

The Impact of Instructional Technology in Turkey

by *Cengiz Hakan Aydin and Marina Stock McIsaac*

□ This article focuses on the effects of information and communication technology on people's daily lives in Turkey and particularly on the effects of recent technologies on the educational system. We begin with an examination of the definitions of culture, technology and globalization, and follow with a clarification of the relationships among these terms. Then we describe some of the main cultural characteristics of Turkish society by referring to Hofstede's (2001) classifications. A brief explanation about the status of information and communication technology use in Turkish society in general and particularly in educational settings follows. The effects of those technologies on society and the educational system are elaborated. The paper concludes with recommendations for future integration of information and communication technologies in Turkey. Research findings from varying fields such as cross-cultural psychology, intercultural communications, politics, and recommendations of experts have been used to draw a picture about the effects of technology on Turkish culture.

Culture, Technology and Globalization

As it is with other terms in social sciences, it is difficult to find a consensus on the definition of *culture*. According to Mole (1995) "culture is a woolly, flaky, pretentious, unbusiness-like,

mildly derisive work like intellectual or bureaucratic" and his definition of culture is "the way we do things around here." The way of doing things is guided by the set of attitudes, norms, values, beliefs, and behaviors of people. Matsumoto (1996) considered this set, shared by a group of people, but different for each individual, communicated from one generation to the next, as culture (cited in Gunawardena, Wilson, & Nolla, 2003). Chen and Starosta (1998) have indicated that cultures are defined by values and norms. These may vary according to national, organizational, regional, ethnic, religious, or linguistic affiliation, and by gender, generation, social class, and family levels.

Since how we do things around here mostly depends on the technologies people have and use, it can be easily claimed that technology shapes, changes, and defines the culture. Technology, a way of solving problems, has always been in close interdependence with culture. The effectiveness of electronic communication, for example, is determined by a learner's culture, community, and feelings of being socially present, and the social learning environment (McIsaac, 2002). Studies by Tu and McIsaac (2002) confirmed the importance of culture, identity, and social environment in establishing a successful community of online learners. Gunawardena and McIsaac (2003) have identified culture, social presence, and communication technologies as key research issues for educational technologists. Similarly, technologies have affected developments in the past. Printing technology, for instance, has triggered many cultural changes, including fostering the creation of a new social class.

On the other hand, culture also shapes technologies. An example given by Westby and Atencio (2002) supports this idea: Gunpowder was discovered by the Chinese in ancient times and was used for its loud noise to frighten off spirits and celebrate weddings and eclipses of the moon. After being rediscovered in the West, gunpowder was used as a propellant in cannons. The Chinese also learned this way of using gunpowder. They used it to develop rocketry and firecrackers. Different cultures have had diverse problems in history. They all developed new ways to solve their problems, sometimes

borrowing those new ways from other cultures and employing them to solve similar problems. Some of these attempts were successful, but most often they had to modify the technology to serve their culture.

Globalization is a term and process that has close relations with culture and technology. *Globalization* can be defined as the process of increasing the connectivity and interdependence of the world's nations in economic, social, and political areas. Although the roots of globalization can be traced back to ancient times (to the times when human tribes first started to establish close contacts with neighbor tribes), this process has speeded up dramatically in the last several decades as technological advances make it easier for people to travel, communicate, and do business internationally (Robertson, 1992). Decades ago, McLuhan (1964) used the term *global village* and stressed the influence of the mass media on cultures. Now people worldwide have not only begun to dress in the same clothes and eat similar foods but they have also started to show similar behaviors. Most agree that Western culture, especially U.S. culture, is becoming dominant in many parts of the world as a result of globalization (Gundogmus, 2002). The relationship between these terms is that culture influences the use and development of the technology, which in turn, shapes culture. Technology also fosters the process of globalization, which forces cultural changes.

Turkey and Cultural Characteristics of the Society

Turkey is a country located in the middle of the Middle East, between Europe and Central Asia. It is larger than the state of Texas and has a population of 63 million people. The Islamic religion and its Ottoman past link Turkey to the Arab lands to the south. Its strong secular identity and its membership in NATO link it to Western Europe. The collapse of the Soviet Union in 1991 drew Turkey back to Central Asia, where Turkic culture began. Today, the population is mostly Turks with a significant minority of Kurds, concentrated in the East but also conspicuous in Turkey's cities. Tiny minorities of Armenians

and Greeks (both Christian groups) are found primarily in Istanbul, and a tiny minority of Jews remains in Istanbul and Izmir. About half of Turkey's population lives in rural communities and engages in agricultural occupations, while the other half lives in or near urban areas and is involved in heavy industry, manufacturing, or urban services. The gulf between rich and poor is noticeable, especially as one travels east. Ninety-nine percent of Turks are Muslim (most of the Sunni tradition). Islam plays a large part in the daily life of any Turk and is particularly evident to the visitor. The people of Turkey are proud of their heritage and are very nationalistic. But, the current struggles of high inflation, the desire of some Muslims to infuse religion into the current secular state, and the Kurdish problems in the east are causing unrest within the country (WorldNet, 2003). In order to understand the effects of Western cultures of information and communication technologies on people in Turkey, it would be beneficial to express some of the main cultural characteristics of Turkish society. We will describe Turkish culture from the perspective of Hofstede's dimensions. Although Ross and Faulkner (1998) argued for relying solely on dimensional information in understanding a particular culture, Hofstede provided dimensions that more clearly present a solid theoretical framework to introduce a culture. Hofstede (1980, 2001) classified cultures according to their place on the power-distance, uncertainty-avoidance, masculinity-femininity dimensions, and individualism-collectivism scales. Besides these, Hall (1976) classified cultures according to contextualization. Each of these terms is explained below.

Power-distance refers to the extent to which less powerful persons in a society accept inequality in power and consider it as normal. A culture can be in between high power and low power. In high-power cultures, the socioeconomic status of the members influences group interactions, but in low-power cultures status differences are not considered and interaction processes are more democratic. Turkey is a country that has a moderately high level of power-distance (Kagitcibasi, 1970 cited in Hofstede, 2001). In other words, status may still be influential when

dealing with group communications in Turkey. The gap between poor and rich is growing daily because of the recent and current economic crises. This situation affects group interactions in many ways.

Uncertainty-avoidance is the extent to which people feel threatened by ambiguous situations and have created beliefs and institutions that try to avoid these. Cultures with strong uncertainty-avoidance have tolerance for ambiguous situations. Turkish people feel a moderately strong level of uncertainty-avoidance in the way they perceive their careers, and place great importance on the basic components of their occupations such as job security, benefits, and consistency (Hofstede, 2001).

Masculinity-femininity refers to the degree to which cultures foster traditional gender differences among their members. According to Hofstede's (2001) description, in masculine cultures sex roles are sharply differentiated and masculinity is a preference for achievement, heroism, assertiveness, and material success. However, in feminine cultures, sex roles are less sharply distinguished, and little differentiation is made between men and women in the same job. Femininity is a preference for relationships, modesty, caring for the weak, and the quality of life (Cifuentes & Murphy, 2000; The International Business Center, 2003). Especially in the past, the roles of men and women were quite sharply defined in Turkish culture. During the last two decades, there has been a strong tendency to reduce the gap between female and male roles. Especially in work environments, more women are taking over the responsibilities and roles that were once considered the province of men. The way females dress and act in different environments, such as schools and streets, also supports the trend. A study (Imamoglu, Kuller, Imamoglu, & Kuller, 1993) that compared Turkish and Swedish cultures revealed that Turkish people have larger social networks and interrelations (cited in Hofstede, 2001). From these perspectives it is easy to say that Turkish culture is moving from being strictly masculine to embracing more feminine characteristics, with less emphasis on gender in

work roles. Hofstede's earlier research (1980), which was conducted in business settings, also supported this movement. However, the movement may be in the opposite direction. Selim and Ilkkaracan (2002), for instance, have found that a gender gap in different aspects of the workplace, such as wage differences in Turkish companies, is still continuing because of gender-based occupational and industrial segregation and differences in institutional factors. Additionally, it appears that people in Turkey now value material success more, especially earning money, and care for the weak less than before, because of the pressure of constantly decreasing living standards and the increasing opportunity of finding a decent job. Furthermore, the most popular television shows, such as *Deli Yurek* and its kind, which express male dominance, courage, and heroism, also support the movement toward masculinity.

Individualism versus collectivism has been used theoretically and empirically to explain and predict similarities and differences between cultures. In individualistic cultures, personal needs and goals are considered more significant than the needs of others. In a collectivist culture, in contrast, individual needs can be sacrificed to satisfy the group. A feeling of interconnectedness takes priority in a collectivist culture (Gunawardena et al., 2003). According to Hofstede's (2001) research on the orientation of Turkish people and their sense of individualism versus collectivism, the general direction is between focusing individually and collectively. In the past, it was more collectivist. Today the tendency toward individualism is stimulated by the separation of big families, immigration from rural areas to cities, and economic conditions.

Contextualization is another dimension that can be used to differentiate cultures. Hall (1976) proposed that cultures can be classified as low or high context according to the amount of information that is stated directly, versus implied, in a message. Low-context cultures depend on information provided by the precise code of the message itself. On the other hand, high-context cultures obtain meaning from the contextual clues delivered through indirect verbal mes-

sages to extrapolate meaning (Gunawardena et al., 2003). Turkish culture can be considered more of a high-context culture. Usually, people hide their real feelings to avoid hurting those with whom they may disagree. As with most of the other dimensions, there is a movement in contextualization too. Turkish culture is slowly moving away from its high-context characteristic.

In sum, power-distance is still quite high in Turkey, because of socioeconomic conditions among its population. Turkish culture shows a strong level of uncertainty-avoidance. Although some developments in Turkish society show a tendency toward accepting the feminine dimension, many support an opposite movement, because of economic and social factors. In the past, Turkish people were more collectivist, but there has been a change toward individualism in recent years. In addition, Turkish culture shows increasing low-context characteristics nowadays, although it should still be considered a high-context culture. Figure 1 shows where the Turkish culture stands, or shows a movement in terms of power-distance, uncertainty-avoidance, masculinity-femininity, individualism-collectivism, and contextualization. The squares indicate the position of the culture on the spectrum; arrows point to the direction of a movement.

other countries. After comparing Turkey with the five most developed countries, Aktan (2003) stated that Turkey is not among the countries that meet the requirements of a knowledge society in terms of accessing Internet and computers, exporting technology, and contributing to the world's scientific knowledge base.

According to world development indicators (World Bank, 2002), the ratio of computers per 1,000 people in developed countries is 500, but it is only 38 in Turkey. In the United States, about 100 million people have access to the Internet, while in Japan about 50 million people have such access. Recent polls in Turkey reveal that the percentage of home computer ownership is still about 25%, and the majority of these computers do not have access to the Internet. In Turkey there are nearly 2.5 million (about 3% of the population) registered Internet users, and only 7% of these users have access to the Internet at home. Others are mostly connecting to the Internet at their workplaces and at Internet cafés.

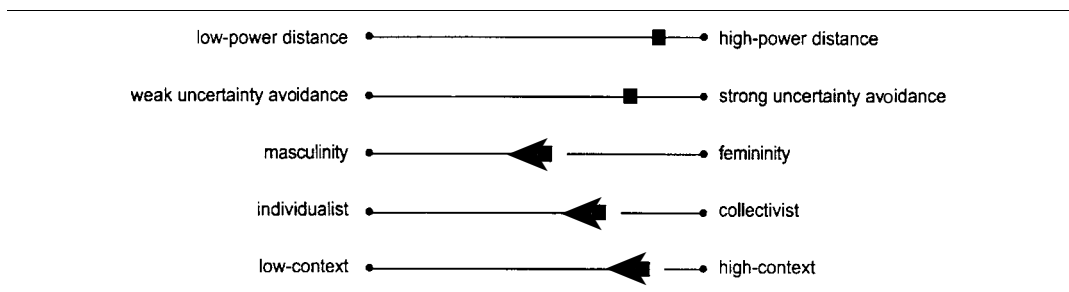
Although the number of registered Internet cafés in Turkey was reported as 2,533, it has been recently estimated that this number has reached 15,000 (Andic, 2003). Internet café user profile studies have shown that about 85% of the users are between the ages of 10 and 25. They usually go to cafés to play games, surf the Internet, and chat (Guler & Eroglu, 2002).

On the other hand, figures on the use of television and telephones (including cell phones) show that these technologies are at a satisfying level (Arasil, Alkan, Gungor & Evren, 2001). However, no data have been reported about the use of other new technologies such as PDAs and handhelds.

Information and Communication Technology Use in Turkey

Recent figures reveal that Turkish people in general are not using the latest information and communication technologies such as the Internet as efficiently and effectively as are people in

Figure 1 □ Characteristics of Turkish culture according to authors on Hofstede's four-dimensional model and Hall's contextual dimension.



Only 17% of primary and secondary schools in Turkey have computers. The ratio of computers to pupils is 1 to 81 among primary and secondary students—quite a bit lower than the world average of 1 to 45 students. Nevertheless, it is assumed that most of these schools have no or limited Internet connections (TBS, 2002). Although there are more computers in institutions of higher education than in primary and secondary education, it still is not enough.

By looking at the numbers, it can be seen that in Turkey:

1. Schools are not able to offer learning environments in which young generations can learn how to use the constructive power and potentials of information technologies.
2. The digital divide is getting wider.
3. Only a small proportion of people have access to computers and the Internet.

Inefficient infrastructure, lack of required legislation, and economic problems are among the main causes of this situation (TBS, 2002). Turk Telecomm works as a private company, but it is actually a government agent and the only infrastructure provider in Turkey. Because of economic, political, and bureaucratic problems, the company has not been able to invest to improve the speed and quality of Internet services. Today the majority of people in Turkey are still using dial-up modems. Just a few companies and individuals have access to cable modems. Turk Telecomm has been announcing the arrival of an asymmetric digital subscriber line (ADSL) type of connection opportunity for years, but it has not yet been successful.

Similarly, Turkey is not at a satisfactory level in terms of technology transfer and production of scientific knowledge. The developed countries of the world spend 2 to 4% of their gross national income (GNI) on research and development. Turkey spends only 0.48%. In Turkey, 303 people per million work in research and development, whereas in developed countries the number is much higher; in Sweden, for instance, 4,507 per million. This shows that Turkey is not able to invest in research and development, and is having problems exporting advance technology (Aktan, 2003).

Moreover, the contribution of Turkey to the world's scientific knowledge is quite limited. As has been often said, even by the Higher Education Council (YOK, 2003), a government agency making decisions about Turkish higher education, there are not enough experienced faculty, and in general, the experienced faculty in Turkish universities are so loaded with instructional activities that they find little time to work on research studies. This situation directly affects the contribution of Turkey to the world's scientific knowledge body (YOK).

Effects of Technologies on Society and the Educational System

Today, almost all countries, especially the underdeveloped ones, are interested in Western technology. Tasci regarded this tendency as normal (C.H. Aydin, personal communication, June 23, 2003). He stressed the historical relationship between trade, information, and technological development. In early times, China controlled world trade. In those days the Chinese discovered their version of new information technology, for example, the abacus. Later, other countries borrowed that technology from China. Soon after, Arabic nations started to control the flow of world trade. Their information technology involved the discovery of mathematical rules and models, using mechanical methods of measuring that were later used by many other countries. Afterward, Europe became the center of world trade. As a result, other technology, such as the calculator, were developed in Europe. Finally, North America, especially the United States, started to control world trade. Computers were developed and their rapid computations have changed information retrieval around the world. Countries need to understand and use these new technologies in order to survive in changing world markets (C.H. Aydin, June 23, 2003).

The effects of Western information and communication technologies on Turkish culture can be observed in daily life. People, especially young people, have begun not only to eat, dress, and dance like those in the West, but also to behave, live, and talk like their counterparts in

the United States and other Western countries.

Basturk (2001) has mentioned that experts (e.g., Featherstone, 1991/1996; Keyman, 1999) claim that these effects are undeniable consequences of globalization and that this change process is actually creating a global culture. Some (e.g., Wheller, 1998) argue that global culture diminishes local cultures, carries the Western colonial ideas underneath, and creates new social and cultural problems in under- or less-developed countries. In contrast, others (e.g., Smith, 1993; Tomlinson, 1999) claim that global culture does not carry any imperialist essence and should not be compared with Hellenic or Roman imperialism. Those civilizations were in essence the dissemination of economically and militarily powerful cultures on less powerful cultures. In other words imperialism has ethnic and national characteristics. But global culture is something international and helps some of the local features to become global so that it includes many ethnic features.

In Turkey, although most companies and even the government are trying to be ready for the effects of globalization, there are many people who think globalization has negative effects on economy and culture, and who favor the antiglobal movements that are growing. Gundogmus (2002) indicated that, according to a comparative study conducted by Environics International, the percent of Turkish people who support the antiglobal movement has increased to 73%, which is significantly higher than the world average of 46%. This study also showed that Turkish people (83% of the population) think more pessimistically than people in other countries (average 68%) about the current direction and status of the world. In addition, the percent of people who think American culture has positive effects was 50% in 2001, but decreased to 26% in 2002. This dramatic decrease can be linked to the wars in Afghanistan and Iraq, as well as to economic and political crises in Turkey.

The Future of Information Technology in Turkey

Predictions are always difficult to make, particularly in the current world climate. However,

information technology has had a profound impact on education and communication around the world. Turkey looks toward the West, but has its culture planted firmly in the East. If new developments in communication are to be used to full advantage, information technology can:

- Lay foundations for economic, social, and educational transformation.
- Foster growth of knowledge.
- Develop without the influence of Western culture in order to better meet local needs.

Many writers in Turkey, such as Akgul (1995) believe in the power of using technology effectively and developing native technologies in Turkey. They believe that information technology can help overcome most of the economic and social problems. They express the opinion that government should make immediate decisions that will eliminate the barriers and increase the access and use of information technology. However, nothing has been done so far.

The effects of information technology on the growth of knowledge in Turkey can easily be observed by examining the number of papers presented in international conferences, and the articles published in indexed journals and in other international publications. There has been a significant increase in these areas since the mid-1990s. The Internet has provided academicians not only access to vast amount of resources but also collaboration opportunities with colleagues from different countries. All of this helps academics extend their vision and understanding in their particular fields. Similarly, practitioners in varying fields have had the same opportunities, which help them improve the quality of their products and services. In addition, ordinary people in Turkey have had a chance to see and learn how others live, handle daily problems, spend their spare time, and so forth. As a result, people are trying to improve the quality of their lives and demanding more from the authorities.

The applications of information technology can be developed without influences from Western culture. One of the main steps that should be taken in applying information technology without Western influence is analyzing the needs,

problems, and characteristics of society. Having a solid idea about the society targeted can help information technology providers offer people better opportunities to use information technology effectively. Also, providers should supply people alternatives that are as flexible as possible in the use of information technology. People will find the best ways to meet their needs. Ready-to-use interventions have never been successful in Turkey, especially in educational settings. Computer-based instruction, for instance, was not successful in our educational system because most of the computer-based instruction initiatives offered solutions that were not applicable to Turkish culture. The few successful applications were usually created by local people who really understood the needs and characteristics of the society. For example, a retired secondary education English-as-a-second language (ESL) teacher's personal interest in computers, commitment to effectiveness of computers in education, and experience teaching children English in Eskisehir, a developing town in the middle of Turkey, resulted in the creation of a computer-based instruction program that provided drill and practice activities to children of a private ESL institution. This program was used for many years during the late '80s, and the producer of the program did not sell it to any of the companies that had offered to purchase the copyright. The experts agreed that the success of that program relied on its simplicity and custom-made structure. Analyzing the culture and providing the open IT systems that let people create tailor-made solutions to their problems are key points to be considered when developing information technology solutions without undue Western influence.

The future of information technology in Turkey depends on the extent to which the infrastructure is put in place, the access that people have to networked technologies, and the training opportunities that teachers in schools have to use the new technologies. If these events occur, there will be increased possibilities for economic, social and educational development in Turkey. □

currently [chaydin@unm.edu] is Fulbright Scholar at the University of New Mexico, Albuquerque.

Marina Stock McIsaac [mmcisaac@asu.edu] is at Arizona State University in Tempe.

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