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International Comparison of the Sharing Content of Science Teachers in Facebook Groups: Sample of Turkey-Europe

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Abstract

Social media has become an important part of our lives with the widespread use of the internet. On Facebook, the largest social media platform, people with similar interests can establish a group and communicate with each other. There are Facebook collegial groups created by teachers in many countries. The research aims to identify the similarities and differences of science teachers' share content on Facebook groups. In the study, the case pattern was adopted which is one of the qualitative research methods. as a data source, two Facebook groups established by science teachers in Turkey and Europe which were determined through criteria sampling were analyzed for one-month shares. 341 posts of science teachers' group in Turkey were analyzed by analysis method, 396 posts in Europe were subjected to descriptive analysis. Analysis results are presented in tables and compared. Based on the research results we can say science teachers in Turkey focus on course content while the ones in Europe are more interested in professional and personal development, scientific developments, and academic activities. The research results were compared with the education systems of countries, teacher training policies, and other studies in the field, and various suggestions were made.

Introduction

The 21st century is called the "information age" or the "digital age". Although there are many technological developments in this age, the use of existing technologies has also become widespread. Among these technological developments, computers and the internet undoubtedly occupy a very important place. Personal computers, which began to appear on the market in the

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1970s, became smaller and smaller in the 2000s, and their speed and processing capacity increased (Isman, 2001). Along with the exponential increase in the speed of technology development (Leonhard, 2016:2), mobile tools such as mobile phones, tablets, and wearable technologies have been added rapidly to the computer. It can be said that technological tools were relatively cheap during this period, which made it easier for all segments of society to access these tools. The Internet technology that developed in the last years of the twentieth century enabled computers to be connected over a network. While communication over the Internet was initially one-way, the technology called Web 2.0 allowed users to interact with other users and the network in which they were located. With these developments, interest in the internet has gradually increased and social media platforms have taken their place in our lives. So much so that today the number of internet users reaches 4.54 billion people, while 83.7% of users have active social media accounts (Digital, 2020). The main reason why social media platforms receive such attention is that users are both the creators of the content and the position affected by the content (Bruns, 2008). The most widely used social media platforms today are internet-based information dissemination and sharing media such as Facebook, Twitter, Instagram, Youtube.

Facebook, founded by Mark Zuckerberg and his friends in 2004, has become the most used social media platform with 2.49 billion users (Digital, 2020). Facebook is a social networking website that provides its members with the ability to make friends through social networks, communicate with existing friends, and exchange information. Facebook is free and offers its members the opportunity to create an account supported by images such as profile photos, cover photos, share images, videos, stories, see the status of people you follow under the heading of a news source. At the same time, individuals with common interests can form groups. These common interests include political parties, football teams, commercial organizations, associations, as well as groups of people engaged in the same profession.

Communication among teachers and social media

Communication has an important place in professional life as well as in social life. In some professions, interpersonal relationships and communication skills are some of the main skills of the profession. One of these professions is undoubtedly teaching. As a part of their profession, teachers are in a network of mutual communication with students, administrators, parents, and other colleagues. Therefore, one of the 11 qualifications defined in the General Qualifications of the Teaching Profession (MEB [Turkish Ministry of National Education], 2017) is "Communication and Cooperation". Being open to sharing knowledge and experience with colleagues on the theme of "Communication and Cooperation" is expressed as an indicator of professional competence. For this reason, various communication channels aimed at increasing cooperation by sharing knowledge and experience between teachers have been defined in our country with the Regulation on Primary Education Institutions (MEB, 2018). Teachers working in the same school according to the relevant regulation it is convened before the beginning of the academic year, at the beginning of the second semester, and the end of the academic year. Teachers who teach courses in the same branch meet in the second month of the first semester, in the first or second week of the second semester, and at the end of the school year. Teachers of the same field (a group of teachers) gather at the beginning, middle, end of the school year, and as needed. The purpose of the meeting of these boards is the sharing of different knowledge and experiences among teachers and the evaluation of different views.

As in our country, it has been important that teachers come together and communicate to improve the quality of teaching in many countries. In particular, the theory of teaching organization of Senge (1990), professional learning communities (PLCs), which are based on features such as cooperation, information sharing, and assistance between teachers, have come to the fore (Stoll et al., 2006; Sahin, 2020). PLCs are groups where teacher practices and student

learning are shared and discussed in a systematic, continuous, collaborative, and reflective way. (Dufour, 2004; Louis, Kruse & Marks, 1996; Morrisey, 2000). Although there are different models of PLC applications that vary from country to country (Hord, 2007), it can be said that they have a similar structure and purpose as the group teachers' boards in our country (Dogan, Tatik & Yurtseven, 2017; Eroglu & Ozbek, 2018).

Although there are different models in education systems of the countries for teachers to come together and communicate, help each other and benefit from their experiences, a new window has been opened in professional communication, as in every field with the introduction of social media into our lives. It can be said that communication via social media, which has become a requirement of the age, is met with interest by teachers. In particular, it is observed that the group teachers are in intensive interaction with each other by creating groups or participating in existing groups. So much so that the number of members of Facebook groups consisting of group teachers has approached the total number of teachers on duty, as of 2018, there are 38,400 science teachers in our country (Kasap & Usul, 2018) there is a Facebook group with more than 30 thousand members. Similarly, there are groups of science teachers in many countries with more than 10 thousand members. Social media strategist Ferhat Mürsel Saglam (2017:131), defines Facebook as the world's most television channel with the viewers, radio listeners, with most of the world's largest newspaper, the largest magazine, the largest advertising space, and the largest e-commerce portal describes itself as. Considering the number of members and shares of groups consisting of group teachers, it is also possible to qualify Facebook as the group with the most participants and the longest-lasting group teacher board meeting.

It can be said that two main features separate communication via Facebook groups from the group teachers' board or PLCs. One of them is that it is independent of time and space (Keskin, 2014) due to its multidimensionality and versatility, communication can be established. Another feature is that since it is an informal communication platform, the content is instantly shaped according to the interests, wishes, and needs of teachers, and not around predetermined agenda items /topic topics.

The Purpose and importance of the research

Facebook hosts concrete, observable data (Wilson, Gosling & Graham, 2012), provides users with the opportunity to create content (Bruns, 2008), and provides the opportunity to observe human interactions in a natural environment as in their normal lives (Petti & Triacca, 2013) has been the subject of many types of research due to different disciplines. 15.5% of these studies are in the field of education, only 1.4% of them are on Facebook groups (Dikkol et al., 2019). The research conducted in the field of education is mainly on the use of Facebook in educational processes (Al-Azawei, 2019; Altunkaya & Topuzkanamis, 2018; Bosch, 2009; Saini & Abraham, 2018; Sarsar, Basbay & Basbay, 2015; Tubaishat, 2018). There are also studies examining the use of Facebook peer groups by teachers in different countries (Bett & Makewa, 2020; Bissessar, 2014; Patahuddin, Rokhmah & Lowrie, 2020). In our country, Cetin and Unsal (2019) examined the last 100 shares of four different groups whose members are composed of science teachers. He stated that the types of sharing are making requests related to education, sharing scientific information related to science, sharing for advertising and announcement purposes, sharing that is not related to science. When the literature was examined, no studies were comparing the sharing content of science teachers in Turkey and their colleagues in other countries. However, the comparison of national data with international counterparts contributes to evaluation processes. For this reason, the following questions were answered to determine the similarities and differences between the shares made by science teachers in Turkey and Europe in their Facebook colleague groups.

1- What is the content of the shares made by science teachers in Turkey in the Facebook colleague group?

2- What is the content of the shares made by science teachers in Europe in the Facebook colleague group?

3- What are the similarities and differences of the shares made by science teachers in Turkey and Europe in Facebook colleague groups?

It is expected that this study will contribute to the field to shed light on the studies to be done to increase the personal and professional development of science teachers by revealing the differences in the interests and needs of science teachers.

Method

In this study, a case pattern from qualitative research approaches is used. A case study is a method based on systematic data collection by monitoring a single situation or event in a real environment without manipulation of the researcher (Yin, 1984; Subasi & Okumus, 2017). The case study aims to present the existing situation as it is. The situation investigated is the shares made by science teachers in Turkey and Europe in their Facebook colleague groups.

Sample

The universe of the research is composed of Facebook groups created by science teachers. When the universe was examined, it was seen that groups of science teachers were established for different purposes, had different structures, and had different sizes. For this reason, the criterion sampling method, which is one of the purposeful sampling methods, was used in the sample determination process. Criterion sampling is based on the selection of pre-existing or meeting the criteria determined by the researcher (Marshall & Rossman, 2014; Yildirim & Simsek, 2016). In this context, the following criteria have been determined to obtain a qualified data set suitable for the research.

- One of the groups was established in Turkey and the other in Europe
- It was not set up for a special purpose
- Creation of content by members
- The number of members is 10 thousand and above
- The number of monthly shares is 300 and above

Two Facebook groups that met the criteria were determined as the sample of the study. According to the ethical rules, the expressions “Turkey group” and “Europe group” were used without including the names of Facebook groups.

Data collection and analysis

In the research, the data were obtained by the method of document analysis. Document analysis is a systematic method in which printed or electronic documents are evaluated (Bowen, 2009). The shares made in Facebook groups were evaluated as electronic documents. Within the scope of the pilot study, data of October 2019 belonging to the Turkey group were encoded and expert opinions were obtained. The data in the study were sorted first by the see the latest posts option, then the data for December 2019 were selected. 341 posts shared in a group of science teachers in Turkey were analyzed by the content analysis method. During the content analysis, the data were first encoded, and then the theme creation process was performed according to the characteristics of the encoded data (Baltaci, 2017; Strauss & Corbin, 1990). The relationships and differences between the themes were deconstructed and the data were combined in the upper themes. The 396 posts shared in the group of science teachers in Europe were subjected to descriptive analysis. Descriptive analysis is the evaluation of data using pre-

existing themes (Karatas, 2015). In the descriptive analysis, the themes obtained from the content analysis of the group of science teachers in Turkey were used. Thus, it was made easy to compare the groups.

Validity and reliability

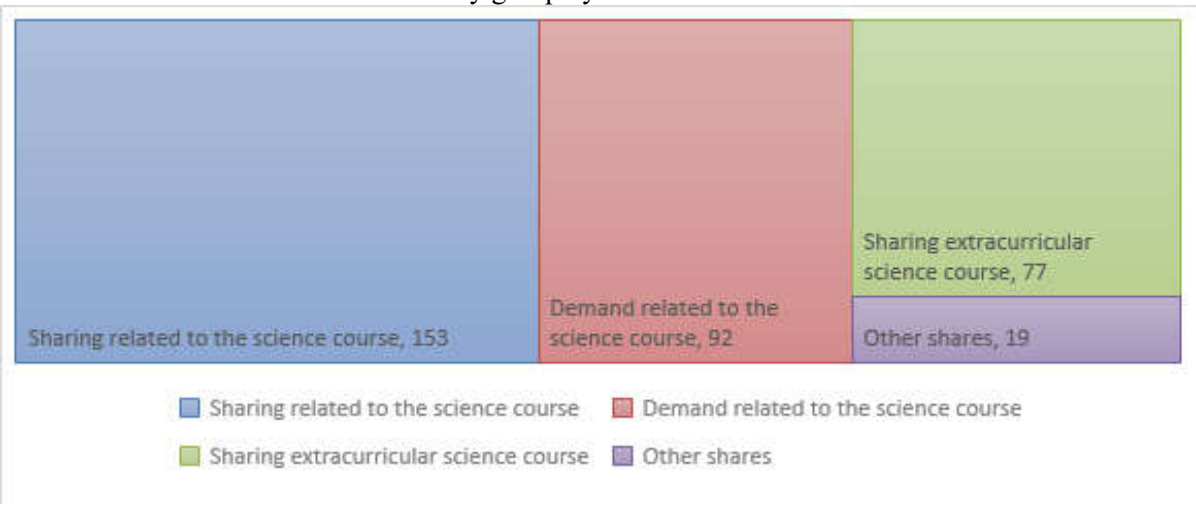
To avoid the problem of subjective evaluation of the data obtained in qualitative research, 30 shares from the Turkish group and 30 from the European group were decoded by an independent researcher, and the percentage of harmony between the researchers was calculated. The internal consistency calculated by Miles and Huberman's (1994) decision association / all decisions x 100 formula was calculated as 81.7%. According to Miles and Huberman (1994), it is sufficient that the harmony of inter-researchers is 70%. All the data of the study were stored in a computer environment, direct citations and screenshots were included when making comparisons.

Results

The shares of science teachers in Turkey in the Facebook colleague group

Table 1 presents the frequencies of the themes obtained from the content analysis of the shares in the Turkey group. In the table, each theme is specified in a different color, and the areas covered by the themes are proportional to the number of shares.

Table 1
Distribution of shares made in the Turkey group by themes

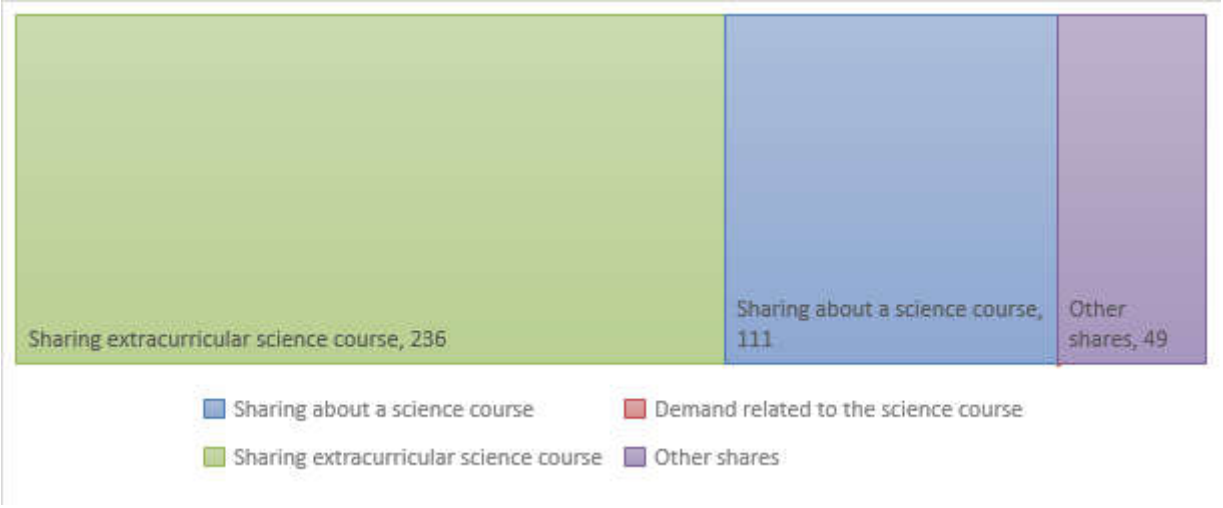


According to the research findings, the shares made in the Turkey group consist of 4 themes. The theme ”Sharing related to the science course“ is 45%, the theme ”Demand related to the science course“ is 27%, the theme ”Sharing extracurricular science course“ is 23%, and the theme ”Other shares" is 5%.

The shares of science teachers in Europe in the Facebook colleague group

Table 2 presents the frequency values obtained from the descriptive analysis of the shares in the European group. In the table, each theme is specified in a different color, and the areas covered by the themes are proportional to the number of shares.

Table 2
Distribution of shares made in the European group by themes



According to the research findings, the shares made in the European group consist of 3 themes. The theme" Sharing about a science course "is 28%, the theme" Sharing extracurricular science course "is 60%, and the theme" Other shares" is 12%.

Comparison of the shares made by science teachers in Turkey and Europe in Facebook colleague groups

Compared to the main themes of the shares made in Turkey and the European group, the theme of "Sharing about a science course" in the Turkish group covers the largest area with 45%, while the largest area in the European group is the theme of "Sharing extracurricular science course" with 60%. The biggest difference between the groups is the theme of "Sharing extracurricular science course" by 37%.

Sharing information about the science course

The theme "Sharing related to the science course" consists of shares made for the planning-implementation-evaluation stages of the science course. The theme consists of 4 sub-themes. These are; "Activity, experiment visual sharing", "Subject summary, worksheet, concept map sharing", "Sample exam paper, test, pilot test sharing" and "Publication (Question bank, etc.), educational platform/application definition". In the sub-themes, the data on the shares made in Turkey and the European group are indicated in Table 3.

Table 3
Distribution of sub-themes of the sharing theme related to the science course

	Turkey Group		European Group	
Sharing information about the Science course	N	%	N	%
Activity, sharing of experimental images	69	20,2	37	9,3
Topic summary, worksheet, concept map sharing	38	11,1	31	7,8
Sample exam paper, test, pilot test sharing	33	9,7	3	0,8
Publication (Question bank, etc.), educational platform/application introduction	13	3,8	40	10,1

When Table 3 is examined, the largest proportion in the Turkish group belongs to the sub-theme "Activity, sharing of experimental images" with 20.2%, while the largest proportion in the European group belongs to the sub-theme "Publication (Soru bank, etc.) with 10.1%.), belongs to the sub-theme "educational platform/application introduction". The biggest

difference between the groups is the sub-theme “Activity, sharing of experimental images”. Share the event the experiment, the images of the sub-themes of a share group in Turkey, as an example, the respiratory and excretory system events with our students we do” in the form of the European group, while the experiment shows how much energy is released when the job potassium and sugar react to PH EUR (Experiment, potassium chlorate, and sugar, it reacts to how much energy is released that shows.)". Publication (Question bank, etc.), examples of sharing images belonging to the sub-theme of educational platform/application promotion are below.

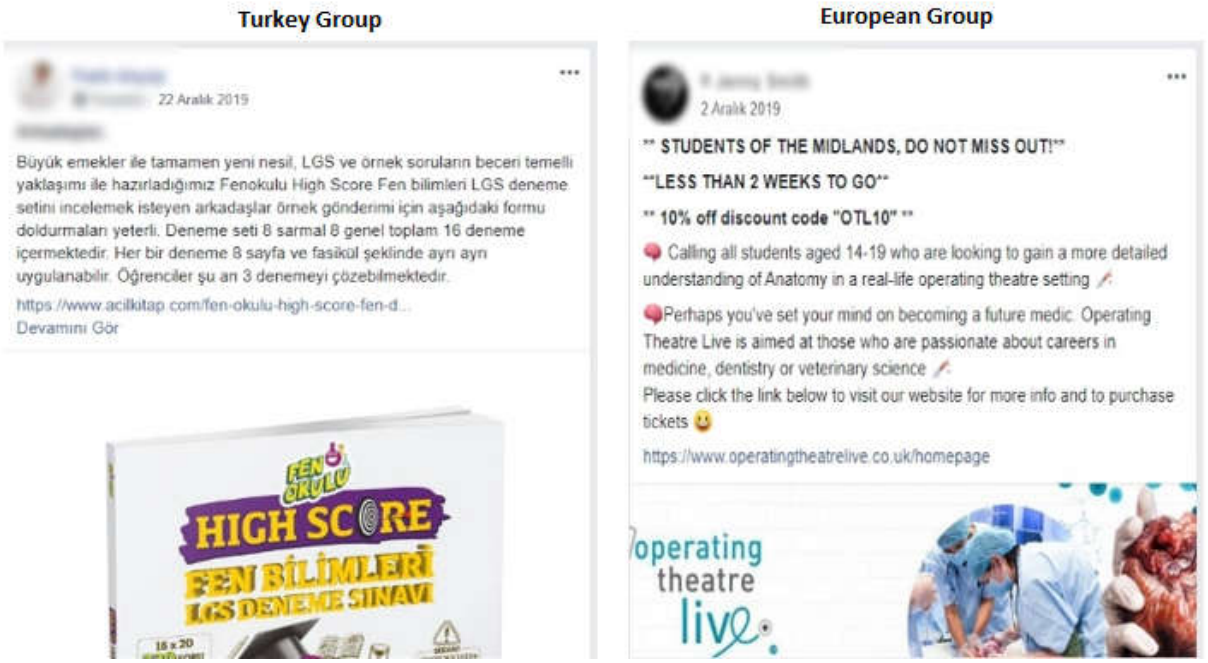


Figure 1. Publication (Question bank, etc.), examples of educational platform/application promotion sub-theme sharing images

Request for a Science Course

The theme” Demand related to the science course" consists of shares that are in demand for the planning-implementation-evaluation stages of the science course. The theme consists of 4 sub-themes. These are; "Question solution request”, “Activity help request/Idea getting”, “Sample question, exam paper, essay request” and "Official document/form sample request". In the sub-themes, the data on the shares made in Turkey and the European group are indicated in Table 4.

Table 4
The Distribution of sub-themes belonging to the demand theme related to the science course

	Turkey Group		European Group	
Request for a Science course	N	%	N	%
Question Solution	56	16,4	0	0
Event help request / Get an idea	18	5,3	0	0
Sample question, exam paper, essay request	9	2,6	0	0
Request for a sample of official documents/forms	9	2,6	0	0

When Table 4 is examined, the largest proportion in the Turkey group is in the "Question solution request" sub-theme with 16.4%, while there is no share of the "Science course-related request" theme in the European group. An example of a share made in the Turkey group on the activity help request/idea retrieval sub-theme is "How can we make an expanding and

contracting container with the same floor areas?“ while in the form of an official document form sample request, an example of sharing made on the sub-topic "Friends asked us for something like a DYK course analysis report. Does anyone have a sample? it has the form ". The following are examples of sharing images belonging to the question resolution request sub-theme.

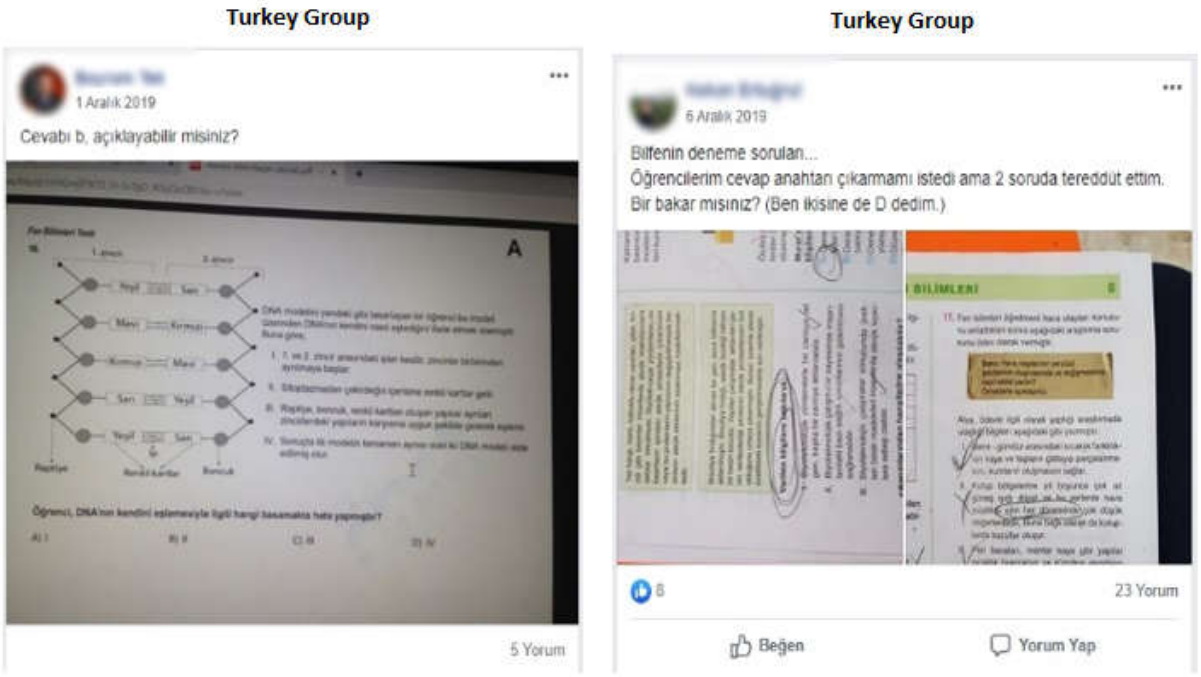


Figure 2. Examples of question resolution request sub-theme sharing images

Extracurricular sharing

Although the theme ”Sharing extracurricular science course" is not directly related to the content of the science course, it usually consists of shares that concern teachers, especially science teachers. The theme consists of 4 sub-themes. These are; "Current / Interesting scientific content”, “Personal / professional development of teachers”, “News sharing with educational content" and "Symposium, congress, etc. his announcement was ” stop. In the sub-themes, the data on the shares made in Turkey and the European group are indicated in Table 5.

Table 5
Distribution of sub-themes belonging to the sharing theme extracurricular science course

	Turkey Group		European Group	
Extracurricular course sharing	N	%	N	%
Current / Interesting scientific content	44	12,9	104	26,2
Personal/professional development of teachers	18	5,3	76	19,1
Sharing news with educational content	9	2,6	31	7,8
Symposium, congress, etc. announcement	6	1,8	25	6,4

When Table 5 is examined, the largest proportion in Turkey and the European group belongs to the "Current / interesting scientific content" sub-theme. The biggest difference between the groups is in the deconstruction of "Personal and professional development of teachers". An example of sharing in the Turkey group on the sub-theme of personal/professional development of teachers is "Educational training is planned to improve the capacity of teachers and increase student achievement by conducting hands-on teaching of courses.", while in the European group “This is a fantastic article for any aspiring teacher wishing the progress in their career (A great article for every teacher who wants to move forward in his career)". The

following are examples of sharing images belonging to the current/interesting scientific content sub-theme.

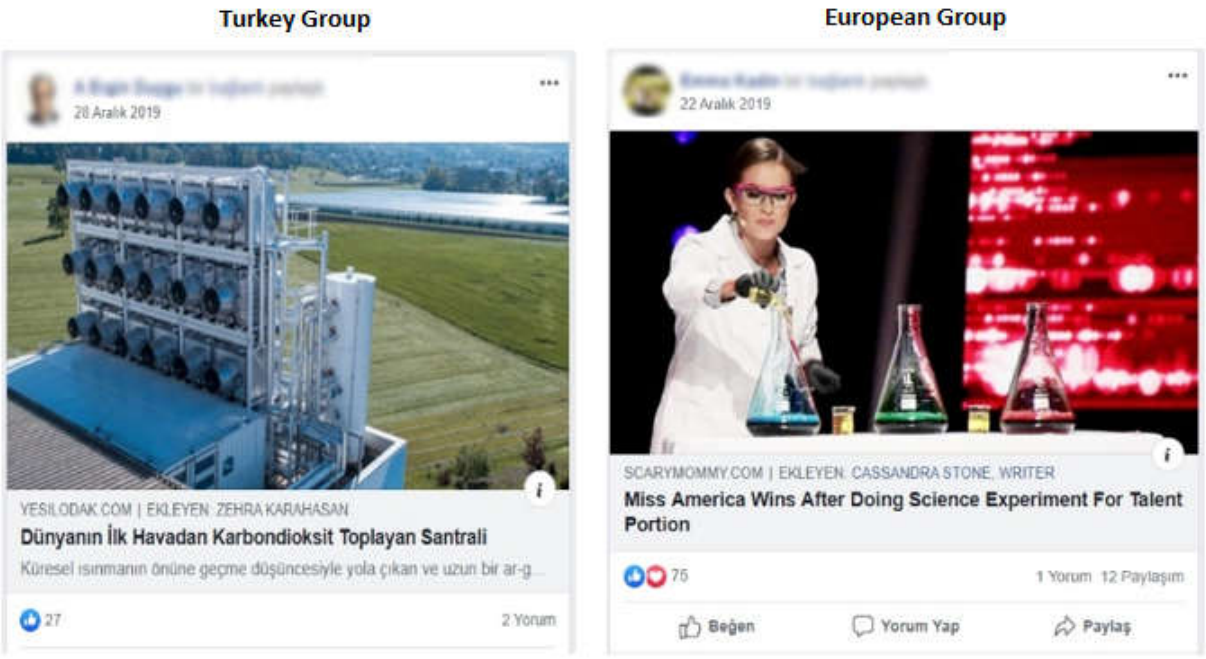


Figure 3. Examples of current/interesting scientific content sub-theme sharing images

Other shares

The theme ”Other shares" consists of shares that are not directly related to the science course or science teachers. The theme consists of 3 sub-themes. These are "Social sharing" and ”Survey“, ”Content cannot be viewed". In the sub-themes, the data on the shares made in Turkey and the European group are indicated in Table 6.

Table 6
Distribution of sub-themes belonging to the Other Shares theme

	Turkey Group		European Group	
Other shares	N	%	N	%
Social purpose sharing	13	3,8	35	8,8
Survey	5	1,5	2	0,5
Unable to view content	1	0,3	12	3

When Table 6 is examined, the largest proportion in Turkey and the European group belongs to the “Social purpose sharing” sub-theme. The biggest difference between the groups is the “Social purpose sharing” sub-theme. An example of a share made in the Turkey group belonging to the survey sub-theme is “I would appreciate it if you would take the time and contribute to the Tubitak 4006 teacher attitude scale created with the opinions of 116 teachers. The target is 350 teachers. Thank you in advance.", while in the European group “This survey for all the people and professionals involved in chemistry subject. Every person can participate in this survey. (This questionnaire is for all people and professionals in the field of chemistry. Anyone can take part in this survey.)". The following are examples of sharing images belonging to the social sharing sub-theme.

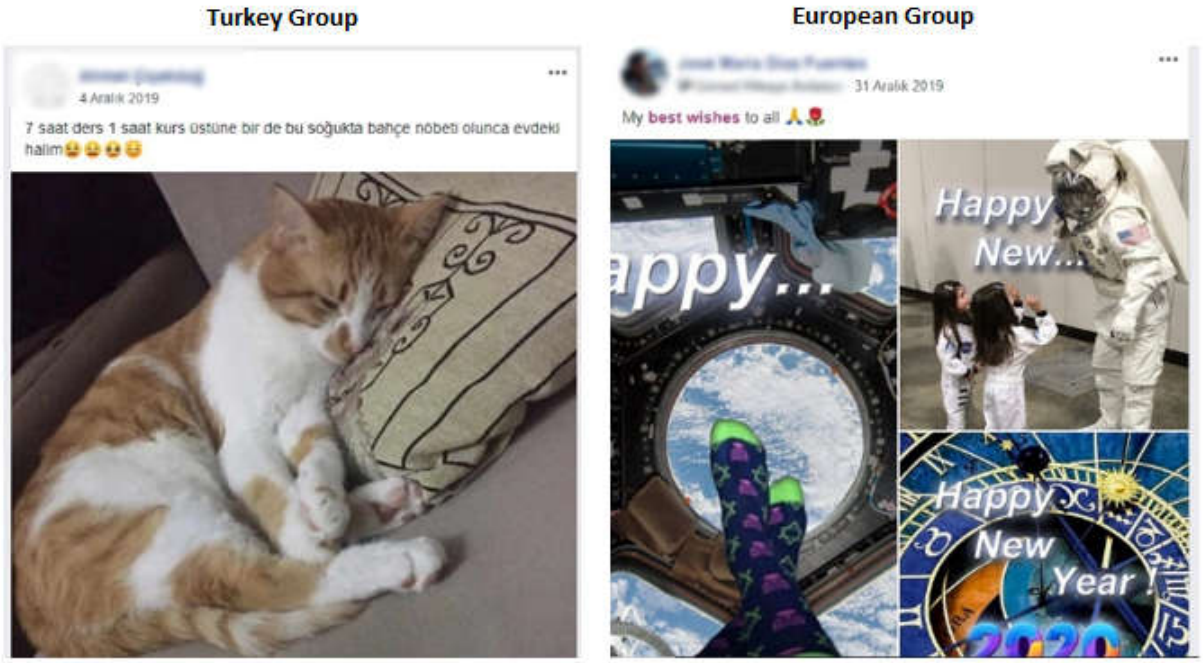


Figure 4. Examples of social sharing sub-theme images

Discussion and Conclusion

According to the research findings, the shares made in the Turkey group consist of 4 themes. The theme ”Sharing related to the science course“ is 45%, the theme ”Demand related to the science course“ is 27%, the theme ”Sharing extracurricular science course“ is 23%, and the theme ”Other shares" is 5%. The shares made in the European group consist of 3 themes. The theme ”Sharing about a science course“ is 28%, the theme ”Sharing extracurricular science course“ is 60%, and the theme ”Other shares" is 12%. Compared to the main themes of the shares made in Turkey and the European group, the theme of “Sharing about a science course” in the Turkish group covers the largest area with 45%, while the largest area in the European group is the theme of “Sharing extracurricular science course” with 60%. The biggest difference between the groups is the theme of “Sharing extracurricular science course” by 37%.

The theme ”Sharing related to the science course" consists of shares related to the planning-implementation-evaluation stages of the science course. Under this main theme, "Activity, experiment visuals sharing", "Topic summary, working paper, concept map sharing", "Sample exam paper, test, trial exam sharing", "Publication (Question bank, etc.), there are sub-themes of ”educational platform/application introduction". When the sub-themes are examined, the largest proportion in the Turkey group is under the sub-theme "Activity, sharing of experimental images" with 20.2%. In the research conducted on Facebook groups, there are findings that teachers who are especially new to the profession benefit from sharing related to the content of the course. Bissessar (2014), in his study with 26 teachers who are members of the Facebook teacher group, stated that it contributes to the professional development of teachers by providing information on subjects such as curriculum, teaching methodologies, and teaching technology. Similarly, Patahuddin, Rokhmah, and Lowrie (2020) stated in their study with 440 mathematics teachers that the main reason for teachers to use Facebook groups was to share information resources related to mathematics. Therefore, it can be said that the contribution to professional development is higher than the European group in terms of the fact that the shares made in the Turkish group allow teachers to benefit from each other's experiences. Based on this result, it is proposed to support the participation of teachers in professional communities in our country. The largest rate in the European group is the Publication with 10.1% (Soru bank, etc.), belonging to the sub-theme of educational

platform/application promotion. Social media platforms such as Facebook at the same time, due to the possibility to interact with a lot of promotion, advertising, are very supportive of a work to be used for marketing purposes (Evans, 2010; Khanna & Abhang, 2020; Köseoğlu, 2013; Treadaway & Smith 2012; Triyaningsih, 2011).

The theme ”Demand related to the science course" consists of demand-based shares for the planning-implementation-evaluation stages of the science course. Under this main theme, there are sub-themes "Question solution request", "Activity help request/Idea getting", "Sample question, exam paper, essay request" and "Official document/form sample request". It is noteworthy that while 27% of the shares are made in the Turkey group in this theme, there is no sharing in the European group. Based on these data, it can be said that teachers in the Turkey group also use the demand dimension in communicating with each other, so they use Facebook groups in a multidimensional way. The sub-theme "Request for a solution to the question", which is included under this main theme, has the largest proportion in the Turkey group with 16.4%. This can be interpreted as the fact that teachers in our country are more interested in measurement and evaluation activities. As a matter of fact, in the researches conducted, it has been found that the decadal transition exams in our country affect the course planning, implementation, and evaluation processes of teachers and direct teachers to take test exams and solve questions (Buyruk, 2014; Cetin & Unsal 2018; Unal, 2005). In European countries, the transition between levels is carried out by one of the criteria such as the school graduation exam, central selection exam, school-based selection exam, school grades, teacher opinions, or by different combinations of these criteria (Gur, Celik & Coskun, 2013; Kasapcopur, Cakir, Norsenli & Halay, 2010). Therefore, it can be said that there is no sharing in this sub-theme because there is no pressure on teachers in Europe to take an inter-deceleration exam similar to that in our country. Considering the intensity of sharing related to the sub-theme of the question resolution request in the Turkey group, it is thought that detailed studies should be carried out to determine the reasons for this situation.

The theme ”Sharing extracurricular the science course" consists of topics that are not directly related to the content of the science course, but are generally of interest to teachers, especially science teachers by profession. Under this main theme, "Current / Interesting scientific content", "Personal / professional development of teachers", "News sharing with educational content", and "Symposium, congress, etc. there are ”announcement" sub-themes. When the research findings are examined, it is seen that although the share rate in both groups is high in the sub-theme “Current / Interesting scientific content”, the share rate in the European group is higher. Based on this situation, it can be said that the teachers in the European group follow the current interesting scientific content more closely. “Symposium, congress, etc. in the ”announcement" sub-theme, it can be interpreted that the share rate in the European group is much higher than in the Turkish group, and science teachers in Europe have a greater interest in scientific activities. When the reason for this situation is examined, it is especially noticeable that while 17 of the 32 countries in Europe require a master's degree to start a teaching profession, it is sufficient to have a bachelor's degree in our country (Eurydice Report, 2015). Teachers in our country are offered a master's degree, a Ph.D. if they graduate, a gradual progression, a degree upgrade (T.C. Official Gazette, 23/7/1965, Issue: 12056), and an increase in additional education fees (T.C. Official Gazette, 1/09/2019, Issue: 30875) such supports are provided. According to the data of the International Teaching and Learning Survey (TALIS 2018), only 6.9% of teachers in our country have a master's degree, and the proportion of doctoral graduates remains at the level of 0.2% (TEMDEM, 2019). Based on these data, it can be said that the guiding effect of the existing supports is quite low. After analyzing the research data, the Ministry of National Education October and Relocation Regulation was amended to provide additional service points to teachers who have a master's degree/doctorate and whose articles have been published in national /international peer-reviewed journals (TC. Official

Gazette, 19/06/2020, Issue: 31160). It is possible that this change can be considered as a step towards increasing the interest of teachers in academic activities, which can be suggested based on the results of the research.

In the Turkey group, the share rate of the teachers' personal/professional development sub-theme is less. Professional development activities in our country are planned and implemented by the central administration. According to the findings of Boydak Özan, Polat, and Sener (2014) and Boydak and Eroglu (2016), the in-service training activities organized by the Ministry of Education are far from addressing the needs of teachers as they are not qualified. Gültekin and Cubukcu (2008), on the other hand, found that teachers consider in-service education as an activity that contributes to them both from an institutional and individual point of view. Gönen and Kocakaya (2006) concluded that although teachers found in-service training necessary, the courses were not sufficient in terms of number and quality. Therefore, it can be said that the opinions of teachers in our country about in-service educational activities are mostly negative. In many European countries, teachers prepare an individual professional development plan based on their interests and needs. Participation in professional development activities is supported by factors such as salary increase, promotion, attendance at the vocational class where he is located, paid leave, and meeting education costs (Eurydice Report, 2015). This can be seen as the reason why the share rate in this area is higher in the European group. Therefore, it is proposed to make arrangements to increase the interest of teachers in in-service educational activities in our country.

The theme ”Other shares" consists of shares that are not directly related to the science course or science teachers. Under this main theme there are sub-themes "Social sharing" and "Survey", "Content cannot be displayed". In the sub-theme "Social sharing" under this main theme, the share rate in the Turkish group is 3.8%, while the share rate in the European group is 8.8%. There are studies in the literature that support the use of Facebook peer groups for social communication purposes. English Facebook group of Bett and Makewa (2020) examined 647 posts of a Facebook group of English teachers and found that social shares had a significant proportion with 27.2%. XIX of the congratulation on New Year's Eve or Christmas, which took place during the data collection period. it is considered to be close to European culture because it is a practice that originated in England in the XVIII century (Esgin, 2012). For this reason, it is possible to mention the periodic and cultural impact as the reason why the sharing rate is high in the European group.

Threats to internal validity, limitations, and recommendations for future research

In the study, it was accepted that the shares made in Facebook groups were made by science teachers and they were used as data sources. However, to become a member of Facebook groups that are an informal platform, you must submit an official document (certificate of duty, teacher ID card, etc.) since there is no requirement, there may be non-teacher users among the group members. This situation comes across as a factor affecting the validity of all research conducted on social media platforms. Therefore, researchers who will work in the field are advised to diversify their data by using different data collection methods (interviewing group members). Research also can be repeated with groups of science teachers as teachers in different specialties in the field of peer groups are considered to contribute to the analysis of Facebook.

In the research, data for December 2019 were collected and analyzed. December 1 of the educational training in our country. It corresponds to the end of the semester. In countries in Europe, the educational and holiday periods of schools are different from each other. Therefore, it can be argued that the interests and needs of teachers may change during the holiday period, at the beginning of the semester, in the middle, and at the end of the semester. This is one of the limitations of the study. By applying different sampling techniques (for example, examining the shares made on the first 3 days of each month), measures can be taken to reduce the effect

of the difference between periods, as well as examining the shares for a year and examining the change in the content of shares by months.

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