

The Effect of Using Current News in Science Course on Students' Perspective on Technological Developments in Science

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Abstract

The aim of this study is to determine the effect of using scientific news in science class on the perspective of 7th-grade middle school students against technological developments in science. In this study, a single group pre-test post-test experimental design was used. The research group of this study consists of 46 students studying in a public school in Istanbul. An open-ended questionnaire, in which students' perspective on science and technology was developed, was used to collect the data. Content analysis was performed on the obtained data. A qualitative data collection tool was used to collect the data, but the frequencies of the responses were calculated and quantitatively converted into tables. As a result of the research, it observed a positive development in the scientific perspective of the students before and after the implementation. It was concluded that the students had the answers in the post-test that technology developed science and society and gained awareness about the importance of technology. In light of the findings, suggestions are presented.

Keywords: Science, Education, Scientific news, Student views, Middle school students, Technology

Introduction

Science is an interdisciplinary field that is intertwined with daily life. It is aimed that each individual who has taken the science course in the science curriculum recently feels responsible for solving current problems, focuses on producing solutions, plans the solution economically and presents it as a project (MEB, 2018). The developing world conditions, the problems encountered with the industrialized environment are changing day by day. For students to recognize real-life problems and produce effective solutions, it is important to give the developments on current issues along with the theoretical knowledge in the course to transfer the knowledge to the student's life.

Current news situations enable students to learn life-based, students become aware of the overlap between science laws and real-life conditions and begin to question the events in their daily life (Çam & Köse, 2008). Much environmental news in the newspapers is unscientific, based only on an environmental disaster, and cannot raise awareness in the reader (Demirel, 2019). For this reason, it is important that the news brought to the educational environment is scientific. With the case studies are given to the student, the students learn, analyze and discuss the information and produce solutions. Thus, problem-solving and critical thinking skills develop (Yıldırım & Şimşek, 2011). Newspapers or e-newspapers, from which we can provide case studies, are multidisciplinary resources from all areas of life such as country, science, culture, sports, health, economy, world, education. For this reason, newspapers can be used as educational materials to enable students to make connections between the lesson and daily life, develop problem-solving skills, gain a critical perspective, and make students realize that they are also a part of current issues (MEB, 2018). Considering these benefits, studies are carried out for newspapers in lessons (Deveci, 2005).

In our age, where the learner is the most important in educational environments, it is important to open ways for students to think complexly, to teach them how to learn better, and to gain teaching and problem-solving skills (Tumen Akyıldız, 2019). Associating the topics covered in the lesson with current events enables us to understand in advance what to do when faced with a similar problem in daily life (Binbaşıoğlu, 2004). Since students see and discuss a real-life problem in the classroom, they can give more productive and productive feedback when they encounter a similar situation in their daily life (Glynn & Koballa, 2005). When students are shown the reflection of information from life through current news, the information learned in the course gains value and prevents the student from studying only for a high grade (Özden, 2003).

Although the science course is intertwined with daily life, students have difficulty in transferring the knowledge in the course to their daily lives (Anagün, Ağır & Kaynaş, 2010). In this case, the lessons supported by current news are important in helping

both the transfer of concepts to daily life and the sensitivity of students to social problems.

For meaningful and permanent learning to occur, the information received must be used and easily transferred in daily life when appropriate. Associating science lessons with daily life allows the teacher to place the information given to students in their minds (Campbell & Lubben, 2000). Therefore, associating science concepts with daily life becomes the most important goal of education (Akgün, 1998).

This study, it is aimed to determine the effect of using scientific news in a science lesson on the perspective of 7th-grade secondary school students against technological developments in science.

Method

In this study, a single group pre-test post-test experimental design was used. In this design, the effect of the implementation on the process is tested with a single group study (Büyüköztürk, 2004).

A qualitative data collection tool was used to collect the data, but the frequencies of the answers were calculated and turned into tables quantitatively.

Sample

The research group of this study consists of 46 seventh-grade students (20 female, 26 male) studying at a public school in Istanbul. The sample was selected by the convenience sampling method.

Data Collection Tool

An open-ended question form was applied to see the effect of the scientific news given to the students on the students' perspectives on technological developments. The form was distributed to the students before and after the implementation.

The open-ended question form was developed by the researchers. After the questions were written, one of them was checked by a science teacher with 8 years of experience in the field, and the other by a faculty member whose field of expertise was science education. The form was finalized in line with the opinions of the experts.

Procedure

Before starting the implementation, the students were divided into groups. The reason why students

are divided into groups is that the news given to them is not passed superficially without understanding. It is aimed to enable students to discuss the news in a group environment. While forming the groups, it was left to the students' choice who the individuals in the groups were to create a more comfortable atmosphere for the students.

To attract the attention of secondary school 7th-grade students, news sheets are designed with pictures. After each news was distributed to the students, the news title was written on the board. Students were given a few minutes to examine the sheets. After each student read the news individually, one person read it aloud in the class, and then group discussions were held. Each group discussed the news among themselves and concluded. Afterward, a representative from each group came to the board and shared the thoughts of their groupmates. Finally, they stated the points they agreed and disagreed with as a class. The implementation lasted for four weeks, two-course hours per week.

The study was carried out within the scope of the "Cell and Divisions" unit.

Data Analysis

Content analysis was performed on the data obtained from the open-ended question form. In the analysis of the collected data, first codes, then categories and then themes were created. In addition, the frequencies of the answers given by the students for each code were calculated. The research data was later coded by another researcher and the agreement between the two raters was determined as 94%.

Results

Table 1 summarizes the students' views on the impact of technological developments on daily life.

Table 1: Impact of Technological Developments

Effects	Pre-test	Post-test
It makes our lives easier.	19	19
It provides advances in the field of health.	7	15
It solves daily problems.	1	3
It provides communication.	3	-
It makes our research easier.	7	4

It saves time.	2	-
We learn about space.	2	-
It offers new possibilities.	-	2
Humanity evolves.	-	2
It strengthens the economy.	-	3
It increases production.	-	3
It develops studies on genetics.	-	4
It improves the studies on brain.	-	4

As seen in Table 1, "How do technological developments in science affect our lives?" The most common answer in the pre-test was an answer to the question "makes our life easier," and the number of students who gave this answer in the post-test did not change. After the implementation, the students gave more diverse answers than before the implementation.

Table 2 presents the students' thoughts on the studies they want to do in the future.

Table 2: Opinions about the Studies they want to do in the Future

Opinions	Pre-test	Post-test
Doing studies on the brain	4	-
Developing a robot	2	1
Developing healthcare devices	3	-
Developing new technological products	3	3
Doing cell studies	1	5
Doing genetic studies	2	3
Working on software	2	4
Being interest in science	2	1
Working on holograms	1	1
Doing artificial intelligence studies	2	3
Working in the field of health	3	14
Working on educational materials	1	1
Making discoveries about space	2	3

In Table 2, the most obvious difference is the increase in the post-test percentage of students who want to work in health. The variation between pre-

test and post-test was lower in this category.

Table 3 gives the students' views on society, science and technology.

Table 3: Students' views on Society, Science and Technology

Students' views	Pre-test	Post-test
Science develops technology.	7	9
Science develops society.	4	4
Technology develops science.	3	8
Technology develops society	7	9
Society develops technology.	2	2
Society develops science.	1	2
Society influences science and technology	3	5
Technology makes society's life easier.	5	6
Science makes the life of society easier.	4	3
Society, science and technology are related.	5	19
Science improves the quality of life.	2	9

Looking at Table 3, the biggest change was in the answer "society, science and technology are related." After the implementation, the students established the relationship between these three concepts. Students' answers "technology develops science" in the post-test also increased compared to the pre-test. After the implementation, the students realized the importance of technology.

Table 4 presents students' views on the benefits of scientific studies.

Table 4: Students' views on the Benefits of Scientific Studies

Benefits	Pre-test	Post-test
It improves the quality of life.	2	5
It informs the society.	10	11
Makes our lives easier.	11	19
It provides treatment for diseases.	10	11
Humanity evolves.	1	2
It can be used for public health.	2	10

It allows for new discoveries.	-	2
Gathers information about space.	-	2
It can be used to diagnose diseases.	-	2
It develops technology.	-	2

As can be seen in Table 4, the answers of the students show more variation after the implementation than before the implementation. The answer that varies the most is that science can be used for the benefit of public health. In addition, students think that science makes our lives easier.

Table 5 presents the students' views on the harms of scientific studies.

Table 5: Students' views on the harms of Scientific Studies

Harms	Pre-test	Post-test
It has side effects.	4	1
It may harm the health of the researcher.	6	6
Unemployment rises.	3	1
Subjects may be harmed.	6	6
There is no harm.	4	19
It causes environmental pollution.	5	4
Science can be abused.	2	5
It causes technology addiction.	2	3
It negatively affects the social order.	13	4
Radiation may be emitted.	6	4

As seen in Table 5, while only five of the students thought that scientific studies were harmless in the pre-test, this number increased to 19. In the pre-test, 13 students said that scientific studies negatively affect public health, while in the post-test, only four of these students did not change their minds.

Table 6 presents students' views on the difficulties faced by scientists.

Table 6: Students’ views on the difficulties faced by Scientists

Difficulties	Pre-test	Post-test
Financial impossibilities	8	6
Difficulty accessing information	2	-
Hazards in the workplace	11	5
Failure / Continuous trying	7	12
Limitations in the opportunity to work	7	2
Marginalization by society	4	1
Technical glitches	2	3
Not getting the support they expect	2	-
Inexperience	4	1
Technological possibilities	1	3
Social pressure	2	2
Psychological distress	2	2

In Table 6, “What kind of difficulties do scientists encounter while doing their studies?” The answers to the question are presented. While the students gave the most answers to “hazards in the study area” in the pre-test, they gave the most “failure” answers.

Discussion and Conclusions

In this study, according to the research findings, the use of scientific news within the scope of the “Cell and Divisions” unit led to an increase in the students’ thoughts that scientists were working for the benefit of public health, according to their post-test statements. In addition, the students stated that they wanted to work in health the most after the implementation. It can be said that scientific news increases the interest of students in the field of health. It can be deduced from the students’ increasing answers in the post-test that technology improves science and society, that they realize the importance of technology. Regarding the harms of scientific studies, the students stated that while they answered that they affect public health most negatively in the pre-test, they thought there was no harm in the post-test. This result is a finding that shows that students’ perspectives towards science have changed. The students responded to the difficulties faced by scientists as the dangers in the field of

study in the pre-test, and a failure in the post-test and the difficulty of constantly experimenting. From this situation, it can be concluded that after reading scientific news, students realize that scientific studies are not as dangerous as they feared. As can be seen, a positive development was observed in the scientific perspective of the students from before to after the implementation.

Kavak, Tufan and Demirelli (2006) analyzed newspaper news in the context of science literacy. The results of the research showed that the newspapers, which are at the forefront of informal information sources, actually include news and comments that support science and technology literacy. According to the findings, the science-technology-society-environment relations dimension of science and technology literacy is mostly mentioned in the newspapers. Newspapers create awareness in individuals about science-technology-society-environment relations. This finding also supports the findings of this study. As a result of this research, it was concluded that students are related to society, science and technology.

Ünlüer and Yaşar (2012), similar to this study, determined students’ views on using newspapers in social studies lessons. As a result of the study, all of the students in the research group stated that they liked using newspapers in the lesson.

Teachers have great responsibilities in carrying the exemplary situations in the newspapers to the educational environment. Before bringing this news to the classroom, teachers should check its suitability for the age level and life of the students.

Scientific news can also be used to draw attention to the lesson, during the lesson and even in the evaluation stage by creating an environment for discussion in the classroom. In this way, since students can be connected with daily life, the permanence of knowledge in students can be supported. Students may be asked to bring news that they find interesting to the classroom environment.

Reference

Aiex, Nola Kortner. “Using Newspaper as Effective Teaching Tools.” *Ericdigests.org*, 2020.
 Akgün, Ş. “Okullarımızda Fen Bilimlerine Olan İlginin Azalma Sebepleri.” *Fen Bilimleri*

- Eğitimi Sempozyumu*, 1998.
- Tümen Akyıldız, Secil. “A New Approach for the Students of 21st Century: Cognitive Coaching.” *Turkish Studies*, vol. 14, no. 7, 2019.
- Anagün, Ş.S., et al. “İlköğretim Öğrencilerinin Fen ve Teknoloji Dersinde Öğrendiklerini Günlük Yaşamlarında Kullanım Düzeyleri.” *Ulusal Sınıf Öğretmenliği Eğitimi Sempozyumu*, 2010.
- Binbaşoğlu, C. “Eğitimde Günlük Olaylar ve Eğitimi.” *Çağdaş Eğitim Dergisi*, 2004, pp.14-16.
- Büyüköztürk, Şener. *Veri Analizi el Kitabı*. Pegem Yayınevi, 2004.
- Campbell, Bob, and Fred Lubben. “Learning Science through Contexts: Helping Pupils Make Sense of Everyday Situations.” *International Journal of Science Education*, vol. 22, no. 3, 2000, pp. 239-252.
- Ceran, Dilek, and Özgür Metin. “An Investigation on the Levels of Grade 8 Students in Detecting and Using Idea Development Techniques.” *Turkish Studies*, vol. 14, no. 7, 2019.
- Çam, Figen, and Esra Özay Köse. “Yaşam Temelli Öğrenme.” *Eğitim Dergisi*, 2008.
- Demirel, Simge Deniz. “An Evaluation of the Environment News Published on Print Media in Turkey.” *Turkish Studies*, vol. 14, no. 1, 2019, pp. 93-104.
- Deveci, Handan. “Sosyal Bilgiler Dersinde Gazete Kullanımı.” *The Turkish Online Journal of Educational Technology*, vol. 4, no. 3, 2005, pp.159-166.
- Glynn, Shawn M., and Thomas R. Koballa. “The Contextual Teaching and Learning Instructional Approach.” *Exemplary Science: Best Practices in Professional Development*, edited by Robert E. Yager, NSTA Press, 2005.
- Kavak, Nusret, et al. “Fen-Teknoloji Okuryazarlığı ve Informal Fen Eğitimi: Gazetelerin Potansiyel Rolü.” *Gazi Eğitim Fakültesi Dergisi*, vol. 26, no. 3, 2006, pp. 17-28.
- Science Curriculum*. Talimve Terbiye Kurulu Başkanlığı, 2018.
- Ünlüer, Gülbeyaz, and Şefik Yaşar. “Students’ Opinions about Using The Newspaper in Social Studies.” *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi*, vol. 13, no. 1, 2012, pp. 43-57.
- Özden, Yüksel. *Öğrenme ve Öğretme*. Pegem Publications, 2003.
- Yıldırım, A., and Hasan Şimşek. *Sosyal Bilimlerde Araştırma Yöntemleri*. Seçkin Yayınları, 2011.

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