Depending on International Research Data Teaching Practices in Science and Technology Lessons in Primary Schools in Turkey

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Received: 29.12.2009 Revised: 06.05.2010 Accepted: 15.06.2010

The original language of article is Turkish (v.8, n.1, March 2011, pp.159-174)

Keywords: Teaching Practices; Science and Technology Lessons; International Studies; PISA; TIMSS; TALIS.

SYNOPSIS

INTRODUCTION

As one of the main determiners of education quality, teaching quality requires teaching practices that conducive to the good learning. Teaching practices in classroom and school are effective on learning outcomes through students’ learning (Klein, Hamilton & McCaffrey, 2000; Marks, Cresswell & Ainly, 2006: 124; UNESCO, 2007: 131; Sağır, 2008; Yıldırım, 2009).

Preferring teaching approach-method and techniques that constructs the conceptual background of teaching practices is meaningful for both developing skills like questioning, researching and also for active citizenship. In the current learning paradigm, students are accepted as active agent in the process of obtaining knowledge; inquiring and developing solutions for problems. Discussion, dialog, group activities and writing exercises in the classroom are supported (Akkus, Günel & Hand, 2007; Tytler, Cripps & Darby, 2009).

Research findings refer to that teaching practices like experiment, inquiring, problem based studying that are expected to be used more frequently in science and technology lessons are not at the desired level (Karaca, Uluçınar & Cansaran, 2006; Demirezen, 2001; Sözbilir, Senocak & Dilber, 2006).

Although there is considerable amount of study at the local and national level, literature review has displayed no studies on teaching practices in science and technology lessons in Turkey by using large scale international studies. Large scale international studies like PISA (Programme for International Student Assessment), TIMSS (Trends in International Mathematics and Science Study) and TALIS (Teaching and Learning International Survey), which are carried out in Turkey too, provide rich data that can be used for secondary analysis.
PURPOSE OF THE STUDY

Purpose of the study is to describe which teaching practices are used and what their frequency levels are in science and technology lessons in Turkey depending on the large scale international studies namely PISA 2006, TIMSS 2007 and TALIS 2008.

METHODOLOGY

a) Population, Sample and Data

PISA(2006), TIMSS(2007) and TALIS(2008) studies all have large samples and provide opportunity for looking at the same variable longitudinally and from very different perspectives (students, teachers, principals, parents). Since the study focused on teaching practices only students and teachers’ perspectives were used. Therefore, the study examined the same practices from both student and teacher perspective.

The study first selected and analyzed the related data embedded in the international data source. Stratified and random sampling procedures were carried out for all three large scale international studies. PISA 2006 provides data belong to 4,942 fifteen year Turkish students. As the study focuses on primary education the data of 116 students who are at the primary education level are directly chosen for this study. TIMSS 2007 includes data belong to both student and teacher at the primary education level therefore all 4,498 Turkish eight graders and 150 full time science teachers are selected. TALIS 2008 contains data coming from 3,224 full time subject teachers who work in primary schools. Among them 348 science teachers are taken for the study.

The normality and the power of data sets were examined through Q-Q diagram and one sample t test. Scatter diagram of Q-Q referred the normal distribution. At the latter alternative hypothesis was set as existence of difference between population and sample. Because the p value was bigger than .05, alternative hypothesis was rejected and the data set of representing population was accepted.

b) Instrument and Collecting Data

Data were collected through questionnaires including likert type questions of which options range from 1, refers the highest occurring to 4, refers the lowest occurring. Findings are interpreted depending on frequencies, percentages and mean values.

c) Data Analysis

Through constructing four data worksheets (PISA 2006 student, TIMSS 2007 student, TIMSS 2007 teacher and TALIS 2008 teacher) descriptive statistics were carried out and computed frequency, percent and mean values. As mean values were results of transferring the data into continuous measure, when interpreting them real group distances were considered (Baykul, 1999). The distance of 1.00-1.75, as always; 1.76-2.50, as often; 2.51-3.25, as sometimes and 3.26-4.00, as rarely and never were performed.

RESULTS

The most preferred teaching practices in science and technology lessons are as following: Checking whether the subject is understood or not (x mean=1.42); connecting the subject to the life (x mean=1.44); summarizing the previous lesson (x mean=1.51); getting students to explain the subject (x mean=1.76); watching teacher as s/he is conducting an experiment
DISCUSSION and CONCLUSION

The study concluded that teaching practices in science and technology lessons are tend to render students passive and there is a significant difference between written curriculum and implemented curriculum. Teachers put importance on making students comprehend the subject instead of developing their skills.

Being the low frequency of experimenting in laboratory and using ICT refers the infrastructural deficiencies of schools and the low frequency of using small group activities and project based works refer teachers’ inadequacy in regarding their teaching skills. Therefore it can be inferred that teachers are need of developing such skills.

Assessing the preferred teaching practices implied that students’ learning is not regarded by teachers much.

Comparing the current study results with international studies’ results displayed that there is no considerable differences between Turkey and other participant countries in regarding teaching practices. The only significant difference appears on small group activities and revising homework that Turkey has lower frequencies (Martin, Mullis & Foy, 2009; OECD, 2009).

Depending on the research results, the question of why teachers do not prefer teaching practices suggested in written curriculum is put forward for future studies. And it is suggested that good practices can be disseminated and sharing experiences among colleagues would help teachers in developing teaching practices.
REFERENCES


