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Scientific Study Awareness of Science and Technology Teachers

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Abstract

The purpose of this study is to reveal whether the science and technology teachers working at primary schools have the habit to read the scientific studies in the recent year and are informed about the studies, and use the information they obtained from there. The study is a qualitative study and survey pattern has been used. The study group of Turkey consists of 51 science and technology teachers (of which 24 are female teachers and 27 are male teachers) working at primary schools located in three cities of Turkey including a metropolitan city. A survey consisting of structured and semi-structured questions prepared for the purpose of the study, which was drawn up by the researchers, was used to collect the data. As a result of the analysis of the research data, of 51 teachers involved in the study group, 37 stated that they have read scientific studies in the recent year and 14 stated that they have not read any scientific study. The teachers stated that they follow the scientific studies mainly on the Internet and that they follow these studies for their personal and professional development, to keep protected against misinformation and to gain a universal perspective.

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1. Introduction

It has never been easier to reach the information in any period of the history, as is today, which is called “information age”. All kinds of information are constantly updated based on the developments in science and technology, and the information and technology not updated fall behind the times. The people living in an information society have to comply with the principles and life style of such society. Kurbanoglu and Akkoyunlu (2001) have stated that the information societies need such individuals that have lifelong learning skills. Information literacy has been defined by Zurkowski (1974) in solving a problem as to use the information sources and to have

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the necessary technical skills required to access the information. Different terms of literacy have emerged in different fields so far, since 1950's. Thus, it was aimed at raising the individual as literate in certain disciplines (Çepni, Ayvaci and Bacanak, 2006). Especially in professions such as the profession of teacher that requires to have information and conveys such information to the new generation or make their students gain information-based skills, it is more important to be a scientific literate. At this point, the training of the teacher trainers and the teachers and the quality of the teacher training process come up (Derman, Dogu & Godek-Altuk, 2008). In a study on the teacher candidates, Akkoyunlu and Yilmaz (2005) have stated that the information literacy skills of the teacher candidates are at a medium level. In a similar study, Atav, Akkoyunlu and Saglam (2006) have pointed out that 86,9% of the teacher candidates uses the Internet in their daily life, and 51,5% of them uses the Internet to make research and to do their homework. In our age, the teachers are expected to carry out such really important tasks as to use the improved educational Technologies, to keep abreast of new educational paradigms, to make the educational activities more creative and enjoyable, to follow the education curriculums and teaching programs, to respond the personal development needs of the students. Thus, there are both social and managerial risks in various aspects waiting for the teacher who cannot keep up with the time. It is important for target group to reach the information as much as to produce information. The Internet, TV, various scientific, actual or academic journals plays very important roles in this sense. Kahyaoglu (2011), in his study, has highlighted that there is a positive relationship between the attitude towards the use of Internet and information literacy. Each faculty of education at almost all universities throughout Turkey has a connected academic journal. The scientists publish their academic studies in a variety of fields on these journals. In addition, all these journals are available both online and also in the university libraries and public libraries. However, it is a question whether those publications are read by the teachers currently pursuing their careers.

2. Method

2.1. Research Model

This study is a qualitative study to determine the scientific study reading habits of the science and technology teachers working at the primary schools and their being informed about the studies. In the study, the survey pattern was used

2.2. Study Group

The study group includes 51 (24 female and 27 male teachers) science and technology teachers working at the primary schools in three provinces in Turkey, including a metropolitan city.

Table 1: Demographic features of the participants

| Demographic Features | | f |
|----------------------------------|-------------------|----|
| Gender | Female | 24 |
| | Male | 27 |
| Province where the teacher works | Metropolitan City | 22 |
| | Medium-scale City | 29 |
| Length of service | 1-5 years | 8 |
| | 6-10 years | 14 |
| | 11-15 years | 10 |
| | 16-20 years | 19 |

2.3. Data Collection Process and Data Analysis

An interview form consisting of the structured and semi-structured questions prepared by the researchers to collect data under the study was used. The interview form includes 14 questions in total, including eight structured questions and six semi-structured questions about the frequency of the teachers' following the scientific studies, applying such in their professional life and means of access to the scientific studies. Descriptive analysis technique was used in the data analysis.

3. Findings

Findings obtained by analysis of the data obtained at the end of research are involved in this section of the study. The findings are described in accordance with the order of the questions involved in the interview form and gathered under two headings.

3.1. Keeping Informed about the Scientific Studies

The responses given by the teachers involved in the study group to the question whether they have read scientific research in the recent year are provided in the Table 2.

Table 2: Status of reading scientific study in the recent year of preschool teachers in the study group

| Do you read scientific studies? (in the recent year) | f |
|------------------------------------------------------|----|
| Yes | 37 |
| No | 14 |
| Total | 51 |

When the Table 2 is reviewed, it is understood that more than half of the teachers in the study group (N=37) has read a scientific study in the recent study. Nevertheless, (N=14) teachers have stated that they have not read any scientific study in the recent year.

The reason of the teachers for not having read any scientific study in the recent year and the viewpoints of them whether reading any scientific study has any effect on their professional life are given in the Table 3.

Table 3: The viewpoints of the teachers not reading the scientific studies

| Teacher not Reading the Scientific Studies | | f |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------|---|
| The reasons of them for not Reading Scientific Studies | Lack of time | 6 |
| | Absence of encouraging factors | 5 |
| | Inability to access to the studies | 3 |
| | Work load | 3 |
| | Not believing in its contribution to the professional development | 2 |
| | Following on TV | 2 |
| Is it a Problem for Your Professional Life Not to Read any Scientific Studies? | Being a mother | 1 |
| | No | 7 |
| | Yes | 7 |

When the Table 3 is reviewed, it is understood that the lack of time ranks first among the reasons of a teachers (N=14) in the study group stating they have not read any scientific study in the recent year for not reading scientific studies. (N=5) teachers have shown the reason that there is not any encouraging and interesting factors, while (N=3)

teachers have shown inability to access to the studies and work load, (N=2) teachers have stated that they do not believe in its contribution to the professional development and they follow the studies on TV, and (N=1) teacher has shown being a mother as a reason for not reading the scientific studies. Moreover, of (N=14) teachers not reading the scientific studies, (N=7) teachers have stated that it is not a problem for their professional life, while (N=7) teachers have stated that it is.

The viewpoints of the teachers involved in study on sharing the scientific studies with their colleagues, and whether they are not encouraged by the Directorate of National Education and school principals in this respect are provided in the Table 4.

Table 4 : The viewpoints of the teacher following the scientific studies on sharing the scientific studies

| Do you share any scientific study you read with your colleagues? | f |
|-------------------------------------------------------------------------------------------------------------------------------------|----|
| Yes | 27 |
| No | 10 |
| Total | 37 |
| Have any of your colleagues ever made any suggestions about reading any scientific study? | |
| Yes | 14 |
| No | 23 |
| Total | 37 |
| Have you ever been encouraged by the Directorate of National Education or the school management about reading any scientific study? | |
| Yes | 6 |
| No | 31 |
| Total | 37 |

When the Table 4 is reviewed, it is seen that, of the teachers involved in the study, (N=27) teachers share the scientific studies with their colleagues; however, (N=23) teachers do not get any suggestion from their colleagues for any scientific study. The number of teachers who are not encouraged by the Directorate of National Education or the school management to read any scientific study is (N=31).

The responses of the teachers in the study to the question “Would you like to be informed about the scientific studies? And why?” are provided in the Table 5.

Table 5: The reasons of the teachers for not wanting to be informed about the scientific studies

| Would you like to be informed about the scientific studies? | f |
|--------------------------------------------------------------------|----|
| Yes | 35 |
| No | 2 |
| Total | 37 |
| The reasons for wanting to be informed about scientific studies | |
| For professional development | 14 |
| For personal development | 11 |
| To be informed about the developments such as new inventions, etc. | 8 |
| To gain a universal perspective | 3 |
| To avoid misinformation | 2 |

When the Table 5 is reviewed, it is seen that (N=35) of the teachers in the study would like to be informed about the scientific studies. Of these teachers, (N=14) have stated that they would like to be informed about the scientific studies for professional development, (N=11) for their personal development, (N=8) to be informed about the

developments such as new inventions, etc., (N=3) to gain a universal perspective, and (N=2) to avoid misinformation.

3.2. Access to the Scientific Studies

The type of scientific studies have been read by those (N=37) of the teachers in the study group who have read scientific studies in the recent year, their frequency of reading the studies and their accessibility to the scientific studies are provided in the Table 6.

Table 6: Access of the teachers to the scientific studies

| How often do you read scientific studies? | f |
|-----------------------------------------------------------------------|----|
| At least once a week | 7 |
| At least once a month | 14 |
| At least quarterly | 10 |
| At least semi-annually | 6 |
| Total | 37 |
| What type of a scientific study have you read? | |
| Article published on a refereed journal | 15 |
| Report published on any subject matter (project reports, etc.) | 15 |
| Other (Dissertation, etc.) | 6 |
| A paper presented in any conference | 1 |
| Total | 37 |
| Where have you get access to the scientific study that you have read? | |
| Internet | 19 |
| An actual journal | 7 |
| Journal of professional organizations | 6 |
| Refereed Journal | 5 |
| Total | 37 |
| Which disciplines are the scientific studies you read in? | |
| Health | 19 |
| Education | 22 |
| Technology | 25 |
| Other | 8 |

When the Table 6 is reviewed, it is seen that, of the teachers in the study, (N=7) read a scientific study at least once a week, while (N=6) read the same at least semi-annually. The teachers (N=15) have mostly stated that they follow the scientific studies from the refereed journals or published reports. The teacher have stated that they mostly get access to the scientific studies on the Internet, (N=19), while (N=5) have stated that they get access to the same through the published refereed journals. Additionally, the teachers involved in the study have stated that they mainly read the scientific studies in the fields related to the technology (N=25) and education (N=22).

The teachers in the study were asked for “their suggestions on more ease-of-access to the scientific studies” and their responses are given in the Table 7.

Table 7: Teacher's suggestions on ease-of-access to the scientific studies

| Suggestions on Ease-of-Access to the Scientific Studies | f |
|--------------------------------------------------------------------------------------------------------|----|
| The scientific studies should be delivered by the MEB (Ministry of National Education) to the teachers | 18 |
| Websites should be established, where the scientific studies related to the field are available | 6 |
| Social networking sites related to the scientific studies should be expanded | 4 |
| In-service trainings should be delivered by the academicians | 4 |
| The studies should be much more involved in the national media. | 3 |
| There should be a website where the recent studies are available | 2 |

When the Table 7 is reviewed, of the teachers in the study, (N=18) have stated that MEB (Ministry of National Education) needs to conduct a study on communicating the scientific studies to the teachers. Of those who have suggested that websites should be established, where scientific publications related to the field (N=6), (N=4) teachers have suggested that social networking sites related to the scientific studies should be expanded and communicated by the academicians through in-service trainings. (N=3) teachers have stated that the studies should be more available on the national media, while (N=2) teachers have stated that a website should be established where the recent studies are published.

4. Conclusion and Suggestions

The results of this study, which have been carried out to reveal whether the science and technology teachers working at primary schools have the habit to read the scientific studies in the recent year and are informed about the studies, can be summarized in general as follows:

- It is understood that more than half of the teachers in the study group (N=37) has read a scientific study in the recent study. Nevertheless, (N=14) teachers have stated that they have not read any scientific study in the recent year.

- It is understood that the lack of time ranks first among the reasons of a teachers (N=14) in the study group stating they have not read any scientific study in the recent year for not reading scientific studies. (N=5) teachers have shown the reason that there is not any encouraging and interesting factors, while (N=3) teachers have shown inability to access to the studies and work load, (N=2) teachers have stated that they do not believe in its contribution to the professional development and they follow the studies on TV.

- It is seen that, of the teachers involved in the study, (N=27) teachers share the scientific studies with their colleagues; however, (N=23) teachers do not get any suggestion from their colleagues for any scientific study. The number of teachers who are not encouraged by the Directorate of National Education or the school management to read any scientific study is (N=31).

- It is seen that (N=35) of the teachers in the study would like to be informed about the scientific studies. Of these teachers, (N=14) have stated that they would like to be informed about the scientific studies for professional development, (N=11) for their personal development, (N=8) to be informed about the developments such as new inventions, etc., (N=3) to gain a universal perspective, and (N=2) to avoid misinformation.

- It is seen that, of the teachers in the study, (N=7) read a scientific study at least once a week, while (N=6) read the same at least semi-annually. The teachers (N=15) have mostly stated that they follow the scientific studies from the refereed journals or published reports. The teacher have stated that they mostly get access to the scientific studies on the Internet, (N=19), while (N=5) have stated that they get access to the same through the published refereed journals. Additionally, the teachers involved in the study have stated that they mainly read the scientific studies in the fields related to the technology (N=25) and education (N=22).

- Of the teachers in the study, (N=18) have stated that MEB (Ministry of National Education) needs to conduct a study on communicating the scientific studies to the teachers. Of those who have suggested that websites should be established, where scientific publications related to the field (N=6), (N=4) teachers have suggested that social networking sites related to the scientific studies should be expanded and communicated by the academicians through

in-service trainings. (N=3) teachers have stated that the studies should be more available on the national media, while (N=2) teachers have stated that a website should be established where the recent studies are published.

• In consideration of these results, the following suggestions could be made:

• The teachers play such a critical role as continuous improvement of their professional knowledge and personal development. Thus, the teachers should be encouraged by the MEB (Ministry of National Education) and the school principals in this respect.

• The access of the teachers to the scientific publications can be designed by the MEB (Ministry of National Education) in a planned and scheduled way.

• The teachers are provided with ease-of-access to the scientific studies. In-services training should be carried out and other trainings should be delivered in a range subject matters from the online databases to the search engines.

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