which easily accessible and appropriate subjects are selected, taking into account the limitations with respect to time, financial and manpower (Büyüköztürk, 2012).

**Table 1. Distribution of the students participated in the study**

Districts	Number of Students		
	Female	Male	Total
Nicosia	24	23	47
Kyrenia	59	48	107
Morfou	16	15	31
<b>Total</b>	<b>99</b>	<b>86</b>	<b>185</b>

### Data Collection

In order to collect the research data, students were given the following statement which includes blanks for the students to fill in: “I compare hygiene to ..... Because .....”. Students were then asked to fill in the blanks in the statement using metaphors and to provide their reasoning for the choice of the metaphors they used to explain their perception of hygiene. Students were given sufficient time to fill out the forms they were provided.

### Data Analysis

Content analysis method was used to analyze the collected research data. Content analysis aims to define the data and reveal the facts that may be hidden in the data (Yildirim & Simsek, 2016). In this context, in this study, first, the metaphors provided by the students on the concept of “hygiene” were listed according to their frequencies. Secondly, the metaphors provided by the students were evaluated together with the

justifications provided by the students for using these metaphors. Answers, in which both metaphor and justification parts were missing, answers in which either the metaphor or justification part was missing, and answers in which the metaphor and the justification are not relevant, were not taken into consideration. Consequentially, 185 of the 230 forms were deemed to fit for purpose and taken into consideration as the main data source to be analyzed within the scope of this study. Information about which district student produced the metaphor expressions is given in parentheses by coding. Letter codes were used to indicate the district in which the student's school was located. Accordingly, letter 'L' was used to indicate Nicosia ("Lefkosa" in Turkish), letter 'G' was used to indicate Kyrenia ("Girne" in Turkish), and letters GY were used to indicate Morfou ("Guzelyurt" in Turkish). In addition, numbers were used to indicate the rank of the students in the list. Hence L34 for instance indicated that the student's school is in Nicosia and he/she is number 34 in the list.

The metaphors provided by the students were categorized under certain themes based on the justifications provided for the choice of the respective metaphors. Accordingly, a total of 8 different themes were created regarding the concept of hygiene: *Cleaning, Cleaning Materials, Living Things, Family, Health, Non-Living Things, Abstract Things and Germs.*

### **Validity and Reliability**

After the research data were categorized under themes, a checklist was created for the metaphors produced by the students and the justifications thereof. The checklist was sent to an expert in the field and was then revised based on the comments of the expert. The reliability of the study was calculated by using the formula "Reliability = (number of 'agreements' between the researcher and the expert on the checklist / number of 'agreements' between the researcher and the expert on the checklist + number of 'disagreements' between the researcher and the expert on the checklist) x 100" (Miles & Hubermann, 1994). Consequentially, the reliability of the study was calculated as 0.88.

### **Conclusion**

Text In this section, the metaphors developed by the students participated in the study on the concept of "hygiene", and the categories under which these metaphors were grouped, are given. Codes were used instead of students' names.

**Table 2.** Metaphors developed by students on the concept of "hygiene"

<b>Metaphor</b>	<b>F</b>	<b>Metaphor</b>	<b>F</b>	<b>Metaphor</b>	<b>F</b>	<b>Metaphor</b>	<b>F</b>
Cleaning	65	Soap	3	Flower	2	Domestos*	1
Broom	9	Cleaning Product	3	Cat	2	Beauty	1
Mother	8	Tree	2	Protector	1	Taking Out The Trash	1
White	8	Oxygen	2	Cloud	1	Housewife	1

Water	8	Mirror	2	Tongs	1	Tidying Up The Surroundings	1
Medication	6	Game	2	Boat	1	Love	1
Meticulousness	6	Health	2	Snowflake	1	Magic	1
Life	5	Maternal Grandmother	2	Hospital	1	Angel	1
Dust	5	Self	2	Maternal Aunt	1	Death Of The Germs	1
Bee	5	Granny	2	Paternal Aunt	1	Avoiding Germs	1
Dishwashing	4	Orderliness	2	Paternal Grandmother	1	Clean Living Things	1
Germs	4	The Antonym Of Dirty	2	Friend	1	Woman	1
Air	3	Housekeeper	2	Foam	1	Little Pinwheel-Eyed Thing	1
Dust Cloth	3	Teacher	2	Cleaner	1		
Shininess	3	Human	2	Shiner	1	<i>No Idea</i>	9
<b>Total number of metaphors</b>		<b>58</b>		<b>Total frequency</b>		<b>213</b>	

\* a bleach brand

Students developed a total of 58 different metaphors on the concept of “hygiene”. The metaphor developed the most by the students was cleaning (f=65). Other metaphors and the frequencies thereof were as follows; broom (f=9), mother (f=8), white (f=8), water (f=8), medication (f=6), meticulousness (f=6), life (f=5), dust (f=5), bee (f=5), dishwashing (f=4), germs (f=4), air (f=3), dust cloth (f=3), soap (f=3), cleaning product (f=3) and shininess (f=3). Each of the metaphors of oxygen, mirror, game, health, maternal grandmother, self, granny, orderliness, the antonym of dirty, housekeeper, teacher, human, flower, cat and tree were developed twice (f=2), whereas each of the metaphors of cloud, tongs, boat, snowflake, hospital, maternal aunt, paternal aunt, paternal grandmother, foam, cleaner, shiner, Domestos, beauty, taking out the trash, tidying up the surroundings, love, magic, angel, death of the germs, avoiding germs, clean living things, woman, housewife, protector and little pinwheel-eyed thing were developed once (f=1). Nine students stated that they have “no idea” about hygiene.

### Distribution of the Metaphors Developed on the Concept of “Hygiene” by Themes

The metaphors developed by the students on the concept of “Hygiene” were reviewed and categorized under eight themes of “Cleaning, Cleaning Materials, Living Things, Family, Health, Non-Living Things, Abstract Things and Germs”.

**Table 3.** Distribution of the themes created to categorize the metaphors developed by the students on the concept of “hygiene” by the frequencies of these metaphors

Themes	Metaphors	Number of Metaphors	Frequencies of Metaphors	Percentage* (%)
<b>Cleaning</b>	Cleaning(f=65), White(f=8), Meticulousness(f=6), Dishwashing (f=4), Shininess(f=3), Orderliness(f=2), The antonym of dirty (f=2), Beauty (f=1), Taking out the trash(f=1), Tidying up the surroundings(f=1)	10	93	44,13
<b>Cleaning Materials</b>	Broom(f=9), Water(f=8), Dust cloth(f=3), Soap(f=3), Cleaning product(f=3), Foam(f=1), Cleaner(f=1), Shiner(f=1), Domestos(f=1),	9	30	13,62
<b>Living Things</b>	Bee(f=5),Housekeeper(f=2), Teacher(f=2), Human(f=2), Flower(f=2), Cat(f=2), Tree(f=2), Clean living-things (f=1), Woman (f=1), Housewife (f=1), Friend (f=1), Protector (f=1), Little pinwheel-eyed thing (f=1)	13	23	10,80
<b>Family</b>	Mother (f=8), Maternal grandmother (f=2), Self (f=2), Granny (f=2), Maternal aunt (f=1), Paternal aunt (f=1), Paternal grandmother (f=1)	7	17	7,98
<b>Health</b>	Medication (f=6), Life (f=5), Health (f=2), Hospital (f=1)	4	14	6,57
<b>Non-living Things</b>	Air (f=3), Oxygen (f=2), Mirror (f=2), Game (f=2), Cloud (f=1), Tongs (f=1), Boat (f=1), Snowflake (f=1)	8	13	6,10
<b>Abstract Things</b>	Love (f=1), Magic (f=1), Angel (f=1)	3	3	1,40
<b>Germs</b>	Dust (f=5), Germs (f=4), Death of the germs (f=1), Avoiding germs (f=1)	4	11	5,17
Students with no idea on “hygiene”		1	9	4,23
<b>Total</b>		<b>59*</b>	<b>213</b>	<b>100</b>



\* Percentage ratio of the total frequencies of the metaphors included in the respective theme to the total frequencies of the metaphors included in the study

\*\*The total number of metaphors are 58, yet it is given above as 59, with the addition of the students with no idea on “hygiene” as another group of metaphor.

As can be seen in Table 3, from among the 58 metaphors developed for the concept of “hygiene”, 10 metaphors, which were expressed a total of 93 times by different students participated in the study, were grouped under the theme of Cleaning, 9 metaphors, which were expressed a total of 30 times by different students participated in the study, were grouped under the theme of Cleaning Materials, 13 metaphors, which were expressed a total of 23 times by different students participated in the study, were grouped under the theme of Living Things, 7 metaphors, which were expressed a total of 17 times by different students participated in the study, were grouped under the theme of Family, 4 metaphors, which were expressed a total of 14 times by different students participated in the study, were grouped under the theme of Health, 8 metaphors, which were expressed a total of 13 times by different students participated in the study, were grouped under the theme of Non-Living Things, 3 metaphors, which were expressed a total of 3 times by different students participated in the study, were grouped under the theme of Abstract Things, and 4 metaphors, which were expressed a total of 11 times by different students participated in the study, were grouped under the theme of Germs. There were also 9 students who stated that they do not know anything about the concept of “hygiene” and did not develop any metaphors in relation thereto.

### *Theme of Cleaning*

Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “cleaning”, are as follows:

*I compare hygiene to cleaning. Because hygiene means cleanliness and cleanliness means saying goodbye to dusts. (G3)*

*I compare hygiene more to cleaning. Because hygiene cleanses. (G11)*

*I compare hygiene to cleaning up. Because that comes to my mind when cleaning the floor or the environment. (L8)*

*I compare hygiene to the antonym of dirty. Because hygiene means cleanliness, and cleanliness is the antonym of dirty. (G35)*

*I compare hygiene to meticulousness. Because my mother does cleaning everyday (G38).*

*I compare hygiene to cleaning. Because they always mention of hygiene whenever talking about cleaning, and that's how it stuck with me. (GY22)*

*I compare hygiene to shininess. Because wherever hygiene is, it will be clean and bright. (G53)*

*I compare hygiene to tidying up the surroundings. Because things like environmental pollution, etc. make me think that way. (G90)*

Analysis of the expressions of the students reveals that “cleanliness” is in the foreground. Routine and visible tasks such as taking out the trash, tidying up the surroundings, and dishwashing were developed as the metaphors to explain hygiene. These are the tasks that are often met in daily life, some of which are personally

attended by students. Further analysis of the expressions of the students indicates that a majority of the students are aware that the completion of such tasks results in tidiness and order in their environment. This status of tidiness and orderliness is perceived by these students as shininess and beauty. On the other hand, lack of hygiene, that is lack of tidiness and orderliness, is perceived by them as dirtiness.

### ***Theme of Cleaning Materials***

Initially, the theme of cleaning materials was not created as a separate theme and planned to be incorporated into the theme of cleaning. Nevertheless, after the analysis of the students' expressions thereof revealed that it would be more appropriate to create a separate theme for cleaning materials. It was observed that students mostly mentioned the metaphors of broom and water under this theme. In addition, other metaphors such as dust cloth, soap, cleaning product, cleaner, foam and shiner were also used by the students. Furthermore, a well-known cleaning product brand was also mentioned by one student (G50). Analysis of the expression in question revealed how effective the advertisements are on students. Sharings on social media during the COVID-19 period had positive effects on gaining the habits of cleaning and hygiene, and hand hygiene in particular (Ugurlu et al., 2020). This suggests that the appropriate use of mass media can be beneficial in ensuring hygiene. Use of cleaning materials that create foam as metaphors by students to express hygiene was noteworthy as that it may refer to the need to inform the students and the society that it is not only the foaming materials that are effective in hygiene, but also the non-foaming materials such as disinfectants and cologne.

Considering that there would be no cleaning without cleaning materials, it could have been expected of the students to have developed a higher number of metaphors on cleaning materials than the number of metaphors they actually have developed. Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of "cleaning materials", are as follows:

*I compare hygiene to a broom. Because every Monday my mom cleans and sweeps the floors with a broom and I help out my mom with a dust cloth (G1).*

*I compare hygiene to a vacuum cleaner. Because the vacuum cleaner does the cleaning (L13).*

*I compare hygiene to a soap. Because hygiene means cleanliness, and cleaning is done with soap, which is why I compare hygiene to soap (G22).*

*I compare hygiene to Domestos. Because there is hygiene in Domestos (G50).*

*I compare hygiene to freshwater. Because I think clean freshwater, which is like shining light, would describe cleaning the best (G73).*

*I compare hygiene to cleaning materials. Because cleaning materials keep our house hygienic (L9).*

### ***Theme of Living Things***

The metaphors students developed for the concept of "hygiene" under this theme included bee, housekeeper, teacher, human, flower, cat, tree, clean living-things, woman, housewife, friend, protector and little pinwheel-eyed thing. Students developed metaphors such as bee, cat and little pinwheel-eyed thing from among the animalistic characteristics that represent vitality, in addition to flower and tree from

among the herbal characteristics that also represent vitality. It can be inferred that they point out to the refer to the vital importance of hygiene by referring to diligence in bees, cleanliness in cats, and oxygen in flowers and trees. Additionally, it is observed that they have developed metaphors for hygiene by using human characteristics such as housekeeper, woman and housewife, putting forward their thoughts about the people who do the cleaning. Accordingly, it can be inferred that they refer to the importance of individual work in providing hygiene. The use of the teacher metaphor under this theme is particularly striking, since it implies that students take the teacher as a role model. It can be inferred from the related expressions of students that the positive features they perceive in their teachers evoke hygiene, that they explain hygiene with clean living-things, and that they perceive hygiene as a friend and protector. Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “living things”, are as follows:

*I compare hygiene to a little pinwheel-eyed thing. Because I think they're like microbes (G28).*

*I compare hygiene to a cat. Because cats awash up every minute and are very clean (L18).*

*I compare hygiene to bees. Because bees work a lot and regularly (G29).*

*I compare hygiene to the clean trees in a forest. Because a tree with hygiene is very clean. Hygiene means cleanliness (G67).*

*I compare hygiene to the trees in a forest. Because if it would not be for the trees in the forest, the whole world would be without oxygen (L32).*

*I compare hygiene to teacher Hakan. Because teacher Hakan is a very clean person (G82).*

*I compare hygiene to a flower. Because hygiene is like the pollen of a flower (L12).*

*I compare hygiene to a friend. Because a friend always helps us, as does hygiene (L45).*

### **Theme of Family**

Review of the metaphors developed by the students under the theme of family indicates that the students relate the concept of hygiene to the people who do the cleaning work around them and with whom they have blood ties. It can be inferred that the students, who tried to explain the concept of hygiene with a metaphor under the theme of family, take these relatives, with whom they are in constant communication, as role models, and that they look up to these relatives in hygiene education even more so than they look up to others. It can be deduced from the expressions of these students that they constantly observe these relatives and that what these relatives do leave a mark on these students. The information acquired by children in the family may be forgotten in time, especially when the parents and teachers have no oversight of the children anymore. In addition, not every child can acquire enough cleaning and hygiene knowledge or practice in their family (Ozkal, 2020). The analysis of the students' expressions reveal that the students are aware of the fact that cleaning should be done in order to ensure hygiene and that it should be done every day. However, it could not be inferred from students' expressions that whether they have enough information on how cleaning is done. Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “family”, are as follows:

*I compare hygiene to my mother who does the housework at home. Because my mom loves to*

clean (GY20).

*I compare hygiene to my mother. Because she thinks that she has to do cleaning every day (G92).*

*I compare hygiene to my maternal grandmother. Because there is not even a single day that my maternal grandmother does not do cleaning (L16).*

*I compare hygiene to my granny. Because my granny always thinks and cares about hygiene, just like me (G96).*

*I compare hygiene to my maternal aunt. Because my maternal aunt has a cleaning obsession, and she cannot feel good unless she does cleaning (G98).*

*I compare hygiene to my paternal grandmother. Because she is always clean and takes a shower every day (G103).*

*I compare hygiene to my paternal aunt. Because as soon as she comes home, she washes her socks, clothes, etc. (L2).*

### **Theme of Health**

The fact that the metaphors developed by the students categorized under the theme of health are generally related to medical terminology including hospital and medication is noteworthy. It can be inferred that students who developed these metaphors had the idea that hospital is a place where hygiene exist or can be obtained from. In addition, it is seen that some students considered that the use of medication is necessary to ensure hygiene, that otherwise there would not be any hygiene, and that there will be no life without hygiene. It is seen that the situations that occur when hygiene is not provided shapes their ideas on hygiene. They think that germs come when there is no hygiene, that their health deteriorates subsequently, and that they are obliged to go to the hospital and get some medication. Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “health”, are as follows:

*I compare hygiene to health. Because life without hygiene means germs, which is why I compare hygiene to health (G7).*

*I compare hygiene to life. Because there would not be any life without hygiene and we cannot continue our future without hygiene (GY30).*

*I compare hygiene to medication and shiner. Because there is hygiene in medications and shiners (L43).*

*I compare hygiene to hospital. Because hospitals, as the places where we recover, are clean (L22).*

### **Theme of Non-Living Things**

The metaphors created by the students categorized under the theme of non-living things relate to any object or description. For instance, in the metaphors of air and oxygen, life is at the forefront. Among other metaphors included under this theme were mirror, game, cloud, tongs, boat and snowflake. The boat metaphor has been expressed in a remarkable way. Other examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “non-living things”, are as follows:

*I compare hygiene to oxygen. Because hygiene is very similar to oxygen in that there would not*

*be any life without either one of them (GY6).*

*I compare hygiene to game. Because cleaning is like a game (GY16).*

*I compare hygiene to mirror. Because the mirror shines brightly (G99).*

*I compare hygiene to a boat. Because hygiene is like a boat sailing on clean waters (L32).*

### **Theme of Abstract Things**

The metaphors developed by the students categorized under this theme relate mostly to things that are intangible and invisible such as love, angels, and magic. Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “abstract things”, are as follows:

*I compare hygiene to magic. Because when there is hygiene, everywhere shines as if they are magical (G69).*

*I compare hygiene to angels. Because angels are very clean (GY2).*

### **Theme of Germs**

The metaphors developed by the students under this theme relate to the presence or absence of germs. It is seen that they have a brief and concise perception about germs in that if there is hygiene, there will be no germs, if there is no hygiene, there will be germs. However, as seen in the statements of some students, e.g. in the expression of the student coded G33, the fact that hygiene was considered to be the equivalent of germ may suggest that some students might actually be confused about what hygiene really means. In-depth research is required to determine the knowledge level of students on hygiene. Examples to the metaphors and the justifications thereof expressed by the students, and were categorized under the theme of “germs”, are as follows:

*I compare hygiene to germs. Because each of them is a little hygiene (G33).*

*I compare hygiene to germs. Because germs come when we do not wash our hands (L7).*

*I compare hygiene to the death of the germs and to the clean of the clean. Because hygiene is more more than cleanliness (GY19).*

## **Discussion and Conclusion**

Analysis of the answers provided by the 185 students revealed that students used a total of 58 valid metaphors for the concept of “Hygiene” in different frequencies. There were 9 students who stated that they do not know anything about the concept of “hygiene” and did not develop any metaphors in relation thereto. The said 58 metaphors were categorized into 8 themes of *Cleaning, Cleaning Materials, Living Things, Family, Health, Non-Living Things, Abstract Things* and *Germs*. Students were found to have used cleaning (f=65) the most, followed by broom (f=9), mother (f=8), white (f=8), water (f=8), medication (f=6), meticulousness (f=6), life (f=5), dust (f=5), bee (f=5), dishwashing (f=4), germs (f=4), air (f=3), dust cloth (f=3), soap (f=3), cleaning product (f=3) and shininess (f=3), as the metaphors to explain their hygiene perceptions. Each of the metaphors of oxygen, mirror, game, health, maternal grandmother, self, granny, orderliness, the antonym of dirty, housekeeper, teacher, human, flower, cat and tree were developed twice (f=2), whereas each of the metaphors of cloud, tongs, boat, snowflake, hospital,

maternal aunt, paternal aunt, paternal grandmother, foam, cleaner, shiner, Domestos, beauty, taking out the trash, tidying up the surroundings, love, magic, angel, death of the germs, avoiding germs, clean living things, woman, housewife, protector and little pinwheel-eyed thing were developed once ( $f=1$ ).

It is important that the metaphor of cleaning was produced the most for the concept of “hygiene”. Cleaning is an indispensable element of living in a society and is what the individual and social health is based upon (Onsuz & Hidiroglu, 2008). In today’s world, personal hygiene habits are considered as one of the basic measures of the level of a civilization. Cleanliness of the body and clothing, which are necessary components of human health, are deemed as indicators of civilization (Can et al., 2004). However, being knowledgeable about cleanliness and hygiene alone is not enough for behavioral change. The practice of hygiene is equally important (Kandemir et al., 2016). As a reason, knowledge alone may not be enough to prompt exhibiting the required behaviours in practice. Hence, it is necessary to know what tools & materials are needed to do cleaning in order to ensure hygiene as a result. This is one of the reasons why metaphors developed on cleaning materials have been addressed under a separate theme in this study.

It was observed that students mentioned the metaphors of broom, water, dust cloth, soap, cleaning product and cleaner under this theme. Use of cleaning materials that create foam as metaphors by students to express hygiene was noteworthy as that it may imply the need to inform the students and the society that it is not only the foaming materials that are effective in hygiene, but also the non-foaming materials such as disinfectants and cologne. Furthermore, it was remarkable to see that products seen in the media were identified with the concept of hygiene, albeit not in a high frequency. Parlak (2020) stated that the media has a positive effect on raising awareness about hygiene. These findings clearly suggest that the appropriate use of mass media can be beneficial in ensuring hygiene.

It can be deduced from the collected data that students are good observers, that their observations are relevant to hygiene, and that they take their teachers, mothers, fathers, aunts, etc. as their role models. Additionally, it was found that students observed the behaviors of non-human creatures such as bees in the context of hygiene. The results of the study conducted by Onsuz & Hidiroglu (2008) support the results of this study, as that they reported that the hand hygiene habits of the elementary school students in regions with low socio-economic levels were insufficient (46.6%), and that the proficiencies of the students in respect of hand hygiene varied in line with socio-economic level. The characteristics of the environment that the students are in seem to be extremely effective in shaping their hygiene habits. In this context, it is necessary first to make an assessment of the environment of the students, and then take steps in that directions.

Based on the findings of this study, it can be inferred that the knowledge and behavior of parents are effective in shaping the hygiene habits of the children, in respect of handwashing in particular. The analysis of the metaphors categorized under the theme of family revealed that students take their family members as role models in respect of hygiene behaviors. However, the low frequencies of such metaphors suggest that the students do not acquire the hygiene behaviours from the family at the desired level. Hence, it is necessary first to determine students’ level in that respect, and then to

improve their levels via the health education to be provided at school (Yaramis et al., 2005). From this point of view, communication and cooperation with families on hygiene emerge as an important matter. If students do not receive adequate education, do not give importance to individual hygiene, and do not comply with environmental hygiene rules, parasitic diseases will inevitably pose a greater risk, for children in particular (Borekci & Uzel, 2009). There are studies, in which the hygiene behavior levels of high school students, and of university students even, were found to be highly inadequate (Kirim & Hirca, 2015; Taskiran, Khorshid & Sarı, 2019). Studies conducted during the COVID-19 pandemic process revealed that individuals' hand hygiene is insufficient (Ugurlu et al., 2020).

Considering the society as a whole body which consists of individuals, it is inevitable that the incidences of parasites, viruses, etc. in public places will be high if adequate and necessary hygiene cannot be achieved on an individual scale (Daldal et al., 2007; Ince & Ince, 2002; Sasmaz et al., 2000). Students were found to be aware of this fact to a certain extent. As a matter of fact, a number of metaphors created by the students were categorized under the theme of "germs".

A review of the medical reports obtained in Turkey revealed that the children of basic education age undergo infectious diseases the most (Kitis & Bilgili, 2011). The results of the studies available in the literature support the hypothesis that the prevalence of infections are related to hygiene habits (Mbakaya et al., 2019). The fact that some of the students included in this study developed metaphors such as medication, life, health, and hospital reveal this said relationship. Some students seem to have the opinion that hygiene is something that can be regained from health institutions in case of any disease. The metaphors developed by the students categorized under this theme relate mostly to non-living things that are invisible such as air and oxygen. Use of hygiene in the sense of cleanliness and its identification with air or oxygen, presence of expressions which imply that there would not be any life without hygiene, can be interpreted to suggest that students perceive hygiene as a concept that involves environmental sensitivity.

WHO states that providing individuals with the right habits of cleaning and hygiene is effective in preventing many infectious diseases such as diarrhea, typhoid fever, dysentery and hepatitis A, and reducing mortality rates (WHO, 2009). It has been stated that the transmission of nearly 50 diseases can be prevented by improving personal hygiene through trainings (Greene, 2001). Today, we experience in person in the context of COVID-19 pandemic how measures such as hygiene, mask and social distancing are effective on the fight against COVID-19. Regardless of the fact that some hygiene practices may differ individually, it is obvious that it is necessary to wash hands especially after contact with any person, surface and object, after using the restrooms and before eating in particular (Guler, 2004). In the study carried out by Vivas et al. (2010), it was concluded that hygiene education prevents students from getting sick to a certain extent. In addition, personal hygiene practices develop significantly in line with the beliefs, values and habits of the person. Cultural, social, familial factors and the individual's knowledge and perception of health and hygiene affect this situation (Yavuz, 2000; Cetinkaya et al., 2005). From this point of view, it is extremely important to identify deficiencies in hygiene and to provide correct information. In conclusion, it can be said that many problems will be eliminated in the life of the individual and

society, if the necessary hygiene education is provided correctly.

The results of this study indicated that a significant proportion of the students associated cleaning with hygiene. This result suggests that a certain level of linguistic unity between the terms of cleaning and hygiene may be more beneficial in ensuring that the understanding of hygiene is at the desired level. On the other hand, there was no finding in this study that indicate that students have detailed information about types of hygiene. It was observed that the students take the adult figures in their environments as their role models and that they adopt the things which these adult figures do to ensure hygiene. It was also determined that a clean and good appearance supports high self-esteem (Arat et al., 2014; Uzunçakmak, 2012). According to Onsuz & Hidiroglu (2008), hand hygiene improves as the socioeconomic level increases, and the education and income level of the family are closely related to ensuring hygiene. The high level of education of parents, especially the mother, can be effective in the behavior of children. Kaya et al. (2006) reported that the hygiene scores of the students with mothers who had higher education levels were higher. Based on the results of this study, it can be concluded that carrying out in-depth activities on how cleaning is done, which even include laboratory experiences in relation thereto would be useful to ensure the desired level of hygiene in students. Providing a hygiene education as such would also clarify students' confusion on the materials that provide hygiene, so that they can overcome the misconception that hygiene is possible only with foaming materials.

### **Recommendations**

The findings of this study indicated that students had a rough idea about hygiene. Nevertheless, they should have some detailed information about the types of hygiene, as well. A hygiene education would be useful in that respect. In addition, based on the findings of this study, it can be also said that students need to practice on how to do cleaning correctly and at adequate level. In this context, long-term studies on hygiene practices should be carried out. It would be also beneficial to incorporate laboratory work in these studies. It should be considered that elementary school students are generally in the concrete operational stage, hence it would be appropriate to use drama education and similar methods that are effective in retaining knowledge.

Attention should be paid to avoiding situations that may lead students to perceive concepts differently than what they are which may lead to misconceptions as a result, and to have a language unity thereof. Care should be taken to use the values that are deemed to be common for a concept. It should be checked whether students have any misconceptions in respect thereof.

Taking into consideration the effects of mass media on individuals and society, various social responsibility studies can be carried out within the framework of cooperation between school and media on hygiene.

Studies indicate that children are affected by what they see around them. Therefore, families should be involved in hygiene teaching. As a matter of fact, some of the articles included in the school-family cooperation regulation introduce several provisions to that effect (Ministry of National Education Regulation on School-Parent Association, 2012).

A review of the frequencies of the metaphors put forward by the students regarding the



theme of family within the scope of this study gave rise to the question of whether there are sufficient role models in terms of hygiene in students' environments, within their families in particular. Further studies are needed to find an answer to this question.

It is a professional obligation of the teachers first to internalize the concepts and values that they will try to teach students, and then to set an example regarding these concepts and values by acting in accordance with their students and the conditions and environment thereof. In this context, it would be helpful to conduct studies to determine the extent which the teachers act with this awareness.

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