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# Basic competencies of instructional technologists

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**Abstract**

The definition and competencies of an instructional technologist as the practitioner of instructional technologies have changed based on the changes in the definition of instructional technologies. The scope of instructional technologies changes and expands in line with the innovations and new thoughts, and so do the competencies of an instructional technologist. This study reviews the related literature and has a descriptive research design. The purpose of this study is to emphasize the importance of determining the competencies of an instructional technologist and to try to frame basic competencies of an instructional technologist.
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*Keywords:* Instructional technology; instructional technologist; competency; department of computer education and instructional technologies; competencies of an instructional technologist.

## 1. Introduction

Learning is a type of internal process, while teaching is made up of applications carried out by trainers or counselors in different environments. In this respect, the factors that influence the internal process of an individual include the integration process of the changes which shape our era and which are difficult to follow (Ergin, 1995; Alkan, 1997). This rapidly-changing and developing process brings fields of specialization into prominence.

The definition of instructional technology directly influenced by technology shows a change in line with the changes and developments in technology. Instructional technology regarded as "media" in the early 1900s began to be considered as a "process" in 1960s. Today, the definition of instructional technology includes non-instructional processes besides instructional ones (Reiser, 2007). Instructional technology seeks an answer to the question of "how can we make education more effective and more prolific?" This increases the importance of instructional technologists, who have the role of integrating technology into education and who are expert in instructional technologies. Therefore, parallel to the changes in instructional technologies, the competencies of an instructional technologist are observed to be changing.

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## 2. Instructional Technologist and the Competencies of an Instructional Technologist

When studies in literature related to instructional technologists are examined, it could be stated that there is no agreement on the term. In related literature, besides the instructional technologist (Tennyson, 2001; Surry, 1996), several terms are used such as educational technologist (Alkan, 1997; Surry and Robinson, 2001), instructional technologist and designer, instructional coach, technology trainer, technology consultant, technology advisor, technology learning coordinator, and technology expert (Sugar, 2005; Surry and Robinson, 2001). In this study, which adopted the term instructional technologist, it was initially considered necessary to examine what the term instructional technologist is.

The definition of instructional technology also includes the definition of the instructional technologist. According to Reiser (2007):

> The field of instructional design and technology encompasses the analysis of learning and performance problems, and the design, development, implementation, evaluation and management of instructional and non-instructional process and resources intended to improve learning and performance in a variety of settings, particularly educational institutions and the work place.

Tennyson (2001) defines an instructional technologist as a person who executes the process of instructional designing to deal with the needs in technology-based learning environments and to solve the learning and performance problems, while according to Sugar (2005), an instructional technologist is a person who solves the problems related to technical equipment in schools and helps teachers and directors use technology effectively. Sugar further defines an instructional technologist as a technology coach who helps and guides teachers to overcome the problems they may experience while using technology.

According to Tennyson (2001), instructional technologists should have three basic competencies in the area of basic knowledge. These competencies include (1) "educational foundations" that covers philosophy of learning and theories of teaching and learning, (2) "instructional systems development methodology" that covers skills in applying instructional development principles and (3) "instructional development process" that covers experience in successful learning environments.

Surry (1996) stated the roles of an instructional technologist in higher education under the headings of consultant, computer-assisted instruction developer, trainer, laboratory director, distant-learning expert, and technician. The roles of a *consultant* include helping the faculty with the evaluation and instruction of instructional software, helping with the designing and development of materials, and determining the appropriate equipment. *The computer-assisted instruction developer* is a person who, as a multi-media expert, prepares computer-assisted instructional presentations and develops interactive instruction models and different instructional projects. *The trainer* is responsible for the organization and execution of educational workshops on instructional technologies. The trainer is a person who gives education on Internet use, designing web-pages and using software packages like Microsoft Office. *The laboratory director* is responsible for the coordination of the software and hardware in the computer laboratory. While *the distant-learning expert* is primarily responsible for the purchase, installation and maintenance of distance-learning equipment, *the technician* is responsible for the installation of instructional hardware and software and for overcoming the related problems.

Moallem (1995) examined the job applications in the area of instructional design and technology, and based on the criteria required for these job applications, the researcher determined the skills and field-knowledge that graduates of instructional technology should have. In addition, the researcher investigated the competencies of an instructional technologist under three categories like the business world and the industry, the government and the army, and the university-faculty-school. In the study, it was concluded that the qualifications of an instructional technologist differ from those of the graduates of Master of Arts and Doctorate. For instance, it was found out that the graduates of Master of Arts were expected to be expert on project management and instructional designing, the graduates of Doctorate were expected to be expert on teaching, researching and writing high-level proposals, and the graduates of both were expected to have experience in the field and to have skills in the use of computer and multi-media products. In the study, while there was a gradual decrease in the demand of employers for basic knowledge and skills, the demand for computer knowledge and skills (software, hardware) increased. Moallem stated that instructional technologists are expected to have high-level skills in individual communication and management, team work, and in the use of new technologies.

Sumuer, Kursun and Cagiltay (2006), examining the academic announcements and the notices of companies, determined the desired competencies of an instructional technologist. They reported these competencies under four headings such as *professional foundations, educational foundations, technical foundations*, and *instructional technology foundations*. The researchers pointed out that in terms of *professional foundations*, instructional technologists should have the skills necessary for cooperation in a team and for communication and project management. With respect to *educational foundations*, the researchers emphasized pedagogical knowledge, the designing of instruction, the principles and theories of learning (especially for adult training in companies), and online learning techniques. Regarding *technical foundations*, the researchers emphasized experience in course management systems (Moodle, Blackboard), the use of software (Microsoft Suite) and multimedia production tools (Adobe Flash) and knowledge about web programming. As for the category of *instructional technology foundations*, the researchers stated that the academic and private sectors look for individuals experienced in instructional technology and instructional design.

Surry and Robinson (2001), in their study, mentioned the specialization areas where instructional technology is used. According to the researchers, these areas include the instructional technologist, the instructional technology director, technical-support expert, Web expert, the instructional technology librarian and miscellaneous. The researchers pointed out that in the business world, an instructional technologist is expected to take the degree of doctorate or at least the degree of Master of Arts. In their study, the researchers also stated that an instructional technologist helps his/her faculty/institution with issues related to technology, integrates technology into education, and in many respects, serves as an instructional technology consultant or as an instructional technology expert in his/her faculty/institution. Therefore, it is seen that in the field of instructional technology, there are different specialization areas.

In addition, it is reported in literature that instructional technologists should graduate from the departments of instructional design or instructional technologies (Sugar, 2005). Therefore, in Turkey, those who graduate from the department of Computer Education and Instructional Technologies (CEIT) can also be regarded as instructional technologists. In this country, the graduates of the department of CEIT were first employed as Computer Teachers at schools by the Ministry of National Education (MEB). However, depending on the needs at schools, these Computer Teachers were then divided into three groups such as Computer Teachers, Computer Trainers and Computer Coordinators. Today, Computer Teachers in Turkey are called Teachers of Information Technologies. According to MEB (2008), the special-field competencies of the Teachers of Information Technologies are designing, planning and arranging the teaching process and environment; technological concepts and applications; teaching-learning-program; monitoring and evaluating the progress; the school-family-society relationships, ethical and social issues; and professional development. On the other hand, The Information Technology Trainers follow the recent technological developments and cooperate with the administrators of his or her school/institution in order to train the directors, teachers, students and other staff in the school as well as the people in the society, to make the necessary planning of these trainings (MEB, 2007). In this respect, it can be said that the Teachers of Information Technologies and the Information Technology Trainers in Turkey have the competencies of an instructional technologist.

When the related literature is reviewed, it is seen that the competencies of an instructional technologist differ from one country to another, and even from one region to another in a country due to cultural differences. It is also seen that the competencies of an instructional technologist is expected to have differ with respect to the academic, private, and public sectors. Furthermore, it is obvious that these competencies are categorized by the instructional technology field-experts in different ways and that there is no consensus on this issue.

In this study, in the light of the research results in literature, the competencies of an instructional technologist are examined in three categories such as *social competencies, educational competencies* and *technological competencies* (Table 1).

Table 1: The basic competencies of an instructional technologist

| Social Competencies | Educational Competencies | Technological Competencies |
|---|---|---|
| • Cooperative working | • Psychology in learning | • Technology |
| • Communication | - Child education | - Hardware |
| - Within the institution | - Adult education | - Software |
| - Outside the institution | • Instructional Design | - Virtual Environments |
| • Planning | • Consulting | |
| | • Technological integration | |

In terms of *social competencies*, an instructional technologist is expected to act cooperatively in group works and to work together with different experts and with the other shareholders in the institution. An instructional technologist is also expected to have effective communication skills to produce opportunities for working together with the other shareholders in the institution as well as with those from other institutions. For example, Teachers of Information Technologies in a school should have effective communication skills in order to guide the other teachers and directors in the school well. According to MEB (2007), the Information Technology Trainers should have the necessary planning skills to make the information technology classes ready for education and to train the directors, teacher, students and the other staff in the school as well as the people in the society. When an Information Technology Trainer is considered as an instructional technologist, one of the competencies that an instructional technologist should have is the planning skill. The second category, *educational competencies*, includes child and adult education in terms of the competency in learning psychology. Sumuer, Kursun, & Cagiltay (2006) stated that while educational institutions prefer instructional technologists who are competent especially in child education, competency in adult education is more important for the private sector. As can be seen, it is said that the competency area differs with respect to the institution. In order to make education more effective with the integration of technology, instruction should be designed properly. For this purpose, instructional technologists are expected to be experienced in instructional design. The teacher candidates in the department of CEIT who could also be considered as instructional technologists learn how to apply the instructional design processes during their education in their department. With the help of their field-knowledge, instructional technologists undertake the role of a consultant and give advice on technology-related issues to the other shareholders in the institution. Surry (1996) states that the consulting roles of an instructional technologist in an institution include guiding for the design and development of materials and determining the hardware appropriate to the institution. An instructional technologist competent in the integration of technology is expected to integrate technology into the departments that need technology. Regarding the category of *technological competencies*, an instructional technologist should know about the present and recently-developing technologies and use these technologies when needed. In addition, in terms of this category, an instructional technologist is expected to have basic skills in hardware and software. Furthermore, an instructional technologist should become aware of virtual environments such as blog and wiki. An instructional technologist is not a technician but rather a consultant, a plan-maker, and a technology-integrator.

## 3. Conclusion and Suggestions

Instructional technologists are technology experts who are competent in human relationships, develop the school-family relationships, know basic teaching-learning theories well, and who know how to integrate technology into the learning environment. In this respect, communication courses could be included in the educational programs of the department of CEIT.

Since the competencies of instructional technologists differ from one country to another and from one institution to another parallel to the developing technology, the institutions may face problems in meeting the demand for an instructional technologist. In addition, due to the possible differences in the competencies of instructional technologists, those who want to become expert in the field are also likely to experience problems. Therefore, in order to clarify the competencies of an instructional technologist, further research could be conducted taking the institutional (public, education, private sector) or cultural varieties. In Turkey, there occur cultural differences in institutions. Hence, future studies could focus on the competencies of instructional technologies from different

cultures. Furthermore, qualitative and quantitative studies could be carried out based on the views of the whole shareholders in the field to clarify the competencies of instructional technologists.

The frame of the competencies of an instructional technologist should be drawn together with the experts in the field of instructional technology, with the directors of the institutions who will employ instructional technologists, and with the instructional technologist candidates. Therefore, it is important that depending on this frame, the institutions where instructional technologists are trained revise their curriculum.

## 4. References

Alkan, C. (1997). *Eğitim teknolojisi*. (5th ed.). Ankara: Anı Yayıncılık.

Ergin, A. (1995). *Öğretim Teknolojisi İletişim*. (1st ed.). Ankara: Pegem.

Moallem, M. (1995). *Analysis of job announcements and required competencies for instructional technology professionals*. ERIC Reproduction, ED 405 355.

Reiser, R. A. (2007). What field did you say you were in? Defining and naming our field. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology,* (pp. 2-9). Upper Saddle River, NJ: Pearson Education, Inc.

Sugar, W. (2005). Instructional technologist as a coach: impact of a situated professional development program on teachers' technology use. *Journal of Technology and Teacher Education, 13*(4), 547-571.

Sumuer, E., Kursun, E., & Cagiltay, K. (2006). Current major competencies for instructional design and technology professionals. In E. Pearson & P. Bohman (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2006* (pp. 1617-1622). Chesapeake, VA: AACE.

Surry, D.W. (1996). Defining the role of the instructional technologist in higher education. In *Proceedings of the 1996 Mid-South Instructional Technology Conference,* Murfreesboro, TN: Middle Tennessee State University.

Surry, D. W., & Robinson, M. A. (2001). A taxonomy of instructional technology service positions in higher education. *Innovations in Education and Teaching International, 38*(3), 231–238.

Tennyson, R. D. (2001). Defining core competencies of an instructional technologist. *Computers in Human Behavior, 17,* 355–361.

The Ministry of National Education-MEB (2007). Bilgisayar formatör öğretmenlerinin sorumlulukları. Retrieved October 10, 2008, from http://mevzuat.meb.gov.tr/html/211_0.html

The Ministry of National Education-MEB (2008). Bilişim teknolojileri öğretmeni özel alan yeterlikleri. Retrieved October 10, 2008, from http://otmg.meb.gov.tr/belgeler/alanyeterlikler/bili%C5%9Fim%20teknolojileri%20%C3%B6%C4%9Fretmeni%20%C3%B6zel%20alan%20yeterlikleri.pdf