

# Turkish primary science teachers' perceptions of the nature and value of educational research

## Percepciones de la necesidad y valor de la investigación en educación de los profesores de ciencias en Turquía

P, MEHMET KÜÇÜK, SALİH ÇEPNİ

Ondokuz Mayıs University, Amasya Faculty of Education, Amasya / Turkey  
mgokdere@yahoo.com

### Abstract

*This study aimed to determine primary science teachers' ideas, feelings and thoughts about educational research. In the study, semi-structured interviews were conducted with twenty-four science teachers. The resultant findings led to the conclusion that teachers think that their classroom teaching does not benefit from educational research findings. They also think that educational research reports do not have practical value due to the lack of a relationship between education researchers and teachers. Also, their participation in these kinds of research activities is neither encouraged nor supported.*

*Key words: teacher development; teacher research; beliefs about research.*

### Resumen

*Este estudio se enfocó en determinar las ideas y pensamientos sobre investigación en educación de los profesores de ciencias en primaria, para esto se realizaron entrevistas semiestructuradas, conducidas por veinticuatro profesores. Los resultados llevaron a la conclusión que los profesores creen que su enseñanza en las aulas no beneficia por los resultados de investigación en educación. Igualmente opinan que los reportes sobre investigación en educación, no tienen valor práctico debido a la carencia de una relación entre investigadores en educación y profesores. Además, su participación en este tipo de actividades investigativas no es estimulada ni apoyada.*

**Palabras clave:** desarrollo del profesor, investigación educativa, opiniones sobre investigación.

### INTRODUCTION

It is not always possible to estimate beforehand exactly what kinds of issues a teacher might face in a classroom context. ELLIOTT (1991), and KOSNIK and BECK (2000) suggested that classroom teaching is an unknown and complex process, which includes a wide variety of activities. They also stated that what is to be taught should be presented by using good teaching practices. The teaching practices should be based on the teachers' own knowledge, skills, and understanding. If teachers are going to improve their teaching abilities, they should present their ideas to other colleagues to aid in their self-evaluation. In Turkey the head teachers and inspectors are responsible for observing teaching methods and giving feedback. In this way, teachers deepen their understanding, by systematically discussing and evaluating their own practices in the direction of education's aims. Thus, they should take the role of researchers in their

classrooms (STENHOUSE, 1975; SCHÖN, 1983; CARR & KEMMIS, 1986). For teachers, research-based thinking can guide their teaching, and it is effective in helping them to apply new strategies and to solve the problems encountered in the process. By approaching their classroom teaching practices from a critical viewpoint, and by using all the knowledge and experiences that they have, teachers construct a lot of practical theories related to learning and teaching (SWEENEY, BULA & CORNETT, 2001). This research method, as a tool for development in education based on critical evaluation, encourages reflective teachers to construct small-scale research activities regarding classroom practices, either individually or in participation with colleagues. For teachers, collaborating with colleagues and related people about their work forms a large part of their professional development. The approach which teachers are expected to take with this new role can turn teachers from being merely implementers of educational ideas to being actively involved in the research process (KYLE & WILLIAM, 1991). TABACHNICK and ZEICHNER (1999) determined that teachers who join in research activities have become more aware of the differences between their own beliefs and practices. In this way, teachers become more concerned about what their students think and feel, and they learn more about theories of teaching and learning.

### THE TURKISH CONTEXT

Recently, there has been discussion among education researchers about certain problems, such as the fact that teachers in Turkey cannot do, or benefit from, education research, do not perform research in the classroom and have some negative attitudes towards current education research (ÇEPNİ & AKDENİZ, 1996; KÜÇÜK, 2002). In this context, it is important for the quality of learning and instruction that teachers' attitudes of toward research be developed in a positive manner. In work done by KÜÇÜK (2002), it was determined that a short-term teacher action-research course changed the participant science teachers' attitudes towards educational research in a positive manner and encouraged them to plan and construct small scale action research projects about their classroom practices. It might be possible that there may well be serious differences in perception here as to what constitutes doing research and what is entailed. Critical reflection is (or should be) part of the expected professional behavior of all teachers. However this critical process also applies to the instructions and requirements from the central administration. If teachers are required to engage in

research – this goes beyond critical reflection and needs to be made public (or formally shared with others). Unless teachers feel they can trust the ‘system’ not to use against them any self-critical findings about their professional actions or their science knowledge and understanding teachers can not be expected to be reflective and critical about their own practice. Indeed the system must legitimate, value and reward such actions. However, it seems very difficult to achieve and sustain such a system.

It is believed that the reason teachers do not implement contemporary educational ideas in accordance with the developers’ aims, (the situation encountered by the central administration (MNE)), is because teachers do not have a critical/research viewpoint. In addition to this, one of the reasons given for implementing a “teacher research model” is stated as: for the purpose of rejuvenating projects in Turkey where educational decisions, based on their developers’ goals, are accepted by the central administration and sent to the schools as directions to be implemented. Teachers should be educated to have a team spirit” ÇEPNİ & AKDENİZ, 1996, p. 126). According to data from a project supported by EARGED (an institute connected to the Ministry of National Education that supports education research studies in the faculties of education)., current Turkish teachers are not effective in the recognition of the problems related to the educational system. They do not see themselves as concerned with them and do not usually read research literature, which is also a common finding internationally. In order to solve these issues, student teachers should be educated during their initial teacher training, and teachers should be educated in service to master the methods and techniques needed to examine their classroom teaching practices systematically.

## METHOD

This study of practicing teachers’ thinking on educational research was part of a large project that examines a group of science teachers at different career points. The study employed a qualitative methodology. To begin the study we developed and administered an interview for practicing science teachers at the beginning of an action research course program that emphasized their being critical consumers of educational research and especially their doing action research. The subjects consisted of twenty-four science teachers who work in the middle schools of Trabzon. Their professional experience, which was between 1.5 and 25 years, and their school contexts were also taken into consideration. However, it can be said that the sample is likely to be well disposed towards the idea of research – not typical of all teachers. It is interesting to note that although the sample teachers’ career stages and their school contexts were very different from each other, a preliminary examination of the transcripts showed that the teachers usually had similar reactions to the questions. Thus, we did not analyze the teachers’ responses according to their career stages or school contexts. The interview was implemented with these teachers individually by one of the researchers in the study to determine their thinking about educational research. Each interview lasted for thirty minutes and was recorded. The interview questions used in the study were taken from a study done by GITLIN *et al.* (1999), in which they examined pre-service students’ ideas about research. It can be thought that these questions almost pre-suppose that educational research is something ‘done by others’ and then transmits results to teachers and this may lead to negative responses. This is a commonly known fact of the Turkish case, however, and some of the teachers’ responses such as “teachers do or should research” means that the questions did not pre-suppose the problems identified above.

To analyze the interviews, we met as members of the research team to transcribe all the responses to each question in the interviews. Then, each of us read all the transcripts individually to determine the frequency of the teachers’ responses. Then, we again met as a research team to see if we agreed on the themes. For example, we wanted to learn about the practicing science teachers’ thinking on educational research. Thus we asked, “What is educational research?” Individual examination of the practicing teachers’ replies to this question showed that the teachers tended to give three kinds of responses such as: “Problem solving process, based on learning and teaching issues”, “Scientific examination of educational problems” and “Work to improve or develop learning and teaching practices”. (Table 1). Then we met as a research team and read all of the data transcripts related to this question and determined the frequency of the teachers’ responses.

## FINDINGS

Data obtained from interviews reflecting the science teachers’ ideas, feelings and thoughts about education research and the reasons that lie behind them, are categorized and presented below.

### 1. What is educational research?

**Table 1**  
**Teachers responses to the question of “what is education research?”**

	f	%
Problem solving process, based on learning and teaching issues	10	41
Scientific examination of educational problems	8	33
Work to improve or develop learning and teaching practices	6	25

Teachers’ responses to the question of what educational research is show that all teachers have a fairly clear view of education research and stressed that education research aimed to solve the problems of instruction.

### 2. What are the problems with educational research?

**Table 2**  
**Teachers responses to the question of “what are the problems with education research?”**

	f	%
Teachers are not informed about current research- they cannot or do not access it	11	45
Research they can access doesn’t help them with their practices	7	29
Educational research is not a collaborative effort	6	25

Teachers mostly stressed that they are not informed about the education research conducted at universities and published in academic journals, and thus, cannot access it. In addition, some of the teachers think that the research they have seen cannot contribute significantly to their classroom practices.

### 3. How do the results of research on science education influence your classroom teaching?

91% of the teachers said they do not benefit from research results in any way and the others said that they believe that being successful depends on how much they apply themselves to their classroom teaching. In addition, it was determined that teachers do not believe that some of the projects such as the new “science program” (a new primary science program named the student-centered program has started to be implemented in the Turkish context in 2000’s). and “total quality administration”, encouraged by the National Ministry of Education can be implemented successfully in their educational contexts.

### 4. Who does education research and how can the reports be accessed?

62% of the science teachers clarified that education research is done by academics from universities and by related subject area experts, and 33% of them thought that teachers, education experts and academics from universities are able to do it. 33% of the teachers do not have a correct understanding about how they can find education research reports. Only 12% of them explained that these are found in the journals published by education faculties and in the journals and books published by the National Ministry of Education.

### 5. How do schools differ in the way they benefit from education research studies?

79% of the science teachers said that education research is not used in their schools in any way. A teacher with twenty years of experience answered that research results are not used either in the central or in the rural area schools. However, another teacher with twenty-five years of experience said that there are some teachers who want to read and benefit from educational studies. In addition, four science teachers who work at the schools situated next to the education faculty said that student teachers and

research assistants frequently visit their schools. Thus, they are informed about the activities conducted in the faculty, and thought that they are luckier than those who work in the rural areas.

#### 6. How do social conditions influence your doing education research?

20% of the teachers (subjects of the study) stated that neither school nor central administrations have supportive attitudes towards teachers who want to conduct education research. 62% of them said that too many teaching hours in their schools and their socio-economic conditions hinder them doing research. On the other hand, three of the teachers said that the social and economic conditions in their schools are conducive to doing research, but they do not have the practical knowledge to conduct research without disrupting their classroom teaching.

#### 7. Who should make the decisions about your school or classroom? How does this influence your doing or benefiting from research?

Nearly, 83% of the teachers said that mostly the teachers and then students, school administrations, other school personnel and parents should be responsible for the decision making process about schools. In addition, 66% of the teachers explained that educational decisions should be specific to a school; however, 25% of them said that such decisions should be more general. The reason for this answer is usually the same; teachers want education practices to be followed uniformly for educational unity. If teachers can be more active in making decisions about schools and more autonomy is given to them in making specific decisions about the classroom context, they believe that they would have more incentive to participate in research efforts.

#### 8. How does your professional experience influence your reaction to the research?

33% of the teachers said the influence was positive, however the others said that it had a negative influence. A teacher with four years of professional experience answered this question with *"when my professional experience increases, I become more concerned with the subjects and need more knowledge"*. A twenty-year teacher said *"for a long time, we have taught the science subjects with the same methods. Neither school nor central administrations supported reforms. Thus, I feel tired and disaffected"*. Those who think that professional experience has a negative influence on reactions to education research reports presented similar reasons to those described above. Here it can be thought that science subject knowledge should also be part of this agenda, however, we had not asked about that thus could not obtain any information about it.

#### 9. What difficulties do you think you would face in doing research about your classroom teaching practices?

Table 3

Teachers' responses to the question of "what difficulties do you think you would face in doing research about your teaching practices?"

	f	%
Find appropriate - and adequate time and support	11	45
Gather data, analyze and write report	7	29
Interaction with colleagues	6	25

Teachers think that they would probably face some important issues while conducting educational research about their classroom teaching; including finding an appropriate time and especially in getting support from the school administrations. Following a research process is also seen as problematic. Also, teachers do not believe that they can have good interaction with their colleagues, but this idea should be challenged, because research in teaching methodology would prove effective if pursued as a collaborative endeavor especially for teachers. However, the teachers who were the subjects of this study believed that colleagues would not help and support them in their research.

#### 10. Do you want to join education research activities and do research in your classroom?

All the teachers said that if educational research could solve a practical issue in their classrooms, they would want to join with it and also conduct

research in their classrooms. This thought is supported by the following statement from a teacher with twenty years experience: *"if I had believed that a study could solve an issue in classroom practice, I certainly would do it"*.

#### 11. What are your suggestions for Turkish educational research that would be the most productive and practical?

Table 4

Teachers' responses to the question of "What are your suggestions for Turkish educational research that would be the most productive and practical?"

	f	%
Teachers should be encouraged to work actively in these studies and teachers work must be valued	8	33
There should be an active collaboration between teachers and researchers	6	25
Research should be related to the real problems of learning and teaching and the results must be made public for the teachers	6	25
Education studies done by academics should have a practical side	3	12
Teachers from different school contexts should come together and discuss educational problems	1	4

From the responses, it is seen that Turkish science teachers have some crucial ideas about how educational studies should be practiced in schools. One is that teachers are to be encouraged to work actively in educational studies, and that their work is to be valued. Teachers also want a close relationship between the academics and themselves. Especially, as explained above, the Turkish science teachers want their work to be taken into consideration by others such as by the Ministry of National Education, the school administration, and the community, and they want their research to be valued.

## RESULTS AND DISCUSSION

From the research data, it is understood that science teachers understand the theoretical aims of educational research, such as solving the problems of teaching and learning in the schools. In addition, teachers who work at the city centers and at a school next to the faculty of education (two teachers) are more aware of the concept of education research. However, it does not mean their classroom practice has been influenced by the exposure. We think this subject needs further examination. Nevertheless, this situation may be the result of research assistants making more visits to the schools next to their faculty in order to benefit from the teachers' help in the data gathering phases of their own educational research studies. Thus, a short-term interaction between the teachers and researchers occurs.

We should consider the reasons why science teachers believe that current educational research cannot contribute to their classroom teaching practice. HANCOCK (1997) explains this situation by saying that the teachers believe that these research studies are written in an academic language, which is not clear and easy for them to follow. The thoughts of the teachers who are postgraduate students at the faculty of education and who have an opportunity to examine these studies support this claim. In a project done by KOSNIK and BECK (2000), it was determined that teachers think that university based research is too abstract to provide effective guidance for the classroom practices of teachers. This brings us to the question "why do we do research and for whom?". We, as education researchers believe that if research is expected to develop and improve teachers' classroom practices, the most important dimension should be providing a practical structure for teachers to implement the findings of that research.

The constraint of time limitations upon teachers is the basic reason why they do not conduct research or participate in research activities. HANCOCK (1997) agrees that the time factor is the main reason why teachers are not concerned with education research. We think that when teachers are faced with a new practice or are encouraged to work on something new, they see

this as extra work and time consuming. On the other hand, the current schools and central administrations of Turkey do not support the teachers who want to conduct research. However, the educational system wants teachers to encourage their students to do research and work actively in groups. Therefore, teachers who cannot find any opportunity to do research, and are not given support to do it, would have a problem which is contradictory to the aims of the education system. KÜÇÜK (2002) found out that science teachers lack the self-confidence required for conducting research in their school contexts. This is believed to be due to the fact that teachers who are in the profession for a long time have used traditional teaching methods and have not taken their courses' nature, based on research and investigation, into consideration.

Science teachers think that they should be more active in making decisions about their classrooms and schools. Thus, we thought that teachers who act more independently and freely in their classrooms will be more responsible for their practices and they will effectively use their knowledge and experiences that are gained through the process of solving the practical problems in their teaching over a period of time.

For teachers to be unaware of how they can reach these sources is a problematic situation that has to be solved. In order to solve this problem, we believe that a research based education should be given to all the student teachers in initial teacher training and all the practicing teachers in in-service courses, and they should be supported so that they might gain effective project development abilities with experience, and the idea of "teacher as researcher" should be given to them as their own (LOFTUS, 1999).

Most of the teachers think that education studies are done by academic researchers and experts from the central administrations. However, a few of them think that teachers could also do research. An important consideration here is that researchers just demand help in data gathering and do not give any importance to the teachers' ideas and thoughts in other parts of the research process. Teachers should actively join in the entire process of education research as done by academic researchers. Thus, education researchers' traditional research culture should be changed to a collaborative action research culture (KAPLER, 1997). The other important consideration is that some teachers have a negative idea that current educational research cannot provide objective explanations in special contexts. Teachers who think of the educational endeavor as something static have superiority feeling with their own educational life. A teacher who accepts this idea about educational research is less likely to join in with education research and will even reject research findings.

Data results showed that there is a negative relationship between the duration of professional experience and the attitude towards research. However, the education contexts in which teachers work are also quite important. Teachers who are new to the teaching profession see research as an important opportunity for experience and even a few experienced teachers see the need to participate in research to renew their perspective about the teaching process. However, many teachers feel exhausted and perplexed, because they have used the same teaching methods for long time, which has created hopelessness that the process could be improved. Therefore, they approach research methods with a negative mind-set (HANCOCK, 1997).

We found that teachers believed that they would face relational problems with their colleagues while doing research, gathering data, and during the analysis phases. Teachers who hold these beliefs will face problems in the interaction with others, and also they will have biases, which would interfere with the activities, and the functioning of the collaborative research process.

## CONCLUSIONS

In this study, we found out that teachers don't have a strong belief in education studies applied in different contexts. Therefore, they are not willing to access the current research studies and also do not take them seriously at the expected level. This is an important result for the context of Turkish education and it needs to be corrected in other countries as well. If we provide more autonomy for teachers in their school and classroom practice, it would let teachers be more responsible for their own practice and incorporate research findings into all the activities in learning and

teaching environments. Therefore, as explained by ALTRICHTER, POSCH and SOMEKH (1993), teachers can give impetus to their research activities. Nevertheless, it is not easy for practicing teachers to do action research (CHRISTENSON *et al.*, 2002), and teachers really need to be encouraged and supported continuously by academics.

From the research data, it was understood that the schools and central administrations do not give the required support for teachers to do research. In the schools, effective working environments should be prepared for teachers to read and discuss research reports related to them. In addition, for practicing teachers, journals or books about educational works and research, which combine theories and experiences, and that are written in a basic language, should be published and sent to schools. We also believe that teachers may be encouraged to form groups among colleagues in which they can discuss education problems in their schools, and also this can direct them to do action research.

In conclusion, teachers have some important professional theories and experiences which they have gained through being part of the teaching profession. However, teachers should be encouraged and supported by the Ministry of National Education and other educational institutions to make their professional knowledge and experiences available to colleagues and related individuals. In this context, some kinds of symposia, where teachers present their own studies and which are published in teacher research journals are required. We believe that these recommendations would help education research studies to enter schools and to change the traditional research culture into a setting for collaborative action research. In addition, suggestions from this study might be helpful for other countries where educational studies are not used by practicing teachers.

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