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## How Social Science and Geography Teachers Perceive Educational Technologies that have Been Integrated in Educational Program

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**Abstract:** One of the major universal aims of educational systems is to raise human power suitable for the requirements of information society, one of the main steps of which is to configure the educational programs in accordance with universal interaction. The prerequisite of this step is to use the technology in the educational environment urgently and efficiently because the student-centered learning approach that goes along with educational programs relies on the individual's establishing a relationship between the learning environment and his learning. This relationship can foster learning when established through the help of educational technologies. Teachers bear important roles in enabling the technology and educational program due to achieve the best learning. The aim of this study is to display the opinions of teachers about educational technologies that have become compulsory to be used in accordance with educational programs and their level of being used. In this study, the scanner model was used. It was stated in a study carried out on 112 social science and geography teachers working at elementary and secondary schools in the 2006-2007 Education Year that teachers didn't use educational technologies in their activities very often; that they self-taught themselves how to use these technologies and that they found themselves partially adequate.

**Key words:** Technology, educational technologies, educational programs, teachers perceptions

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### INTRODUCTION

With globalisation, the interaction between information and technology has increased. Thus, the interaction in science forced the nations to review their educational processes and adapt them to the new age. This vital change has invalidated the slow approaches that used to put students under burden of enormous amount of knowledge and has turned to the methods which modernize the ways to information because information has started to penetrate into the daily lives of people rapidly and expanded its interactive zone. This change which is shaping the modern education leads us to see education from new perspectives and to configure our knowledge according to these perspectives (Bacanli, 1999; Oguz *et al.*, 2001; Duman, 2002). The information has been exchanged very fast. At the same time, new information means the previous information is no longer new and up-to-date. Thus, this causes information nonfunctional for a while (Celep and Cetin, 2000; Oral, 2005).

In this regard, the restructured information in a more radical manner becomes new experiences gained individually by synthesizing his own truths in the light of science through his own life and is, in a sense, restructured in an individual way (Yesildere and Turnuklu,

2004). In present study, the information is interpreted by the individuals using the variables in the learning environment in a scientific frame. For this reason, the learner needs restructuring the data received by his/her senses through experiences so as to understand and interpret the information (Ozden, 1998; Koc, 2000; Sahinel, 2002; Bagci, 2003; Ulgen, 2004). The crucial point here is the organisation of information structures in formal lives formed in the responsibility of the learner rather than seeing the learner as a passive, one-way learner (Mayer, 1992). The organisation is meant to undertake the responsibility of the learning of the learner and perform the activities to this end. In order to achieve this, the interaction is particularly important in the learning environment (Guvenc, 2004).

With this configuration approach which enables the development and rearrangement of educational programs, it is adopted that information be built in mind and be used in various areas. Accordingly, students will be the center of learning. In this sense, they will be viewed as the primary factor of the process of teaching-learning along with the teacher. Knowledge and environment shaped in this manner are spontaneous things thanks to interaction. The students should get in close contact with the learning environment and work the information up to their own potentials.

It is observed that the characteristics expected from the students eventuate through activities in a student-centered curriculum. These activities involve the students themselves and are composed of student-centered learning circumstances, the qualities of which are, thus, determined by the used materials. Therefore, in order for the students organize their learning, the required guidance should be done professionally because of the fact that students can build up their own learning system and define certain advantages personally depends on the organisation of the basic learning experiences provided for them (Disick, 1975; Passe, 1999). This planned process under the control of teachers activates the individual learning of the students and helps them to reconfigure the variables which affect the learning environment in accordance with the personality of students (Schmeck, 1988).

In the teaching structure, leading different individuals to a collective aim in learning requires activities which will enable the information to be individualized and means to support the stages of these activities. In other words, reconfiguration of the learning of a student individually depends on the teacher's integrating these means into the educational environment (Pressley *et al.*, 1992; Resnick, 1989; Mayer, 1992; Wilson, 1996; Beane, 1997). On the other hand, this means the boundaries of education should be expanded as much as possible and ascribes a different meaning to learning. This meaning is transferred to the educational experiences through the accessibility and transmissibility of knowledge. Technology which is the most popular transmission means of our age is conceived as an educational structuring that allows more scientific information and more comprehension of the complex learning circumstances (Akkoyunlu, 2002). Especially educational technologies (including Internet, video conferences, sound and visual educational tools) have been attracting attention because it takes away boundaries around education and provides limitless educational options (Halis, 2001; Askar, 2003). Sharing information with this way is very comfortable and free. For instance, students can share any visual and sound information with their friends without any limit on Internet (Tooper, 2004; Baki, 2004). According to Yildiz *et al.* (2002) and Oral (2005), educational technologies have made to changed for good with developing and transferring visual and colorful graphics through computers. In addition, for the developments of cognitive talents in education and providing learning, it is very important to design computer supported learning, it is very important to design computer supported technologies properly (Bruer, 2003). Contents supported with visual items help subject to be more clear for students to understand the courses (Yalin, 2000;

Tan and Erdogan, 2004; Akkoyunlu *et al.*, 2004; Oral, 2003). The support of governmental offices, this rapid development will be paid of with high demand and support balance. Therefore, institutional educational places have been working very hard to up-to-date their technologies so to contact bridges for the future (Ulug, 2003; Strandberg, 2002). Educational system requires a vision from learners to get all possibilities about information and communication (Aytac, 2003). For this reason, as all above literature supports, teachers should integrate their lessons with technology so as to raise individuals for an information society.

The purpose of this study is to state the perception problems of teachers about student-centered curricula and educational technologies which have become a must to be used. Therefore, it is expected to determine teachers' perspectives on educational technologies in the current curricula and to what extent they make use of these in their teaching.

## **MATERIALS AND METHODS**

Scanning model was used in this study. In this respect, the perceptions of the teachers (Social Science and Geography) working at elementary and secondary schools of educational technologies in student-centered curricula and to what extent they make use of these technologies were to be defined. The working scope consists of teachers working at the schools in the province of Kutahya, Turkey, in 2006-2007 Education Years. The sample consists of 112 subjects at 36 public schools in Kutahya, which were chosen randomly and represent different socio-economical levels on the working scope.

In order to determine the opinions of the subjects, the researchers scanned the relevant literature, reviewed the measurement scales in studies carried out for similar applications, sought the opinions of specialists and developed a likert scale of 30 articles. Thus, a questionnaire was developed and applied to the teachers at the public elementary and secondary schools. The Cronbach Alfa internal consistency of the scale used in this study was calculated Alpha = 0.93, which was found to be satisfying for the level of reliability. Specialist's opinions were sought for the validity of scope.

The data acquired from the questionnaire were analysed by means of SPSS 11.5 program and statistical operations such as T-Test and ANOVA Test were carried out along with frequency and percentage techniques to determine the discrepancy between the opinions of the subjects. Levene Test was carried out to determine whether the groups were homogeneous or not.

**RESULTS**

One hundred and twelve teachers participated in the study; 88 social science teachers (78.6%) and 24 geography teacher (21.4%); 54 male (48.2%) and 58 female (51.8%). 10.7% of the teachers had 5 years or less professional experience while 36.6% had 6-10 years professional experience. According to the study results, the time they allocated for educational technologies in the classroom was 1-2 lessons per week (69.6%). With regard to the quality of the training on educational technologies, 4.2% of them stated that they had never received any training while 46.3% stated that they had attended an in-service training program. 48.2% of the teachers found themselves partly-efficient in using educational technologies in the classroom while 78.6% seemed eager to attend a training in this subject. The study shows that teachers feels themselves very comfortable using

computer (54.5%) as technology and VCD (42.0%) as a teaching tool in the classroom. The information about the subjects was presented in Table 1.

**The variance analysis carried out for the study:** They enable individualization of learning versus professional experience (Table 2).

As a result of one-way variance analysis carried out to determine whether there is a difference between professional experience and the article. They enable individualization of learning F-value was found to be (3.57) meaningful (SD = 4.107,  $p < 0.01$ ). As a result of the LSD test carried out to determine between which experience periods there is a meaningful difference, (0.01) meaningful difference was found between the teachers that have 5 and less years of experience ( $n = 12$ ,  $Ort = 4.66$ ,  $SS = 0.65$ ) and those that have 21 or more years of experience ( $n = 11$ ,  $Ort = 4.00$ ,  $SS = 0.89$ ) in favour of the

**Table 1: The frequencies and percentages of the personal information and independent variables of the respondents**

Variables		f	(%)	Mean	SD	Total
Gender	Male	54	48.2	1.51	0.50	112
	Female	58	51.8			
Professional experience	5 years or less	12	10.7	2.76	1.13	112
	6-10 years	41	36.6			
	11-15 years	31	27.6			
	16-20 years	17	15.3			
	21 years or more	11	9.8			
Time allocated for educational technologies	Every lesson	7	6.3	2.25	1.15	112
	1-2 lessons a week	78	69.6			
	1 lesson a day	19	17.0			
	Never	8	7.1			
The quality of the training on educational technologies	Pre-service training	10	9.0	2.80	1.15	112
	In-service training	52	46.3			
	Private courses	5	4.5			
	Self-taught	40	35.7			
How efficient are you in using technological appliances?	No education	5	4.5	2.56	0.64	112
	Very efficient	3	2.7			
	Efficient	49	43.7			
	Partly efficient	54	48.2			
	Inefficient	6	5.4			
Would you like to attend training on educational technologies?	Very inefficient	-	-	1.31	0.64	112
	I would	88	78.6			
	I can learn it without a course	13	11.6			
	I would not	11	9.8			
The technological appliance used best	Computer	61	54.5	1.79	1.04	112
	VCD player	29	25.9			
	Data-show	14	12.5			
	Slide machine	8	7.1			
The technological appliance used most	Computer	41	36.5	1.98	1.04	112
	VCD player	47	42.0			
	Data-show	15	13.4			
	Slide machine	3	2.7			
	Other	6	5.4			
Branch	Social science	88	78.6	1.31	0.64	112
	Geography	24	21.4			

**Table 2: Variance analysis result; they enable individualization of learning versus professional experience**

Source of variation	Sum of squares	SD	MS	F-value	p
Among groups	8.37	4	2.09	3.57	0.009
In groups	62.62	107	0.58		
Total	70.99	111			

Levene test  $F = 0.89$ ,  $SD = 4.107$ ,  $p = 0.472$

former ones. This result shows that new teachers are more inclined to use educational technologies, which makes us think that the institutions that train teachers have been really good to educate them especially better in technology-supported educational applications. In this context, another factor that might have been effective is the fact that the younger generations have more tendencies to be receptive for technological information than the older ones.

**The variance analysis carried out for the study:** They diversify education by providing more resources versus educational technologies

As a result of one-way variance analysis carried out to determine whether there is a difference between the time allocated for educational technologies and the article. They diversify the classroom activities. F-value was found to be (3.49) meaningful (SD = 3.108,  $p < 0.05$ ). As a result of the LSD test carried out to determine between which periods there is a meaningful difference, (0.01) difference was found in teachers who said in every lesson (n = 7, Ort = 4.85, SS = 0.37) one lesson a day (n = 19, Ort = 4.21, SS = 0.63) and one or two lessons a week (n = 78, Ort = 4.30, SS = 0.60). This difference was found to be in favour of those who said in every lesson (Table 3).

It is advised that various educational technologies be used in student-centered curricula, the elementary and secondary reason of which is the fact that they make learning easier, the information more permanent and the learning process more fun. It can be understood from the findings that teachers using educational technologies in every lesson follow more suitable teaching strategy for the aims of the lesson.

**The variance analysis carried out for the study:** They encourage the students to ask, think and exchange their ideas versus the quality of the training on educational technologies.

As a result of one-way variance analysis carried out to determine whether there is a difference between the quality of the training on educational technologies and the article they encourage the students to ask, think and exchange their ideas. F-value was found to be (8.43) meaningful (SD = 4.107,  $p < 0.01$ ). As a result of the LSD test carried out to determine between which educational qualities there is a meaningful difference, it was determined that there is a meaningful (0,01) difference between the teachers who had it as a lesson prior to service (n = 10, Ort = 5.00, SS = 0.00), those who had attended in-service training (n = 52, Ort = 4.03, SS = 0.55), those who had had private courses (n = 5, Ort = 3.80, SS = 0.83), those who had self-taught (n = 40, Ort = 3.75, SS = 0.70) and those who hadn't had any training (n = 5, Ort = 4.20, SS = 0.83) in favour of the first group (Table 4).

The result shows that the training on technological literacy having been given to the teachers while they were students has achieved its aim. The fact that the mean value of the teachers who adapted themselves to the technological developments without any prior training by only means of their own efforts is (4.20) also shows that Turkish teachers, in general, have a potential to be open to novelty.

**The variance analysis carried out for the article:** They enable individualization of learning. Versus the quality of the training on educational technologies.

As a result of one-way variance analysis carried out to determine whether there is a difference between the quality of the training on educational technologies and the article. They enable individualization of learning. The F-value was found to be (4.89) meaningful (SD = 4.107,  $p < 0.01$ ). As a result of the LSD test carried out to determine between which educational qualities there is a meaningful difference. It was determined that there is a meaningful (0.01) difference between educational technologies and the teachers who had it as a lesson prior to service (n = 10, Ort = 5.00, SS = 0.00),

Table 3: The variance analysis: they diversify education by providing more resources versus educational technologies

Source of variation	SS	SD	MS	F-value	p
Among groups	4.14	3	1.38	3.49	0.018
In groups	42.77	108	0.39		
Total	46.42	111			

Levene test: F = 5.04, SD = 3.108,  $p = 0.003$

Table 4: The variance analysis: they encourage the students to ask, think and exchange their ideas versus the quality of the training on educational technologies

Source of variance	SS	SD	MS	F-value	p
Among groups	12.94	4	3.25	8.43	0.000
In groups	41.02	107	0.38		
Total	53.96	111			

Levene test, F = 6.27, SD = 4.107,  $p = 0.000$

**Table 5: The variance analysis; they enable individualization of learning versus the quality of the training on educational technologies**

Source of variance	SS	SD	MS	F-value	p
Among groups	10.98	4	2.740	4.89	0.001
In groups	60.00	107	0.561		
Total	70.98	111			

Levene test F = 8.16, SD = 4.107, p = 0.000

those who had attended in-service training (n = 52, Ort = 3.94, SS = 0.77), those who had had private courses (n = 5, Ort = 3.80, SS = 0.83), those who had self-taught (n = 40, Ort = 3.87, SS = 0.82) and those who hadn't had any training (n = 5, Ort = 4.00, SS = 0.00) in favour of the first group (Table 5).

This result reveals that teachers who have had prior-to-service training on individualization of learning through educational technologies think more positively than those in the other groups.

### DISCUSSION

It was determined that teachers with 5 years or less services were different from those with 21 years or more services in They enable individualization of learning versus professional experience. That is, teachers of 1-5 years have a more average than the other teachers (4.66) in thinking that educational technologies are effective in individualization of learning. In a study carried out by Kleiner and Laurie (2003), it was observed that in last few years, in public schools, significant increases have occurred in computer using and internet connection (Kleiner and Laurie, 2003; Anonymous, 2001). According to the result of the study, especially the teachers with 1-5 years of experience were observed to have responded to this increase in the best manner.

According to the study, it was determined that those who made use of educational technologies in their classes everyday were in the opinion that these technologies made their lessons more interesting and more enjoyable. Moreover, the facts that the number of internet users have reached 100 million at global level; that for the first time, the numbers of E-mails (95 billion e-mails) have exceeded the number of mails (85 billion) and that the speed of telephone has been surpassed indicate the possibility of how technology can also penetrate into educational facilities (Middlehurst, 1999). However, while all these developments are being experienced in the world, according to Demmers and O'Neil (2001), this rapid change is experienced in Europe and the USA more.

Again in the study, it was stated that in the context of the using educational technologies and the quality of the training teachers had on them, the most differentiation was seen in teachers who had prior-to-service training.

These teachers stated that educational technologies contributed to the analytical thinking skills of students a lot. Similarly, those who find themselves very efficient in the use of technology stated that educational technologies direct individual learning (5.00). According to a study by Slowinski (2000) (which supports this study's findings) shows that most of the states in the USA require efficient usage of educational technologies in order to get a teaching certificate. At this way, the new generation teachers will be more exposed to educational technologies. According to Lewis (1984), the way education is conveyed is being changed as a result of technological developments. The production of educational technologies to be used in certain areas or using general advanced technologies in education is being shaped by the expectations and values of the teachers in this subject (Aziz, 1982; Tekin, 1996).

Although there have been technological improvements, sometimes it can be seen that educational systems are not successful in raising individuals whose qualities are up to the expectations of the society. Especially according to Dickson, Schumacher and Goulet, the problems arising from not using curricula and educational technologies have been mainly painful in the developing countries in using technological means (Dura, 1990). The most important way to get rid of this problem and to make the learning processes more productive is integrating technology into education. In general, it is expected that enough numbers of technological means exist so as to benefit from technology in educational systems; they be used in such a manner to support current curriculum and teachers use them efficiently.

It is known that using educational technologies effectively in learning and teaching processes increases the quality of the education. Many studies argue that educational technologies are more effective than traditional instruction approaches for the success of students (Coye and Stonebraker, 1994; Tjaden and Martin, 1995). In the parts of the national literature that have been studied, it is observed that all of the studies on educational technologies have been carried out in primary and high school levels where normal curriculum is applied (Demircioglu and Geban, 1996; Buyukkasap *et al.*, 1998; Soyulu and Ibis, 1998) For instance, in the studies carried out by Hizal (1989), teachers have the opinion of using computer-based education. In the same study, the fact

that more than four fifths of the teachers would like to own a computer. It can be evaluated as they are positive and eager to use computer and thus educational technologies. Meral and Zerayak (1999) emphasize that teachers be urged to use educational technologies available at their schools. Imer (2000), on the other hand, reveals in her paper that the numbers and hours devoted to the integration of education with technology are hardly enough at College of Education in Turkey and demands that they be increased. Hu *et al.* (2003) argue that teachers show resistance against educational technologies at schools, the reason of which is thought to be the inadequacy of their pre-service training. O'Donnell (1996) emphasizes that computer has not been able to penetrate into classes although they are available at schools. He also adds that computer is mostly used at schools for computer literacy, simple researches and managerial purposes but not for reinforcing teaching in class as often. The reason he puts forward for this is the fact that teachers don't know how to integrate these technologies with their teaching processes. Demetriadis *et al.* (2003) put emphasis on the fact that teachers cannot integrate their own teaching methods with information and communication technologies and thus need to be supported and trained accordingly Gunduz and Odabasi (2004).

When other studies are analysed on the whole, they are observed to concentrate around computer technology that is involved in the new technologies. This is because of the fact that computer is the main component of information technologies because computer is the main unit in both interactive video and network systems. Additional hardware is needed for the other systems, which bring their own cost. Therefore, educational technologies other than computer have newly entered into the education environment and their number is far less. In fact, the fact that the cost of hardware has diminished recently which affects on the increase of their number. Nevertheless both the inefficiency of the necessary software and the rapid change in technology have caused the research to focus on computers which are the first information technologies to penetrate into the education environment. On the other hand, it can be said that despite the widely-use of Internet, its cost and hardware prevented Internet from taking its place in the education environment and hindered the research in this area. Despite all this negativity, current researches indicate that teachers show positive attitudes towards new technologies and support the efforts and studies in this regard, which is really promising for the future of education. Especially the fact that young teachers adopt

more positive attitudes towards information technologies can be thought as an indicator of the fact that these teachers draw a positive profile in using these new technologies in educational environments more actively.

The way we live, learn and work has been changing rapidly. Therefore, it is impossible for the educational systems which bear the mission of preparing individuals for their lives in such an environment to stay the same. For example, among the basic indicators about the educational quality of European Union (EU) member and candidate countries are to what extent information technologies are used, the computer facilities of the educational institutions and the number of the students per computer (Aksoy, 2003; Anonymous, 2001; Oakes and Lipton, 2002).

In this respect, although the biggest difference between technology-aided learning and traditional education concept only seems to be its technology aspect, in reality it requires a radical change in concept. This concept is such a model that is individualistic; that motivates the individual to reach for the information and that diversifies the ways to transfer the information. Using educational technologies in learning yields concrete educational activities of the teacher and the student in the same environment at the desired level. Curricula make these activities more concrete and urge the educational technologies to be involved in them (Senel and Gencoglu, 2003).

All the educational systems that put a student into the center of education in the new century have been striving for a vision that will enable the students to take advantage of all the opportunities of information and communication technologies especially in today's information age, in which a rapid change and development have been experienced. Teachers should know that using the information and education technologies in harmony with the vision of educational programs will help equip the society with the required human qualities. Thus, today, it is expected from teachers that they should both show their skills in using technology in education and integrate the technologies that are required in modern education with the learning environment shaped by educational programs.

Therefore:

- Higher educational institutions that train teachers and formal educational organisations should do more efficient counselling about how and where would-be-teachers and teachers will use educational technologies.

- Technical infrastructure should be reinforced so as to generalize computer, internet and other advanced educational technologies at schools.
- Considering the fact that almost 80% of teachers have stated that they would love to attend an in-service training on educational technologies, the Ministry of Education should review the content of in-service training activities and should prioritise technological literacy.
- Teachers whose period of service is over 21 should be prioritised in in-service training on technological literacy.
- Teachers should be encouraged to use educational technology more often.
- The essentiality relation between student-centered educational programs and the use of educational technologies and technological literacy should be explained to teachers administrators, parents and students with various methods and means.

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