

# ANADOLU LİSELERİ FEN VE MATEMATİK ÖĞRETMENLERİNİN GENEL İNGİLİZCE DÜZEYLERİNİ GELİŞTİRMEK İÇİN DÜZENLENEN HİZMET İÇİ EĞİTİM PROGRAMININ ETKİLİLİĞİ THE EFFECTIVENESS OF AN IN-SERVICE TRAINING PROGRAM FOR IMPROVING THE GENERAL LEVELS OF ENGLISH OF ANATOLIAN HIGH SCHOOL SCIENCE AND MATHEMATICS TEACHERS

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## **Özet**

*Bu çalışmanın amacı, Anadolu Lisesi fen ve matematik öğretmenleri için düzenlenen hizmet içi eğitim programının etkililiğini araştırmaktır. Çalışma süresince, temel olarak Orlich'in AAIM (Duyarlılık, Uygulama, Kazanılan Bilgi ve Becerilerin Sınıfta ve Okulda Uygulanması ve Devam Ettirilmesi) Modeli (1979) ve Caldwell'in Modeli (1989) kullanılmıştır.*

*Çalışmanın örneklem grubunu, çeşitli ortaöğretim kurumlarında çeşitli düzeylerdeki fen ve matematik öğretmenleri oluşturmaktadır. Çalışmada niceliksel ve niteliksel veriler toplanmıştır. Niceliksel veriler, programın çeşitli düzeyleri ile ilgili, programa katılanlara ve öğretim elemanlarına verilen bilgi formları (anketler) ile toplanmıştır. Program süresince çeşitli strateji, yöntem ve tekniklerin sınıflarda öğretim elemanlarınca uygulanmasını gözlemek amacıyla, gözlem formları kullanılmıştır. Katılımcıların, program sonunda görev yaptıkları okullara döndükten sonra, katıldıkları programa ilişkin görüşleri bilgi formları yoluyla alınmıştır.*

*Araştırma sonuçları; programın farklı düzeylerinde, katılanların ihtiyaçlarını ve beklentilerini karşılamak amacıyla, çeşitli yöntem, teknik, faaliyetler ve çeşitli kaynakları kullanmaya yönelik kurumsal çabaların varlığını ortaya çıkarmıştır. Buna karşılık, katılımcılar okullarına döndüklerinde, program esnasında öğrendiklerini sınıflarında uygulayamadıkları ve devam ettiremediklerini belirtmişlerdir.*

*Sonuç olarak, bir hizmet içi eğitim programının etkililiğinin ve başarısının, program esnasında öğretmen tarafından mesleğinde geliştirilen bilgi, beceri ve tutumların içinde uygulanmasına ve devam ettirilmesine bağlı olduğu söylenebilir. Başka bir deyişle, hizmet içi eğitim programlarının başarılı ve etkili olması için, programların ihtiyaçlar üzerinde kurulması ve öğrenilenleri uygulama ve devam ettirme seviyelerinin detaylı bir şekilde incelenmesi gerekmektedir.*

## **Abstract**

*The aim of this study is to examine the effectiveness of the inservice training (INSET) program organized for improving the general English levels of Anatolian High School science and mathematics teachers. During the study, Orlich's AAIM (Awareness, Application, Implementation, Maintenance) Model (1979) and Caldwell's Model (1989) were used.*

*The subjects were high school science and mathematics teachers at various levels. During the study quantitative and the qualitative data were collected. The quantitative data was collected through opinionnaires given to the participants and the instructors in the INSET program. The observation forms were utilized during the program to observe the actualization of the strategies, methods and techniques in classrooms. When the participants were back at their schools, the implementation and maintenance level opinionnaire was used to study their views about the program.*

*The results of the opinionnaires and observations revealed that during the various levels of program, various institutional attempts had been made through utilizing various techniques, methods, activities and supplying various resources to satisfy the participants' needs and expectations. However, when the participants were back at their schools, it was reported that they could not implement and maintain their new learning in their school and daily classroom activities.*

*Finally, the effectiveness and success of any INSET program depends on the actualization of the implementation and maintenance in professional performance of the participants of what has been developed during the program. That is, the implementation and maintenance levels of the programs should be examined completely to ensure the effectiveness and success of the INSET programs.*

## Introduction

20<sup>th</sup> century school teachers must possess certain qualities in order to renew, refresh and prepare themselves for their new roles, responsibilities, tasks and duties, in both their professional and personal lives, due to the changes and developments that have taken place in science and technology as stated by Glickman et al. (O'Dell and O'Hair, 1995). Here, in-service training (INSET) programs are regarded as providing necessary means and unique opportunities for teachers to develop their qualities and their professional and individual capacities as a whole.

Orlich (1979) proposes certain stages of an effective INSET program in his AAIM model, which stand, for *Awareness, Application, Implementation* and *Maintenance*. In his model, Caldwell (1989) develops Orlich's AAIM model and presents his own under the stages as *Readiness* and *Planning, Training, Implementation* and *Maintenance*. His model refers to Orlich's AAIM model although different names are used for the same stages.

According to Orlich (1979), the training projects or activities which are designed to provide information about new concepts, developments, equipment, curricula or teaching or administrative techniques are classified as "*awareness*" sessions, which are essential to keeping all staff personnel up-to-date and informed about professionally related skills. Moreover, Caldwell (1989) explains this stage under two headings as *Readiness* (selecting, studying, making commitments of new behaviours and programs to improve professional practice and student achievement) and *Planning* (developing long-term plans to achieve the changes identified during the readiness stage).

The second stage of Orlich's model (1979) is *Application* which could be interpreted as something used, practiced, or tried out in a context different from the initially learned context or situation during the program. In other words, something is practiced or tried out during the program in various situations by means of various strategies, techniques and activities. During this stage, experiencing is regarded as the essential part/attribute. Caldwell (1989), on the other hand, calls this stage the *Training* stage during which the courses are conducted based upon what is known about the adult learners and plans are implemented to help the trainers learn new skills and knowledge and to develop attitudes needed to achieve goals.

Orlich (1979) calls his third stage the *Implementation* stage, during which all appropriate teachers/administrators are involved in a full spectrum of INSET activities which relate objectives of the program to the intensive work and full scale of application. Caldwell (1989) defines the implementation stage as that in which the participants make the transition from learning in the controlled setting of INSET to adjusting and adapting what they

have learned to make it part of their daily work activities.

According to Orlich (1979), *Maintenance* addresses a continued and a longitudinal "*low level of visibility*" (i.e. the difficulty in observing the effects and the uses of the new learning in the long term) set of in-service training activities which follow any major implementation effort. New persons are hired in the districts, persons change grade levels or switch buildings. Caldwell (1989) defines maintenance as professional behaviour being used in daily classroom and school practice and monitored in order to ensure their continuation.

When the situation in Turkey is considered, the needs of the teachers during the awareness levels of the INSET programs are not identified correctly and appropriately. As the consequence of this fact, during the application levels of the INSET programs correct and appropriate methods, techniques, and strategies are not implemented by the instructors. At the same time during the application levels of the programs the teachers' schools and their actual classroom situations are not taken as a base. Therefore the teachers can not implement and maintain what they had learned during the programs in their daily classroom activities. As a result of this it could be said that the INSET programs are not effective and successful.

The purpose of this study, within this framework, is to examine the effectiveness of the Inservice Training (INSET) program which was organized to improve the general English levels of the Anatolian High School science and mathematics teachers mainly using Orlich's AAIM Model (1979) and also referring to Caldwell's Model (1989) which is comparable to Orlich's Model. The aim of this study is to discover the awareness levels, expectations and needs of the teachers in relation to the program, the perceptions of the teachers and the instructors related to the application level and the perceptions of the teachers in relation to the implementation and the maintenance levels of the program.

## Method

The main problem statement of the study is "*What is the effectiveness of the INSET program for improving the general English levels of the Anatolian High School science and mathematics teachers?*"

In relation to this main problem, the following sub-problems are examined related to the various levels of the program.

- *The Awareness Level of the Program*

What is the awareness level of the teachers about the INSET program for the Anatolian High School science and mathematics teachers? What are the expectations and the needs of the teachers in relation to the whole INSET program?

- ***The Application Level of the Program***

What are the teachers' perceptions of the structure of the program and the instructors skills required to satisfy the teachers' needs and expectations during the INSET program? What are the instructors' perceptions of the structure of the program and of the instructional skills they should have to satisfy the needs and expectations of the teachers during the INSET program? How do the instructors apply strategies, activities and methods in the classrooms during the application of the program?

- ***The Implementation and the Maintenance Levels of the Program***

What is the implementation and maintenance of the English Language skills developed during the INSET program by the teachers at their schools?

The subjects of the study were teachers who attended the INSET program and instructors who were faculty members of Gazi University, Foreign Languages Education Department. The teachers (n: 68), teaching science and mathematics at various Anatolian High Schools and Public High Schools, attended the INSET program organized by the MNE. 66.1% of the teachers were teaching science (i.e. physics and biology) and 33.9% of them were teaching mathematics.

The instructors of the INSET program (n: 6) were full time faculty members of the Foreign Language Education Department of Gazi University who were responsible for providing the INSET program organized for improving the general English levels of Anatolian High School science and mathematics teachers during the summer holiday of 1995. They were known to be experienced and competent with INSET programs and held various post-graduate degrees in TEFL/ELT.

During the study, 5-point Likert type opinionnaires were given both to the teachers and to the instructors of the program. For the preparation and development of the opinionnaires, the basic dimensions and activities suggested by the model, the literature in this area (Caldwell, 1989), (Smith, 1989), (Paykoç and Schorn, 1993) and the criticisms and the opinions of the subject specialists were consulted. For the observations of the application of the program, observation forms including various statements related to the application level of the program were used.

For the analysis of the data, the SPSS-Statistical Packages for Social Sciences (Nie., etal. 1975) program was used. By means of the SPSS program, the frequencies, percentages means and the standard deviation scores for each item in the opinionnaires were calculated.

## **Results**

### **Results Related to the Teachers' Awareness Levels of the Whole INSET Program.**

Where the findings about the awareness levels of the teachers on the INSET program are concerned, in relation to the awareness part of the opinionnaire, 52.4 % of the teachers (n = 33) stated that they were aware of the educational problems at their schools related to teaching and learning and 39.7 % of the teachers (n = 25) agreed that they were aware of the latest developments in their fields. On the other hand, 9.5 % of the teachers (n = 6) stated that there was no communication channel among their peers at their schools. Where the findings about the needs and the expectations part of the data is concerned, 35.0 % of the teachers (n = 22) stated that criteria such as age and the level that the teachers had been teaching, were taken into consideration when the program was prepared. 30.2 % of the teachers (n = 19) stated that they could easily access the necessary resources during the program.

### **Results Related to the Teachers' Perceptions of the Application Level of the INSET Program.**

Where the findings related to the perceptions of the teachers in relation to the structure of the program are concerned, 39.1 % of the teachers (n = 25) stated that, while the program was prepared, decisions about its various aspects had already been determined, 34.3 % of the teachers (n = 22) expressed that the program objectives aimed at learning new ideas related to the field of study and lead to the acquisition of new professional skills and attitudes. At the same time, 32.8 % of the teachers (n = 21) stated that active participation of the teachers during the program was emphasized. Where the findings related to the perceptions of the teachers in relation to the instructional skills of the instructors are concerned; 37.5 % of the teachers (n = 24) agreed that the instructors answered the questions clearly. 35.9 % of the teachers (n = 23) stated that the instructors demonstrated warmth and friendliness to the teachers and 32.8 % of the teachers (n = 21), noted that the instructors presented the instructional activities in a logical order.

### **Results Related to the Instructors' Perceptions of the Application Level of the INSET Program.**

Where the results related to the perceptions of the instructors in relation to the structure of the program are concerned 66.7 % of the instructors (n = 4) agreed that they had used the information about the teachers, that the program had included the learning of new trends related to their field of study, that the program had emphasized the experiencing of the new ideas and techniques, and that various aspects of the program had already been determined, and 50 % of the instructors (n = 3) stated that the program activities had been relevant to the teachers' characteristics, that the program



emphasized the active participation of the teachers during the program and the applications of adult learning theories and their instructional principles were taken into account in the preparation and the development of the program.

Concerning the instructional skills of the instructors, 83.3 % of the instructors (n = 5) agreed that they had maintained the relationship between the content and the objectives of the program, had answered the questions clearly and had been available for personal consultation. Also, 66.7 % of the instructors (n = 4) agreed that they had used relevant methods, had created a relevant environment for learning, had provided feedback to the teachers, had conducted the lessons by using a variety of methods, had facilitated discussions and had demonstrated sensitivity to the feelings and the needs of the teachers. 50.0 % of the instructors (n = 3) believed that they had maintained the relationship between the content and the activities of the program, had reinforced the use of activities, had demonstrated warmth and friendliness to the teachers and had demonstrated patience and understanding to the teachers in the classrooms and in learning situations.

#### **Results Related to the Application of Strategies, Activities and Methods During the Application Level of the INSET Program.**

Where the findings in relation to the application of the strategies, activities and methods of the instructors are concerned, in relation to the structure of the program, the use of information about the teachers during the application of the program was frequently (88.9 %) observed.

At the same time, the following dimensions were also frequently (55.6 %) observed: the appropriateness of the objectives and the instructional activities of the program for the active participation of the teachers, the active participation of the teachers and that decisions about the various aspects of the program had already been determined. In addition to these dimensions, the instructional skills of the instructors in giving feedback to the teachers during the activities, reinforcing the use of the activities, using encouraging methods for participation in the lessons, using the class time effectively, and in demonstrating warmth and friendship towards the teachers, were frequently (66.7 %) observed.

#### **Results About the Teachers' Implementation and the Maintenance Levels of the English Language Skills Developed During the INSET Program.**

When the results concerning the implementation and maintenance of the English Language skills developed by the teachers during the INSET program are taken into account, it was recognized that 76.0 % of the teachers (n = 19) stated that they had not received any support in any form (i.e. reduced teaching hours,

increment, etc.) from their school administrations. In addition to this, 64.0 % of the teachers (n = 16) expressed that they had not received any support from their school administrations to apply for what they had learned during the program and said that they had not helped their peers' English Language related problems. 60.0 % of the teachers (n = 15) stated that they had not been supported by their school administrative staff in terms of the resources and equipments they needed and that they had not used the English Language learned during the program in their daily classroom activities. 56.0 % of the teachers (n = 14) said that they had not been motivated and encouraged by their school's administrative staff to use their new learning (English Language skills) or to develop themselves professionally. 40.0 % of the teachers (n = 10) stated that they had not been able to access the subject experts to solve their English Language related problems, 28.0 % of the teachers (n = 7) said that the English Language had not helped them to improve their relations with their students so far and 20.0 % of the teachers (n = 5) pointed out that they had not been able to follow foreign publications with their acquired English Language during the INSET program.

As for the most important benefit of the program that the teachers had attended, 60.0 % of the teachers (n = 15) stated that their English was improved in different ways. These teachers also stated that they had not been able to implement and maintain what they had learned during the INSET program in their daily classroom activities due to the levels of the students, the type of the school in which they teach, not being supported, encouraged motivated by the school administrative staff and not having any connection between the science and mathematics curriculum of their schools and the content of the INSET program.

At the same time, 60.0 % of the teachers (n = 15) agreed that they had not been able to use the English Language that they had learned during the program in their classes and they had not been able to help other teachers' English Language related problems by using different techniques (seminars, unit meetings, etc.).

When views about future programs were taken, the teachers generally stated that the instructors needed to have knowledge of science and mathematics, that they should be assigned to the various Anatolian High Schools by the end of the program, that the attitudes and the behaviours of the instructors needed to be taken into account, that the science and mathematics curriculum of the secondary schools should be regarded as a base for these INSET programs and that incentives should be used.

It was expressed by all of the teachers that the curriculum of the INSET programs should parallel the curriculum at their schools. It was emphasized by the teachers that the certificates they received at the end of the program should be taken into account when they are

assigned to Anatolian High Schools and in promotion. By the end of the INSET program, the teachers stated that they should be assigned to various Anatolian High Schools.

As a conclusion, the INSET program examined by the researcher had not been effective because the application level of the program had not met the professional and the individual needs of the teachers, and the teachers did not implement and maintain what they had learned during the program in their daily school life activities.

### Recommendations

In the light of these findings, the following could be recommended in relation to the different levels of future INSET programs.

For the Awareness Levels of the INSET programs, these programs need to *awake* the teachers' awareness of the educational problems at their schools, *familiarize* the teachers with the latest ideas and trends in their fields, *have regard to* the variables related to the teachers, *have resources* that are available, *teach the teachers* the use of the English language to conduct their classroom lessons in English, *inform the teachers* before they attend the program, *provide* direct involvement of the teachers to their school related activities, and *meet* the needs of the teachers.

With respect to the structures of the Application Levels of the INSET programs, the teachers need to *participate in* the activities actively, *the decisions* about the various aspects of the *program need to be determined* before it is actualized, during the program *alternative techniques and methods* need to be used by the instructors according to the needs of the teachers, the programs need to take into account *information about the teachers, the program objectives and the contents* need to aim at learning new ideas, skills, attitudes and behaviours related to the field of study,

*the instructional activities* need to be *relevant* to the teachers. With respect to the instructional skills of the instructors, the instructors need to *make the activities interesting, present the activities in a sequence, provide procedures* for getting the teachers involved in the process.

For the Implementation and Maintenance Levels of the INSET programs, the necessary *support and help*, in any form need to be given to the teachers by the school administrative staff, the necessary *motivation and encouragement* need to be provided to the teachers, *subject specialists* need to be *accessible* to the teachers in order to solve their English language related problems, the teachers need to *help their colleagues* in their English Language related problems. the teachers need to be *given some responsibilities and opportunities* to implement and maintain their English language skills, and the teachers need to *use the English language in their daily classroom activities*.

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