INSTRUCTIONAL TECHNOLOGIES AND MATERIAL DESIGN COURSE EVALUATION THROUGH LECTURER'S AND STUDENTS' RESPONSES[*]

Alev ATEŞ, PhD Candidate

Ege University, Faculty of Education,
Computer Education and Instructional Technologies Department Izmir/Turkey.
alev.ates@ege.edu.tr

ABSTRACT

"Instructional Technologies and Material Design" (ITMD) is one of the compulsory courses with both theoretical and practice hours in most of the programs of Turkish educational faculties. In order to help improving this course, this study aims to reveal one of the course lecturer's and his students' opinions related to course objectives, content, teaching and learning process with measurement and assessment activities. By applying one of the mixed designs -concurrent nested design-, a survey was conducted on 50 sophomores of preschool education program and their ITMD lecturer was interviewed in 2009-2010 academic year. The findings indicated that both the lecturer and the students complained overcrowded class and lack of time. Besides, they implied the need for a larger learning environment as a workplace for practice and the need for testing their materials at real schools. The students claimed that assessment must rely heavily on their efforts for instructional material development and presentation activities instead of written exam scores and the lecturer should not only have an expertise in instructional material development but also in their own subject area. Whilst the sample was limited with one teacher education program of a faculty, the findings were considered to contribute curriculum development efforts for instructional material development courses at other teacher education programs as well.

Keywords: Instructional technologies and material design; responsive evaluation; course evaluation; teacher education.

INTRODUCTION

In teacher training curriculum, "Instructional Technologies and Material Design" (ITMD) course is of special importance since it aims to inform pre-service teachers about the role and reasons for using instructional technology and instructional material in education; selecting instructional material according to the course objectives. It also aims to teach visual design principles for learning materials; visual, audio and audiovisual devices in education; using computer, Internet and other communication technologies and distance education. One of the critical objectives is willingness for instructional material design and development in their own area of expertise. Gunduz and Odabaşı (2004) reported that it is

---

[*] This study was presented as an oral presentation in New Trends on Global Education Conference 2011

clear that teacher candidates learn a lot about teaching with the help of the general knowledge and teaching profession courses before they take the ITMD course. However, the ITMD course provides teacher candidates the opportunity to gather all information they have obtained so that they can use technology effectively.

In their study, Mert-Uyangör and Karaca-Ece (2010) investigated attitudes of 44 secondary mathematics teacher candidates before and after ITMD course and collected their views about the course in 2007-2008. The prospective teachers mentioned that ITMD Course aims to provide permanent learning and to prepare materials that are appropriate to the teaching methods through an effective teaching process. Thus, the authors concluded that the students in their workgroup were aware of the course objectives. At the end of the course, these teacher candidates' attitudes toward the course developed in a positive way though they reported their wishes to get more practicing opportunities. Yetkin-Özdemir (2008) investigated prospective elementary teachers' knowledge and skills about instructional materials and described the difficulties regarding the use of them. She analyzed the journals and projects completed by prospective teachers and observations on classroom discussions during the teaching methods courses. And the results revealed that even though prospective teachers have positive attitudes towards using materials, they do not have a clear idea about how materials help students understand mathematical concepts. In particular, they had difficulty in guiding students to establish connections between the concepts and materials. Yetkin-Özdemir (2008) suspected that the prospective teachers in the workgroup had missing parts in fundamental ideas of mathematical concepts. A similar study by Güven (2006) collected prospective teachers' opinions about the competencies that ITMD course provided. 718 students participated in her study from various departments of İnönü University. She found that students had satisfactory level self efficacy beliefs in cognitive and affective domains of the course objectives; however it was not the same for psychomotor domain. He also reported significant differences in self efficacy beliefs according to various departments.

Evaluation complements curriculum development process and helps emerging new improvements in a program (Erden, 1998). As the developer of responsive evaluation model, Robert Stake implies (2000: 348) that in responsive evaluation "*different value-perspectives of the people at hand are referred to in reporting the success and failure of the program*". Stake also implies "*the importance of being responsive to realities in the program and to the reactions, concerns and issues of participants, rather than being preordinate with evaluation plans, relying on preconceptions and formal plans and objectives of the program*" as cited by Fitzpatrick, Sanders and Worthen (2004:136). As he suggested, in this paper, different perspectives have been reflected to reveal realities about the ITMD program.

Problem Statement

This study particularly aims to apply responsive evaluation model in order to help curriculum development efforts for the ITMD course which has been a part of teacher training programs since 2006-2007 academic year. Therefore, the sophomore students from the Preschool Education Program who had this course and their lecturer's responses were collected. The research questions are as follows:

1- What are the lecturer's and students' responses for the ITMD course

       a. objectives

       b. content

       c. learning and teaching process

       d. measurement and assessment elements?

2- What do the lecturer and the students suggest in order overcoming the problems they perceived in ITMD lessons?

Purpose of Study

In order to help improving the ITMD course, this evaluation study aims to reveal one of the course lecturer's and his students' opinions related to course objectives, content, teaching and learning process with measurement and assessment activities. The study is limited with one program -preschool education program- which has been randomly selected in a Turkish

faculty of education. And delimitation of the study is that the data included the lecturer's interview records and his students' survey responses but not any lesson observation although observation is suggested by Stake's responsive evaluation model. The reason is the unfeasibility of the time and lack of observers for making classroom observations since the data were collected a semester after the ITMD course. Nevertheless, the participant students and the lecturer were considered to draw a picture of the course from their perspectives which provided valuable data for the study.

METHOD

In order to answer research questions, one of the mixed methods, concurrent nested design was applied. This design is identified by its use of one data collection phase during which qualitative and quantitative data are collected simultaneously and mixed during the analysis phase (Tashakkori and Teddlie, 2003). In this study, the quantitative part is predominant and it has been employed since the researcher chose to use different methods to study different groups – students and lecturer- within a design. Therefore, a survey was conducted on the students and their ITMD course lecturer was interviewed.

Participants

The participants of the study are 50 sophomore students (44 female and 6 male) from preschool education program of Faculty of Education at Ege University and their ITMD course lecturer. The lecturer graduated from mathematics program of science faculty and got his PhD degree in applied mathematics. He has been an instructor at Elementary Education Program of Faculty of Education since 2000. The courses he has been lecturing include mathematics instruction, basic mathematics, instructional technology and material development. It is the fifth year that he has given the ITMD course. The participant students had this course in the fall semester of 2009-2010 academic year.

Data collection tools

The data collection tools were developed by the researcher and reviewed by the two curriculum and instruction experts and two instructional technology experts. They were as follows:

1- Course lecturer interview guide: This semi-structured form included eight questions with 20 sub questions.

2- Student questionnaire for course evaluation: This questionnaire included 13 questions and 10 sub questions in which 17 of them are open-ended.

Data Collection and Analysis

The data were collected in spring semester of 2009-2010 academic year. The interview with the course lecturer was recorded by a video camera with his permission. After the transcription of this interview, the data was categorized in four themes. Concurrently, the survey data of the students was analyzed descriptively. By employing the concurrent nested research design, the qualitative and quantitative data was analyzed together and the findings were presented in these four themes with the lecturer's responses.

FINDINGS AND RESULTS

1a) Responses for the course objectives

The lecturer indicated that the ITMD course aims to "*help learners understand the content by concretizing it, use instructional technologies and materials in guidance of constructivist learning… develop instructional material according the course and making effective presentations*". The lecturer himself determines the objectives with the help of related sources and the students indirectly influence his decisions about the objectives.

The students' responses for the course objectives are as follows:

- Understand instructional technologies and materials.
- Develop instructional materials for more effective and apprehensible lessons.
- Choose proper instructional material.
- Present instructional material effectively.

It seemed that the lecturer's and the students' thoughts about the objectives are in accordance with each other and course definitions' of YÖK. Similarly, in a study by Mert-Uyangör and Karaca-Ece (2010) teacher candidates reported that the aim of the ITMD course is providing effective education, teaching process and permanent learning and preparing materials adequate with teaching methods.

The responses about reaching the course objectives

The lecturer claimed that *learner characteristics and readiness levels* are major factors for reaching the objectives. About the actions for unreached objectives, he pointed out the crowded class problem besides lack of time and problems about computer technology. The students reported that the course succeeded to reach the learning objectives generally, though they presented various responses as in Table 1.

Table 1. Examples of students' responses for reaching course objectives

Examples for positive responses	Examples for negative responses
S11(F): "I have clear ideas about choosing proper material to transfer lesson content"	S1(F): "I think we couldn't reach them completely because of the expectancy for doing everything perfect without considering the learning goals"
S13(F): "I think we were able to prepare attractive and instructional materials"	S15(F): "…in this course we mostly practiced how to make effective presentations."

1b) Responses for the course content

The lecturer specified that the content covers fundamental concepts as learning, education, instruction, constructivism and its differences from behaviorism, educational technology, instructional technology, communication in classroom, analyzing-planning and implementing instructional goals, developing visual materials, distance education and computer assisted instruction. He indicated that the content is not fixed since it can change

according to number of students taking this course. Because of his workload and academic responsibilities, he acknowledged that he had to lecture for one group of learners; therefore the number of the students was 50 in his lessons. About deciding and gathering course content, the lecturer indicated that he has one favorite course book which he mostly depends on, and uses relevant Internet sources by incorporating them with his personal experiences and instructional strategies. Also, he complained the repetitions in Turkish material development course books.

38 of the students (64%) indicated that the content is relevant for their learning needs; however 10 students (20%) specified the need for more practice. Also, S37(F) and S43(F) suggested "*original works such as making puppets*" with a lecturer who has expertise in preschool education.

1c) Responses for the teaching and learning process of the course

The lecturer implied that he values learner-centered approach and indicated that he asks students to form a group for four and choose a subject, develop materials and perform teaching by utilizing these materials also make at least one presentation individually during the semester. He stated that "*For example, we make a model one week and teach by using visual slides the other week…*". It is considered that he strives to make students apply different types of materials during the course.

a) Perceived problems in teaching and learning process

Among the problems in teaching process, the lecturer indicated that the students were unable to tolerate his critics regarding their material development and presentation performance. He expressed his intention to guide them in order to develop their presentation skills. The students' comments showed that they generally had positive views about teaching and learning activities of this course. S10(F) commented that "*It would be better to try our materials in a school for practice…*". Also, it is reported by the students

that the lecturer must teach in an *"atelier style"* environment. The lecturer implied the need for such a physical environment as well.

b) Responses for communication and interaction between lecturer and students

The lecturer noted that he was able to communicate with his students well, behave them respectively and they easily ask their questions and criticize. He stated that he is attentive about protecting teacher and student relationship. He also complained his overloaded schedule that prevents him from communicating students outside the class.

This busy schedule and lack of one to one assistance of the lecturer was indicated by some of the students. S4(F) complained about "*the lecturer's giving less scores for the nonattendant students of the course*". Nevertheless, most of the students found their teacher considerate and good communicator.

1d) Responses for the measurement and assessment activities of the course

The lecturer indicated that it would have been wrong to assess learning in this course only with written exams, therefore he made only one written exam as he called *"classical exam"*. He preferred to ask open-ended questions instead of multiple choice test since he thought he cannot "*observe students well*" and it was difficult to develop such multiple choice tests. As a part of the assessment, he scored every groups' and individual student presentations. He reported that he both scored *"the content of their presentation and the students' ability to explain clearly"* while utilizing the material. At this stage, once more he complained time constraints for these activities. On the other hand, nearly half of the students (n=23) agreed upon excluding written exams in assessment while including only their material development and presentation activities.

2. Suggested solutions for the perceived problems in ITMD course

The lecturer acknowledged that it would be more beneficial to teach in an environment such as *"material development atelier"*. In this large environment, students must be seated in two lines of a "U shape" and possess cabinets including required materials for

instructional material development such as paper, ruler…etc. He suggested that these materials should be available for students' use at any time of the lesson.

The students also brought forward some suggestions such as increasing course period and designing a material development room. Selected responses from their comments were as follows:

> S5(F): "*The teacher can determine criteria for evaluating presentations.*"
>
> S1(F): "*The teacher should be well-informed about the program.*"
>
> S4(F): "*Willingness, enjoying lesson are necessary. For everyone.*"
>
> S15(F): "*The class can be divided in two groups. Also, learning theories should be taught comprehensively before this course.*"

DISCUSSION AND CONCLUSION

The findings of this evaluation study of the "Instructional Technologies and Material Development" course according to lecturer's and students' responses were discussed and concluded as follows:

Although the lecturer indicated "importance of constructivist learning", the objectives were determined by him only, which is inconsistent with constructivist learning approach. It is possible to suggest instructors to apply the principles of learning approaches which they think the best to pursue.

Both the lecturer and the students complained about the crowded class and lack of time for the lesson at most. The number of weekly hours for the course can be increased as suggested by other studies (İmer, 2000; Serçin and Karataş, 2006). Also, it is possible to suggest lecturer to review course objectives and reorganize learning assignments in order to use time efficiently.

Both the lecturer and the students implied the need for a larger physical environment, in an atelier or workshop design. Some students pointed out the importance of field trials and applications at real schools as also suggested in study of Mert-Uyangör and Karaca-Ece (2010). At first, it seemed impractical for every student to try his or her instructional

materials at a real school; however the need for bridging theory with practice, school life with real life should be considered and worked on.

As mentioned by the lecturer, the students only had one written exam however the students suggested that instead of written exam, course assessment must include their material development and presentation activities. It is most likely that the students may be reluctant to study for any written exams not just this lesson's. Therefore, it is suggested to remember that the objectives determine measurement and assessment techniques of a course.

It was reported that the lecturer and students generally communicate well with each other; however the lecturer had a busy schedule which effected teaching and learning process of the course. One of the implications of this study is that academic staff can be improved for the required area of expertise in order to increase quality of the specific programs' ITMD courses at faculties of education. The number of weekly hours for the lesson must be reviewed and finally, physical conditions and equipment must be arranged in order to meet the needs of prospective teachers and goals of the course.

REFERENCES

Erden, M. (1998). *Eğitimde Program Değerlendirme [Curriculum Evaluation in Education]*. 3rd Edition. Ankara: Anı Publishing.

Fitzpatrick, J.L., Sanders, J.R. & Worthen, B.R. (2004). *Program Evaluation Alternative Approaches and Practical Guidelines.* USA: Pearson Education.

Gunduz, Ş. & Odabaşı H. F. (2004). *The Importance of Teaching Technologies and Material Design Course in Preservice Teacher' Education at Information Age*. The Turkish Online Journal of Educational Technology – TOJET, 3(1), Retrieved on: May 18, 2011 from: http://www.tojet.net/ articles/317.htm.

Güven, S. (2006). The evaluation of teaching technologies and materials development course in terms of competencies it provides (A sample of İnönü Unıversity Faculty of Education). *Journal of Turkish Educational Sciences, 4*(2), 165-179.

Retrieved on: November 18, 2011 from: http://www.tebd.gazi.edu.tr/arsiv/2006_cilt4/sayi_2/165-179.pdf

İmer, G. (2000). *Eğitim Fakültelerinde Öğretmen Adaylarının Bilgisayara ve Bilgisayarı Eğitimde Kullanmaya Yönelik Nitelikleri.* Eskişehir: Anadolu Üniversitesi Eğitim Fakültesi Yayınları.

Karataş, S. & Yapıcı, M. (2006). The process and application samples of teaching technologies and material development. Afyon Kocatepe University Journal of Social Sciences, 8(2), 311-325. Retrieved on: November 16, 2011 from: http://www.aku.edu.tr/AKU/DosyaYonetimi/SOSYALBILENS/dergi/VIII2/myapici .pdf

Mert-Uyangör, S. & Karaca-Ece, D. (2010). The attitudes of the prospective mathematics teachers towards instructional technologies and material development course. *TOJET: The Turkish Online Journal of Educational Technology, 9*(1), 213-220.

Stake, R.E. (2000). Program evaluation, particularly responsive evaluation. In *Evaluation Models: Viewpoints on Educational and Human Services Evaluation* (D.L. Stufflebeam, G.E. Madaus and T. Kellaghan Eds.). Boston: Kluwer Academic Publishers.

Tashakkori, A. & Teddlie, C. (2003). *Handbook of Mixed Methods in Social & Behavioral Research.* USA: Sage Publications.

Yekin-Özdemir, İ.E. (2008). Prospective elementary teachers' cognitive skills on using manipulatives in teaching mathematics. *Hacettepe University Journal of Education*, 35: 362-373.