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A Study on Evaluation of Effectiveness of an In-service Training (Inset) Course about the Use of Instructional Technologies and Material Development

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Abstract: This study aimed to evaluate the effectiveness of an in-service training (INSET) course which is provided for primary school teachers in Trabzon, Turkey. The INSET course was about the use of Instructional Technologies and Material Development and was given to teachers for two weeks by the field experts (academicians). A semi-structured pre-questionnaire is applied to teachers at the beginning of the INSET course. After analysis of pre-questionnaire, final content of the course and method of application is determined and the course is given to teachers for two weeks by university academicians. At the end of the course a post-questionnaire is applied. Quantitative data results illustrate that there is a meaningful difference in between teachers' pre-course expectations and after-course views. Qualitative data indicates that most teachers have positive attitudes towards the use of Instructional Technologies and believe that these technologies have potential to enhance pupils' learning as well as their teaching practices. As a result of this study, it is practically illustrated that determining teachers' expectations and readiness before carrying out an INSET course have tremendous impact on the success of the course.

Key words: Teacher education · In-service training (INSET) · Instructional technologies and material development · evaluation of an INSET course

INTRODUCTION

During the last couple of decades, the world of education has undergone quite considerable change. Enormous production in knowledge and information and fast changing and developing technology made societies to be agree on the meeting the rapidly changing needs of individuals and society in the twenty-first century. In this turbulent times the nature of teaching demands teachers engage utilizing this knowledge effectively and it needs continuing career-long professional development in order to fulfill the professional role of the teacher in the changing contexts in which teachers work and learning takes place [1,2].

With the recognition of these facts, today, many countries around the world are attempting to improve the quality of education provided for their children. In today's schools the need to cope with change can be seen to be necessary at various levels: the global, the institutional and the individual [3]. Ainscow (1994) explains that developing countries are more focused on increasing the participation levels, whilst in more developed countries the concern is with raising standards of achievement [4]. In this sense, supporting teachers in schools is crucial. As world changes and evolves, upgrading the quality of pre-service and in-service teacher education is one of the central concerns for educational systems of the many countries [4,5]. In early 1970s James (1973) noted that firstly knowledge changes, then techniques of teaching change because of the new developments in the world [6]. James asserts that *"It is only through the growth of in-service training that this gulf between advancing knowledge and practice can be bridged."* (p:15).

Hence, during a time of such rapid changes particularly last two decades, training teachers on the job has gained more attention. This sort of training aimed educating today's teachers for changing times in order to ensure that any changes introduced prove of benefit to learners and that schools are able to face uncertainty with confidence [7].

Henderson's (1978) definition of INSET provides an illuminating insight about what INSET constitutes [8]:

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For the good teacher, every fact of his knowledge, skills, personality and interests are of potential professional value. Hence, every experience he undergoes during his career, however irrelevant it may appear, may be described as in-service training. In-service training may, therefore, in the most general sense, be taken to include everything that happens to a teacher from the day he takes up his first appointment to the day he retires which contributes, directly or indirectly to the way in which he executes his professional duties.

The definition above illustrates that INSET is a practical activity for teachers to develop professional knowledge and skills throughout the education process. Due to strong challenges and complexity of teaching, teachers need to keep on developing their knowledge, skills and craft. Referring to primary teachers, Southworth (1996) emphasizes on the value of on-going support for teachers [9]. He states:

"Primary school teachers do not come ready-made from universities or other initial training routes. Teacher training can only, at best, provide an initial introduction to the skills and demands of class teaching. Newly qualified teachers (NQTs) need support, as mentoring for NQTs initiatives acknowledge. Yet beyond the early years of teaching more needs to be done to sustain teachers' professional development" (p.270).

In this process, INSET activities aim to offer teachers to add to their professional knowledge and improve their professional skills in order to educate pupils more effectively. According to Spence (1996) INSET can take different forms in attempting to achieve different objectives in order to bring change in education [10]. In this vein INSET activities can be classified into three groups:

- Professional education, by which is meant a widening and deepening of a teacher's theoretical perspectives by means of advanced study;
- Professional training, the development of knowledge and skills which are of direct applicability to daily work; and
- Professional support, activities aimed at developing on-the-job experience and performance (Spence *ibid.* p.86).

In this sense any kind of in-service education and training activity may offer practicing teachers to learn about their learning processes, improve their understandings of children's learning, as well as developing a reflective teaching methods and repertoire of the effective strategies to transmit their skills and knowledge into the classrooms. INSET activities can also facilitate teachers to

- Keep up with new developments in the professional field;
- Put new developments and insights into practice;
- Reflect on one's own performance;
- Co-operate in policy and practical matters [11].
- Anticipate and prepare for change;
- Improve the job performance skills [12].

INSET Activities in Turkey: Due to the fact that Turkey is going through a process of joining the European Union (EU) and because of scientific-technical developments in our age, it is an important duty for the government to strengthen the quality of education, to organize effective guidance services in education and to restructure education [13]. At the present, in Turkey, in-service activities are organized centrally by the Ministry of National Education Directorate of In-service Training. The relevant general directories and local education authorities, in co-operation with the Directorate of In-service Training also organize these activities. In-service teacher trainers are usually recruited from university departments and other institutes [14].

The INSET model in Turkey is highly centralized and can be labeled as 'top-down' model. Teachers participating in INSET activities are selected by the Ministry from those who have submitted their application [15]. Local Educational Directorates take the initiative in planning and co-coordinating INSET activities in local provinces and cities. Local INSET activities are not always compulsory for teachers so those teachers who are volunteer to join INSET activities are invited. activities of the In 2001, through central planning, 400 in-service training activities are scheduled in 80 areas. 329 training activities held up to August 31st 2001 were attended by 16.257 personnel (directors, director candidates, teachers and other personnel). See recent statistics about INSET activities in Turkey in Table 1 [13].

The universities also contribute to INSET. However, this contribution is very limited and mainly off-site course

Table 1: Statistical data about INSET activities in Turkey

	Central		Local		Total	
Years	No. of Activities	No. of Participants	No of Activities	No. of Participants	No of Activities	No. of Participants
1999	413	24171	3765	177862	4178	202033
2000	445	23583	6126	288426	6571	312009
2001	419	20080	7526	321411	7945	341491
2002	313	22072	11772	495643	12085	517715
2003	453	19727	7120	253135	7573	272862
2004	526	34154	11422	587402	11948	621556
2005	543	33156	10914	478168	11457	511324
Total	3112	176943	58645	2602047	61757	2778990

Source: http://hedb.meb.gov.tr/

nature. For instance, in order to obtain a further degree, teachers who graduated from two-and three-year higher education institutions are offered completion programs (equivalent to 4 years B.Ed) [15].

Problems of INSET Provision in Turkey: First of all it is important to note that there is limited research on the effectiveness of INSET activities in Turkey, particularly about instructional technologies. Although there are some evaluative studies, which mostly made after an INSET program, these are mainly quantitative studies and provide statistical data only and are far from providing qualitative insights, i.e. teacher perspectives, impact on pedagogy. Few studies provided this sort of evidence [16,17].

In general, Basaran (1993) documented some of the major problems in in-service education in Turkey as follows [18]:

- INSET activities are so limited for great number of teaching staff in schools,
- The finance for INSET activities is definitely not enough,
- It is costly and it is not given those administration and travel fees to joiner teachers,
- There is no award or diploma for teachers who successfully finished course,
- Consequently generally theoretical-based and it is insufficient for development of professional skills and education for teachers.

Similarly, Dilaver's study (1994) indicates that majority of primary teachers think that the length of INSET courses are not sufficient enough for effective continuous professional development (CPD) and also most of the teachers believe that the courses do not provide professional knowledge and skills in order to improve effectiveness of teaching in schools [19]. In same study it is reported that most of the teachers willing an professional vocational 'supplement' or 'magazine' in order to follow new developments in every aspect of education. Because of the ineffectiveness of in-service courses on teachers' degree or career, they do not seem willing to join the INSET courses provided by the Ministry or other institutions.

The Purpose of the Study: This study aimed to evaluate the effectiveness an INSET course titled "Instructional Technologies and Material Development" which was provided to 60 primary school teachers in a primary school in Trabzon province.

Problem Statement: The study sought answers to following main questions:

- What are the expectations of primary school teachers from an effective INSET course on ICT?
- Do inservice teachers' self-perceptions about their mastery skills in instructional technologies and material development change during an INSET course?
- What is the impact of an INSET course, which is designed according to teachers' expectations, on their perceptions and skills?

METHOD

In this study in order to determine the attitudes and perceptions of primary school teachers about INSET course which they attended, a combination of quantitative

and qualitative approaches used. The INSET course involved developing skills and knowledge in Instructional Technologies and Material Development.

Collection of Data: The INSET course mentioned earlier was given to primary school teachers for two weeks by subject specialists who work at Fatih Faculty of Education at Karadeniz Technical University. At the beginning of the INSET course a semi-structured pre-questionnaire was given to teachers. The questionnaire consisted of both open-ended and closed questions which aimed to determine teachers' attitudes towards instructional technologies and in-service courses about the use of instructional technologies and material development for teaching and learning purposes. The other aim of this questionnaire was to determine the teachers' perceptions about the in-service course and their expectations from the course. The questionnaire involved both quantitative and qualitative questions. After pre-evaluation of this pre-questionnaire, the content and method of the INSET course was designed in parallel with teachers' expectations and the course was given to teachers for two weeks by academicians from the education faculty in Trabzon, Turkey. Based on the expectations of participants, the topics covered in the INSET course were determined as: computer, internet, educational software, email..... concept and knowledge maps, OHP and OHTs.

In the course authors of this study who work in different fields of education at the faculty of education work as instructors. In the course total 80 hours of instructional activities (involving theoretical and practical activities about instructional technologies and material development) in different subject areas i.e. classroom teaching, humanities and science were carried out. In daily instructional activities, in each session first 15 minutes were allocated for theoretical presentations about the topic then teachers were guided to carry out hands on activities during the remaining times. Course activities were carried out in two different Information and Communications Technology (ICT) laboratories of two different primary schools. In these labs computer and Internet access for teachers were provided (despite some connection problems). Teachers were instructed to provide other stationeries such as OHT pens and transparencies, floppy diskettes, A4 papers, scissors etc. by themselves.

At the end of the course a post-questionnaire which involved both quantitative and qualitative types of questions were given to teachers again. With this post questionnaire teachers' views about the process of the course were obtained. Again through this post-questionnaire qualitative data obtained about the levels of meeting expectations of teachers from the INSET course.

Data Analysis: Quantitative data obtained through questionnaire was analyzed by using of SPSS software and obtained qualitative data was analyzed through using qualitative data analysis methods (constant comparative method). Out of all course participants, only 22 primary teachers' questionnaire data was considered for analysis in this study. Data was logged into SPSS program and comparisons were made through using dependent *t* test.

Means of view scores in the questionnaire was evaluated within the range of categories as follows; "Very Low (1.00-1.79)", "Low (1.80-2.59)", "Average (2.60-3.39)", "High (3.40-4.19)", "Advanced (4.20-5.00)". Mean score 3.40 and higher ones were accepted as positive. On data, which was obtained from perception questionnaire, dependent t test values were calculated in turn at $\alpha = 0.05$ and 0.01 meaningfulness levels and through this pre-test post-test comparisons were made.

FINDINGS AND INTERPRETATIONS

The quantitative data illustrates that there is a meaningful difference between teachers' expectations before the application and their views after the INSET application at á=.05 level. Particularly on foundational topics such as; 'computer', 'internet', 'educational software', 'e-mail', 'electronic presentation (power-point)', 'graphic and processing program (Excel)', 'word processing (Microsoft word)', 'work-sheet', 'concept and knowledge maps' and 'use of Over Head Projector (OHP) and preparing over head transparencies (OHTs)' meaningful relationships were observed in teachers angles of views. These differences derive from higher scores of teachers' post-test sore means. In other words, teachers' expectations before the course about the use of some instructional technologies and educational materials (computer, Internet, educational software, Power-point, Excel, Word, work-sheets, concept and knowledge maps, OHP and OHTs) were met in great extent after INSET activity.

As in Table 2, before the INSET course teachers were seeing themselves at "low" level in skills on Microsoft Word, work-sheets, concept and knowledge maps. After two weeks of practice, they obtained "high" mean scores and noted that they have progressed in positive way about preparing and using mentioned instructional

Table 2: Descriptive and inference statistics of pre- and post test scores

	Test Type	N	x̄	Ss	sd	t	p
Computer	Pre-Test	22	2.18	0.90	21	-5.30	0.000*
	Post-Test	22	3.13	0.63			
Internet	Pre-Test	22	1.54	0.80	21	-7.27	0.000*
	Post-Test	22	2.95	0.84			
Educational software	Pre-Test	22	1.31	0.64	21	-8.73	0.000*
	Post-Test	22	2.90	0.97			
E-mail	Pre-Test	22	1.40	0.79	21	-6.24	0.000*
	Post-Test	22	2.63	0.95			
Power-point	Pre-Test	22	1.45	0.67	21	-5.63	0.000*
	Post-Test	22	3.00	0.92			
Excel	Pre-Test	22	2.18	0.90	21	-9.05	0.000*
	Post-Test	22	3.13	0.63			
Word	Pre-Test	22	2.04	0.95	21	-7.08	0.000*
	Post-Test	22	3.50	0.91			
Work-sheet	Pre-Test	22	2.09	1.15	21	-6.98	0.000*
	Post-Test	22	3.90	0.92			
Concept. knowledge maps	Pre-Test	22	2.04	1.32	21	-4.67	0.000*
	Post-Test	22	3.54	0.85			
OHTs	Pre-Test	22	3.45	1.29	21	-2.83	0.000*
	Post-Test	22	4.13	0.83			

materials. Teachers described their skills about preparing and using OHTs as "high" before the INSET practice, but they described the level of their skills as "advanced" after two weeks of application. As can be seen from Table 2, there are meaningful differences between teachers' levels of competence in preparing and using instructional technologies and material development before and after the INSET course ($p^* < .01$).

About the use of Internet, educational software, e-mail and electronic presentations teachers descried themselves as 'very low' before the application. However, after the application they described their level as "average".

Similarly about use of computer and Excel teachers descried themselves as 'very low' before the application. However, after the application they described their level as "average".

According to qualitative data analysis results, great majority of teachers pointed out that they found the course very beneficial in terms of improving their technical and pedagogical skills in use of instructional technologies and materials for teaching and learning processes. Teachers expressed that although some of the factors such as limited time, insufficient resources etc. have affected their practical activities in a negative way during the course, their expectations were met in great extent at the course particularly on preparing concept maps, work-sheets and OHTs. For instance some of the teachers pointed out:

> *"I am really satisfied with this course. I have heard about concept maps earlier but I had no idea how a concept map can be prepared. I was quite curious about it but now I feel pretty confident to prepare a concept map and use it within a lesson. I think they are very useful."*

> *"I wish we had more time to do more practice on power-point and Excel. I have a computer at home but I was not able to use these programs. Before coming to this course I was expecting to learn about these programs and I think I have learnt a lot about these... "*

Some of the teachers also commented on the content of the course. One teacher stated:

> *"In general INSET courses are found boring by teachers because of theoretical topics involved too much. In my view one of the strengths of this course for me was working on the computer, I mean doing a lot of practice... "*

"I found the course very beneficial. Especially preparing work-sheets and presenting them in front of other colleagues was very interesting and very helpful for me. You can see other peoples' work which extends your horizons... "

As can be seen that qualitative data also support the quantitative results. Teachers' preliminary perceptions about the INSET course have changed in a positive way, which quantitative findings also indicate this result. A teacher for example, expressed this in saying:

"I have attended many INSET courses during my professional life and found most of them not satisfactory. At the beginning I had similar feelings about this course but at the end of the day I can comfortably say that I have enjoyed a lot during this course and find the course very helpful in terms of improving my teaching. Perhaps the reason is for this is your encouragements for us to do more hands on activities... "

CONCLUSIONS AND RECOMMENDATIONS

In this study on the basis of research findings it can be concluded that determining teachers expectations and their readiness before an INSET activity has a great impact on practice (application) of an effective INSET course.

The reason for quantitative findings about meaningful differences in primary teachers' perceptions about the INSET course may be related to needs assessment which is carried out before the course. Today INSET course generally consist of theoretical presentations about the topic for teachers. With this study it is demonstrated that teachers get bored easily when they attend INSET activities for just listening purposes. However, this study illustrated that providing learning by doing environments for teachers have great effect on the success of INSET courses. The reason for meaningful differences in final measurements about various material development and using activities could be related to more hands on activities involved in the course. In addition to that teachers stressed that when course environment improved both physically and inclusively productivity of the course increases. This means that practical applications are more powerful than any other practices.

On the basis of findings of this study in order to raise the quality standards of INSET and in order to catch up with rapid change in education, practical courses are crucial for primary teachers. These sorts of courses should be provided with the help of university academicians. Furthermore, detailed needs assessment studies should be carried out for effective INSET activities and most importantly teachers' beliefs about the importance and necessity of these courses should be increased by their institutions. In most cases participation in to these INSET activities are made compulsory for teachers. Teachers should be encouraged for participating into these courses not because of the obligation but knowing the necessity of these processes for their professional development. Many studies indicate that head teachers of schools play crucial role in encouraging staff development [2,20].

Generally in INSET courses there is little room for teacher own decision making and involving into the decision-making mechanism. Dadds (2001) argues that in these models teachers have very little to say about their understandings and crucial role of teachers and their experiences [21]. This study indicates that in Turkey school-initiated INSET activities yet to be implemented by the direct involvement of the teachers themselves. As the whole system is centrally controlled and due to limited resources in schools (funding, trainers) it seems that there is a long way to promote a Continuous Professional Development (CPD) model in schools, where everyone can develop personally and realize their full potential; participate with confidence in a collaborative management structure; give and receive advice and support and finally everyone can share collective responsibility for the development of the school.

Finally, based on the findings of the study it is recommended that course environments should be supported and improved in terms of presence of Information and Communications Technologies (ICT) and other materials. It is inevitable to hear teachers' complaints about limited productivity of INSET courses due to overcrowded INSET classes. In most cases course instructors have to face the problematic issues about the infrastructure of the course environment. In order to overcome these kinds of problems, well equipped environments should be selected and provided as much as possible.

REFERENCES

1. Wideen, M.F., J.A. Mayer-Smith and B.J. Moon, 1996. Knowledge, Teacher Development and Change. In: Teachers' Professional Lives, Goodson, I.F. and A. Hargreaves (Eds.). London; Falmer Press, pp: 187- 205.

2. Day, C., 1999. Developing Teachers: The Challenges of Lifelong Learning, London: Falmer Press.
3. Bennett, H., 1996. The Need to Cope with Change. In: The Needs of Teachers, McClelland and Varma (Eds.). London: Cassell, pp: 43-66.
4. Ainscow, M., 1994. Supporting International Innovation in Teacher Education. In: Developing Teachers Developing Schools: Making INSET Effective for the School, Bradley, Conner and Southworth (Eds.). London: David Fulton Publishers, pp: 222-233.
5. Fullan, M.G., 1991. The New Meaning of Educational Change, London; Cassell.
6. James, L., 1973. The James Report's third cycle. In: In-Service Training: Structure and Context, Watkins, (Ed.). London: Ward Lock Educational, pp: 12-19.
7. Bradley, H., C. Conner and G. Southworth, 1994. Developing Teachers Developing Schools. In: Developing Teachers Developing Schools: Making INSET Effective for the School, London. Bradley, Conner and Southworth (Eds.). David Fulton Publishers, pp: 233-245.
8. Henderson, E.S., 1978. The Evaluation of In-service Teacher Training, London: Croom Helm.
9. Southworth, G., 1996. Improving Primary Schools: Shifting the emphasis and clarifying the focus. iN School Organisation, 16(3): 263-280.
10. Spence, B., 1996. The Need for In-service Education. In: The Needs of Teachers, McClelland and Varma (Eds.). London: Cassell, pp: 82-98.
11. Kwakman, K.H.E., 1998. Professional learning on the Job of Dutch Secondary Teachers: In search of relevant factors. British Journal of In-service Education, 24(1): 57-73.
12. Craft, A., 1996. Continuing Professional Development: A practical guide for teachers and schools, London: Routledge.
13. MNE (Ministry of National Education), 2003. National Education at the Beginning of 2002, URL: http://www.meb.gov.tr/indexeng.htm
14. MNE (Ministry of National Education), 1999a. Vocational and Technical Education in The Turkish Education System, Ankara: MEB, Turkey.
15. MNE (Ministry of National Education), 1999b. The Turkish Educational System, Ankara: MEB, Turkey.
16. Özer, B., 2004. In-service Training of Teachers in Turkey at the Beginning of the 2000s, Journal of In-service Education, Volume 30, Number 1, 2004.
17. Uşun, S., 2004. Hizmet İçi Eğitimde Bilgisayar Destekli Öğretime Yönelik Personel Ve Yönetici Görüşleri Kastamonu Egitim Dergisi Cilt:12 No. 1: 19-30.
18. Basaran, I.E., 1993. Turkiye Egitim Sistemi (Turkish Educational System), Ankara: Gul Yayinevi.
19. Dilaver, H., 1994. Turkiye'de Ogretmen Yetistirme ve Istihdam Sartlari (Conditions of Teacher Training and Replacement in Turkey), Istanbul: MEB Press.
20. Altun, T., 2002. Factors Influencing Teachers' Change in Classroom Practice Due To Introduction of Information and Communications Technology (ICT) in Turkey, Unpublished EdD Thesis, University of Nottingham.
21. Dadds, M., 2001. Continuing Professional Development: Nurturing the Expert Within. In: Teacher Development: Exploring Our Own Practice, London, Soler, Craft and Burgess (Eds.). Paul Chapman Publishing in association with The Open University, pp: 50-57.