**The role of artificial intelligence of modern communication technologies in the development of blind media literacy**

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**Abstract:**

       The rapid growth of technology and social media has made significant changes in the communication and development of human knowledge. The development and availability of smartphones (new mobiles) has transformed communication skills, knowledge and understanding of individuals. In decades ago, the blind and those who were in trouble with the outside world, with help of artificial intelligence derived from these smartphones and technologies, have somehow been able to upgrade their knowledge. The present research studies the role of artificial intelligence apps and social networks and other mass media in the media literacy of the blind. The statistical populations of the study are 2000 blinds people from Tabriz city. The sampling method was unpredictable with a targeted technique and among these people, based on the z score and based on the characteristics assigned to the population, up to 2 standard deviations, were selected 15 people by this technology, and 15 people were those who lack this technology. The method of data collection was semi-experimental with 2groups' technique and field observation was total observation technique. Theoretical framework of the research was usage and satisfaction and Paters' theory of media literacy. Independent T test was used to compare two groups and Friedman test was used to examine the correlation between two variables. Based on the obtained results from this study, the blind using these technologies provides information and insight into his surroundings that, over time, can enhance their media literacy. By increasing the usage ability of these technologies, becomes easier knowledge production and information processing for the blind and ultimately, thinking develops beyond the limits of media literacy. Also, their range of knowledge is extended that benefit from media and communication technologies, and they are more likely to receive and process new information. This cycle continues as a functional relationship, and as a result, the blind people who use these technologies find themselves far away from the communication with the blind that do not use these technologies.

**Keywords: Artificial Intelligence, Media Literacy, Blinds, Interpersonal Relationships, Digital Communications.**

**Problem statement:**

Technology and its effects on human life and destiny are one of the issues that have come a long way with the cybernetic revolution and the dramatic upheaval in various fields and experts from different fields have been busy since the early decades of the twentieth century and the emergence of new technologies to the present. These scholars, mainly in two opposition camps and technology advocates, have evaluated this phenomenon in a number of different ways.

Since the great amount of information was encountered and it was difficult to process this information emerged the topic of artificial intelligence. So, a human-like device was needed for information processing. Artificial intelligence is based on the computer, a device which its essential features is high processing speed and high memory capacity. This is not enough for the full use of this device, so we need the "software”. In this respect, human beings are far superior to computers. Computer software is still very basic, while the "human software" is very complex. Therefore, if we want to create artificial intelligence as a human being in decision making; we need to develop computer software that is compatible with human abilities. In March 2016, Tay entered the world through Twitter, but a few hours later, due to some comments, such as "Hitler was right, I hate the Jew", was deleted his tweet. The removal of his tweets did not impede racism, since the comment was written by the bot and not by him (Hunt, 2016) although sentences like that did not make racist the majority of people, the type of judging was incorrect, because it's not human, but a robot and one of the Microsoft software. With this explanation, the company began to launch: "The more you speak to Tai, the more you will understand his intelligence" (Twitter, 2016) and mentioned to the nature of learning machine that could be connect to the user. For example, they brought numerous questions, such as: Why does a bot have a name and a face? How does it become intelligent when someone talks with it? Why do big companies like Microsoft invest in artificial intelligence research? What new relationship can a person have with chat bot? Can artificial intelligence be racist? Artificial intelligence has been around for over 60 years, and only during the last decade, its progress has changed the overall communications of the digital world. Because of its rapid evolution, the scientific dimension of artificial intelligence is examined rarely. From the perceptual point of view, researchers are dealing with a new body of information about human perception. The global network works with a number of fully digital sensors and sensors in the fields of science, biology, philosophy and sociology, and so on. What is important in this regard is the lack of belief in the existence and creation of artificial intelligence by some critics. They argue that valuable resources and time spending in making a product that is full of imperfections and defects is a means of defaming and violating human abilities and intelligences. The worst criticism is that artificial intelligence is a clear insult of nature and man role. In contrast, Tualatin believes: A sophisticated study of human-machine intelligence means the study of natural intelligence with the help of information technology that will play a major role in cybernetic research over the coming years.

Works like disinfecting a mine or cleaning a swimming pool that are dangerous or corrosive to humans is one of the reasons that we are studying artificial intelligence. On the other hand, with the emergence of new smartphones and the universal use of this technology, the blind are no exception. We are going to explore the effects of these technologies on the blind community, so we know the usage extent of these technologies, and the effects of these new technologies on the blind media literacy and, ultimately, their role in the daily life.

**What is the main question?**

What is the role of artificial intelligence and modern communication technologies in the development of blind media literacy?

**Sub Question:**

Therefore, this study aimed to determine the use of information and communication technologies by specific media to meet the information needs of the blind in Tabriz city and seek to answer these research questions:

1. How much do blind people use their own intelligence and social media?
2. How much does the blind use of information technology (electronic resources and the Internet)?
3. How does the use of smartphones affect the lives of the blind?
4. How much does the blind use of electronic devices to promote their media literacy?
5. How effective is artificial intelligence of modern communication technologies in improving the lives of blind people and in the development of media literacy?

**Research purposes:**

The main purpose of this study is to gather information about the role of new AI technologies in social networks, and the main analysis about future of social relationships and the blind person's perception of the global dimension. In the following, we aim to look at the more detailed objectives that aim to create a new body of information about development of artificial intelligence in social media and to provide knowledge about its effects on the society of the blind**.**

**Literature reviewing:**

The theoretical framework used in this research is "the approach of media usage and satisfaction of it”. The theory show what people want and choose to do with the media and its content. The main assumption of the pattern is that the audience is more or less actively looking for content that delivers the most pleasure. The degree of this pleasure depends on the needs and interests of individuals (Martinez, 35: 1992).The model of this approach is presented in 1974 by Blumeler &Katz. The theory was a reaction to the mass-media approach that the media audience was passive and fully influenced by powerful media resources. In this approach, people are active and they choose and use programs (Press and Ferguson, 79: 2003).

Katz, Blumler, Gurwich, and House (1973) developed 35 needs that came from the social and psychological functions of the mass media, they placing them in five categories:

1. Cognitive needs, including obtaining information, knowledge and understanding. 2. Emotional needs, including emotions, pleasures and feelings. 3. Individual-corporate needs, including credibility, stability, position. 4. Social-corporate needs, including interaction with family and friends. 5. Tension liberation needs, including volatility and diversity.

**Media Literacy Theory:**

For Potter, the dimensions of media literacy play an important role in understanding the goals of the media by the audience. Media literacy is a multi-factor model, and "knowledge structures," "personal resources," "information processing tasks," and "skills and abilities" are factors of the media literacy model (LidaKavusi, 2006, p. 17), which constantly support each other's.

The four dimensions of the parquet are:

1. **Perceptual dimension:** after the media literacy of previous knowledge and information of the audience about the content of the message, it transmitted from a specific medium. This information is based on the brain (Ibid, p. 19)
2. **Emotional dimension**: It's called the positive or negative emotional consequences that attach audiences to the content of a particular media message. Sentimental such as love, hatred, anger, joy and disappointment, confusion, hesitation, and doubt (ibid., P. 20)
3. **Aesthetic dimension**: after media literacy, it is containing information about the method and how to generate the message.

This basic information provides the audience with the necessary background for judging authors, actors, designers, musicians, lighters, etc., depending on which message is being transmitted from the media. In general, this is after media literacy. It is important to have a critical vision (ibid., P. 21)

**D-ethical dimension**: It addresses the value of the media after the media literacy and strengthens it. It contains information about values ​​that are based on human temperament and spirit. Ethical information provides the yardstick and criteria for judging "true and false". We judge about the good or bad characters of a story. Whatever our ethical information is more accurate, we will understand the implications of media messages in depth, and our judgments about those values ​​will be more accurate and logical (ibid., P. 21)

As James Potter believes, the media literacy goal is to empower people in order to control media plans, he believes that the first step in controlling the media from one person to another is to understand how the media are planning them. Individuals, or even all governments, cannot control everything that is offered, but they can learn how to plan their minds. The second media programming takes place in a two-step, continuously repeating cycle. One of the stages of the cycle is "limiting choices," and the second is "consolidating experience. "The media plan think that we have the right to choose, while in fact the circle of our choice is strictly limited. Professionals in the media profession make these restrictions to achieve their economic goals (Potter, 2005, p. 21).

**Importance of the research topic:**

From the necessities of the information age and the need for 21st Century education is a kind of education that prepares learners to face the challenges of life affected by new, unpredictable media, which is the education of media literacy.

Since the beginning of this millennium (the 21st century), media literacy has found a special place in academic and academic circles, one could hope that if this topic were to be considered among the topics of the educational system, it will greatly help the groups to participate in community activities. Media literacy teaches audiences through the identifying values ​​and norms and determining the right patterns to face life challenges that are under the influence of emerging media and will create an automatic analysis mechanism in the minds of the audience. By knowing how media are produced by the media, even children will need more autonomy against the influx of the media. In addition, teachers and professors who acquire media literacy skills can become more influential information disseminators and can remove the gap between educational programs and social programs, which ultimately lead to consumers (audiences, critics) (Angels, 5002, p. 4)

At first Marshal McLuhan used term "media literacy" in his book, "Understanding the Media: Extending Human Existential Dimensions," and wrote, "When a global village is realized, people need to have a new literacy called Getting literate, "The Lower Matterman's (1985) was one of the most prominent thinkers in the field of international media education in a book titled "Deliberate Education in the 1990s." (BasiryanJahromi, Hussein, 2006, p. 33)

But in Iran, the concept of media literacy does not go a long way and to be referred as a new concept. The most important researches in this field are a number of theses that are mainly related to the comparative media literacy among intergroup, the evaluation of CIM managers about the media literacy of the people and its comparison with reality, as well as the evaluation of the experts' viewpoint about media literacy. This computer was developed with a single audio, Persian, English and Arabic audio output to facilitate reading, writing and editing of Braille books. According to Iran's Information Technology News Network (IRNA), the first Braille monitor in Iran was launched in 1997and for the first time in the world, the blind were able to use electronic Persian and Arabic texts in Braille Persian.

Pectus Co. (private joint stock company), founded by a group of Electrical Faculty of Sharif University graduates, it was established in 1991.It also made the first computer for the blind in Iran. In 2002, it replaced the text file with Persian audio as an audio output word reader. Despite all the issues that this text file encounters with audio, most of which are rooted in the structure and design of the Persian language, it covers the users' voice needs. Computer as one of the tools for improving the quality of people life has found its place and along with it, designing, manufacturing of hardware and software systems are becoming more and more widespread. Nowadays, with the advancement of information and communication technology, as well as the electrolyzing various sections of social life, we have been trying to provide good facilities for specific sectors of the society, especially the blind (Dara, 2006).

Today we can use rational computers to store information in the country and its purposeful distribution around the world. Because most reference sources in libraries are presented as compact discs (coombs, 1998).

People with visual impairment, except content accessing and computer-related training, face specific barriers to use the Internet. Harjity has identified accessibility problems as one of the obstacles that should face individuals with visual impairment. Byer & Papas (Bayer & Papas 2006) found that browsing the Internet and reading computer displays created problems for blind Internet users. Many studies about digital literacy measured self-report skills. (Dutton & Anderson, 1989, shashani, 1994)

There are significant writings about people with visual impairments that focus on information accessing technology and web designing. The main field underlying the research is to achieve an adequate knowledge about the usage of ICTs by the blind. If this issue is explained from a variety of dimensions, appropriate programs can be designed and implemented for blind to use information and communication age facilities.

**Research literature:**

**Thinking like Man: Cognition science**

The cognition science tries to create theories that explain how human brain functions. In this way are used computer models of artificial intelligence and experimental methods of psychology. It should be noted that most artificial intelligence methods are not directly based on cognitive models; it is often difficult to translate artificial intelligence techniques into computer programs. Knowledge is essentially separate from artificial intelligence**. In the 1960s, the cognitive revolution arose**. Knowledge is shared with artificial intelligence Knowledge. Scientists study the nature of intelligence with a psychological vision, and make more computer models that help to explain our inner events during problem solving, reminisce, perceiving, and other psychological activities. An essential part of AI and cognitive science for psychology is that in the human intelligence information processing model, the similitude of the "brain as a computer" is entirely literally accomplished.

**Artificial intelligence:**

What is artificial intelligence?

Here are four definitions below:

1.Systems those are similar to humans.

2. Systems those think like human beings.

3. Systems those are reasonable to think.

4. Systems those work reasonably.

The second and third items can be classified as strong artificial intelligence and the first and fourth cases are more in the classification of weak artificial intelligence.

Making machines are those do things usually by human intelligence; for example, translating a language into another language. Another definition is the knowledge and engineering of intelligent machines especially smart computer programs. Artificial intelligence is dependent on computers used to understand human intelligence, but it is not necessary to limit it to methods that are bio-visible.

According to Robin Gandhi (1996), Turing argued that machines would eventually carry out the same activities as humans (Millikan et al., P. 124).Turing's writings show that these ambitions do not play a role in philosophy, and they want to convince scientists and expensive philosophers that machines are not smart engines (reference).This kind of propaganda continues not only in the artificial intelligence community, but also in the media. One of the most important parts of AI is the presentation of knowledge and information. The advancement of the Internet and the emergence of the Web in the 1990s led to the development of many disciplines, but created problems such as large amounts of information or large data[[2]](#footnote-2).Also, designing information and knowledge is essential, through which artificial intelligence began to work on data retrieval, text extraction, and web design (Ramos et al., 2008, p. 16).This sample of information and knowledge was one of the main disciplines of research about artificial intelligence, called machine learning (Ramos et al., 2008, p. 17).Since the 1970s, neural networks have been used in most real-world issues such as classification, and today, educational and software machines that use nerve computing are considered as the top priority of Internet technologies. Data is considered as artificial intelligence and algorithm as the main data processing tool. Due to the speed and volume of data, computer scientists introduced algorithms as the ultimate goal of artificial intelligence, by that developed very complex systems[[3]](#footnote-3) and human communication. Due to this advance, digital communication called social networks reinforced artificial intelligence research and introduced them not only as actors but also as social variables.

**1-1History of Artificial Intelligence**

In 1943, McCulloch and Pitts: The Bolin Brain Orbital Model In 1950, calculating machines and Turing intelligence. In the 1950s, early artificial intelligence programs, including the Samuel checker program, the logical theory of Noel and Simon, the geometric machine of Gillnet | Dartmouth Meeting in 1956:was accepted Artificial Intelligence ", in the years 1966 to 1974,appearedcomputational complexity and disappeared research about the neural network |From 1969 to 1979, the first development of knowledge-based systems, in the 1980s-88s, was the huge development of industrial engineering systems | In 1998, 93 industry expert systems broke down: "Winter Artificial Intelligence" Neural networks are renowned in 1985 to 1995 . 1988 was Rebirth and Major increase in the depth of technique АLife, GAs: "Nouvelle AI" and Flexible Computing | 1995 agents and agents and ... | in 2003was dealt with the human level of artificial intelligence.

**Artificial intelligence and social networks**

In the information age, advanced systems are created every day. Research in the field of highly complex systems and professional texts related to data processing is a requirement of any social network. According to Eldi (2013), the speed of using social media is increasing. For example, more than 250 million tweets are generated each day (p. 96). The great dynamic data feature is that when decisions are taken from a large data, these decisions affect the next data and add it quickly (reference). As a result, social networks are further developing, and intelligent systems process large volumes of data. Each large social network uses large internal resources or focuses third parties on artificial intelligence and in-depth training[[4]](#footnote-4), through the analysis and design of a template in a large data set develops knowledge (Sorokina, 2015).In the research about Facebook's artificial intelligence, algorithms were created that linked the pattern to a user and designed to predict cashews, nerve networks and systems that could process 800 million user data (reference).Google paid $ 400 million for Deep Mind two years ago, and British Artificial Intelligence began to work. The company hired worldwide AI experts to build 100 large patterns (reference).Pin Trust and LinkedIn invented Bright and Hose’s educational software that users use to search and provide highly advanced services (reference).According to the first view, social network intelligence seems to be used in business science and create better platform and the history of artificial intelligence laboratories and social networks are also used daily in other fields. As a result, Google has invested heavily in robotics and artificial intelligence engines and in intelligent systems. For example, Google Home 2016 (Google Ai, 2016), Facebook, and IBM are one of the largest Internet and Microsoft technology companies that expedite competition not only for other companies, but also large industries and businesses serving by this system.

What is important about intelligent AI systems is that social networks serve as social agents. As Tay that mentioned in the introduction, and later, we will refer to other cases, because the use of artificial intelligence systems as social agents is important for car and human interaction. From the perspective of sociology, social media has changed the way of human communication. Digital engagement has contributed to the development of human computing.

According to Boyd (2915), Gill (2016) acknowledges the most valuable sources that we have is human intelligence, in other words, human intelligence is the skill, creativity and originality of mankind. On the other hand, the intelligence is the calculated and computed data machine. Through the symbolic interaction between human intelligence and the machine, we arrive to optimal solution for these problems (p. 139).I add countless attributes to human intelligence that cannot be reduced and stimulated by artificial systems, changing the technology of the 20th century every day and bringing science fiction. The main challenge is to maintain ability and reflection that is necessary for human nature and prevents its degeneration.

**In recent years, however, the blind engineer (SaghibSheikh) has made a Microsoft app that by installing in smartphone interprets and describes the world for blind people**. The statement of Microsoft used to empower people. He lost his vision at seven ages and other developers and programmers gathered with the same goal to create the Singing Ai app (seeing with the help of artificial intelligence).This application, which works with Peaty glasses, is the result of his work and his team members. This app allows visual impairment people to attach their glasses by their artificial intelligence of their mobile device and decode and interpret the world around them as signs and sound tips. These glasses make blind people, like other people, to understand the world around them. This new technology was the last program at the first 2016 Bid Meeting, and when he got older to introduce his work faced with intense encouragement of the audience. (<http://www.fardanama.com>)

**-1Facebook**

**Helping to blind people observation:**

Two billion photos are uploaded in Facebook every day. Suppose you're blind, with a Facebook message, you can introduce new creativity to the audience through a video called "Blind People."[[5]](#footnote-5)Facebook has made a major effort to improve the user's usage of social network, and has introduced a new tool in the network that will enable blind people or people with visual impairments to see images and understand them. This new feature is currently only available through the iOS app.

This new feature that uses artificial intelligence creates a text for each image, which can be used by blind or visually impaired Screen Reader to list all the elements in the image.

The name of this mechanism is Automatic Alternative Text, which acts as a substitute for the photo, and is actually a standard HTML that can be accessed by any reader tool.

Artificial intelligence of this mechanism is recognition technology and Facebook objects that clean and distinguish what is in the image. The company says that the design and delivery of this feature has been taking place for 10 months, which uses human brain to detect images and uses millions of samples.

The new Facebook feature for the blind is available in iOS and itis available in English and is currently only available for UK, US, Australia, Canada and New Zealand. But Facebook has promised that it will soon release this tool for platforms, languages ​​and more. (http://itabnak.fr/fa/news/)

**Blind community:**

There are 135 million blind people in the world, 90% of them are in developing countries. Iran has 16th rank in world in the field of blind. According to the latest screening in the country, the deputy of the Blind Association, reported 115,000 blind people in Iran, including 600 to 700,000 people with low vision and visual impairment. They are having difficulty for minimum living standards and, according to experts, unemployment is over 40%; this is while the blind are the most educated people among the disables. In the 1981, the number of blind people in the country was 150 people, and today they are five thousand peoples. Some of the country's educated people are at home due to lack of personal facilities and have difficulty in traveling. Employment, education, lack of access to services and rehabilitation aids such as standard cannon, highlighting equipment, computers and special equipment, and hardship in using public transport are problems of the blind. Public spaces at the city level, especially the subway, are not suitable for the blinds. Government agencies often refuse to accept these people(http://www.salamatnews.com).

**Research methodology:**

The method of this research is functional in terms of purpose and the method of data collection is a semi-experimental method with 2 groups' technique and field observation was total observation technique. The statistical population of the study are 2000 blinds people of Tabriz city which are covered by the Welfare Organization of the country and are registered in this organization According to statistics from the Welfare Organization of the whole country on 21/29/2011, 21989 people were extremely infected. The number of blind men in the country were 15074 (68.55%) and 6915 women (31.45%).Sampling method was non-objective with purposeful technique. Based on the z-score, based on the assigned characteristics to the sample population, up to 2 standard deviations, 15 peoples were selected by the technology, and 15peopleslacked this technology. Theoretical framework of the research was the usage and satisfaction theory and Paters' theory about media literacy.

Since there was no standard questionnaire to measure the variables in the research, by studying theoretical and empirical bases and by coordinating with the experts, according to the research objectives, a questionnaire was developed by the researcher, asking questions about population information, Special information media, blind usage of information technology (electronic resources, smartphones and networks, audio, podcasting, the usage of specialized software by blind in providing information necessities. The questionnaire was first distributed among 10 peoples and the Cronbach's alpha coefficient was 0.87, which was evaluated at the appropriate level. Scoring five Likert range with grades 1 to 5 is very high to very low options, respectively. For conducting research, separate references were sent to the Welfare Organization, the Association of the Blind, the Blind Service Centers, both governmental and non-governmental. After satisfying the cooperation of these institutes, about 30 questionnaires were read and completed by collaborator researchers. In this research, descriptive and inferential statistics were used to analyze the data. Descriptive statistics such as mean, standard deviation and percentage were used to compile and analyze demographic characteristics. To test and analyze the research hypotheses, independent t-test was used to compare two groups and Friedman test was used to examine the correlation of two variables.

It should be noted that data analysis was performed by SPSS software.

**Survey findings:**

**Demographic information**

In order to know more about the research community, one of the data collection tools were questions about gender, age, education level, field of study, educational level and visual acuity, which are referred as following.86 percent of the respondents were married and 14 percent were single respondents. To examine the population composition of the blind, 54 percent of respondents were male and 46 percent were female respondents. The second variable in demographic information analysis was the age of blind and visually impaired respondents. The findings show that 1.8% of respondents aged 20-25 years old, 37% of respondents are 25-30 years old, 8.4% of respondents aged 35-35, and 20% of respondents are older than 35 years. The study of information about the educational level was the third most important consideration in demographic information. In this study, 37% of the respondents had low birth vision, 3.8% had non-mother respondents, 47% were blind respondents, and 4.1% were non-mother blind respondents. Of the respondents, 53 percent were college graduates. 32 percent had completed diploma education, and the remainders were below the diploma.

1. First question: How much of the blind use their own media and social media?

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Information and communication media of the blind | Very low | | low | | average | | much | | Very much | | mean | Standard deviation |
| number | percentage | number | percentage | number | percentage | number | percentage | number | percentage |
| communicative | 6 | 20 | 3 | 10 | 12 | 40 | 5 | 16.7 | 4 | 13.3 | 2.93 | 1.28 |
| Braille | 0 | 0 | 1 | 3.3 | 18 | 60 | 6 | 20 | 5 | 16.7 | 3.50 | .82 |
| Audible | 0 | 0 | 0 | 0 | 1 | 3.3 | 6 | 20 | 23 | 76.7 | 4.73 | .52 |
| podcast | 7 | 23.3 | 16 | 53.3 | 4 | 13.3 | 3 | 10 | 0 | 0 | 2.10 | .88 |
| Vodkas | 14 | 46.7 | 6 | 20 | 6 | 20 | 2 | 6.7 | 2 | 6.7 | 2.06 | 1.25 |

As shown in Table 1, in the survey of the blind use of information and social media, the audio-visual unit with 4.73averageisthe first priority, and the vodkas field is last priority. To determine the priority of needs by the average rating of each component and the analysis of the differences between the rankings were used the Friedman test, the description is presented in table 2.

**Table 2: Components ranking of specific information media in the provision of information and communication needs of the blind**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Priority | Specific media | Average Ratings | Friedman Test Amount | Degrees of freedom | The significance level |
| 1 | Audible | 4.82 | 102.412 | 4 | 0.000 |
| 2 | illustrative | 3.08 |
| 3 | Braille | 3.75 |
| 4 | podcast | 1.65 |
| 5 | Vodkas | 1.70 |

The ranking of components in Table 2 show that among the specific

Information media categories that provide information needs of the blind, the "audio" component are at the top of the list.The value of the Friedman test was 102.412 and its significance level was 0.000, so there is a significant difference between the components of blind use of specific information and communication media to meet their information needs.

Second question: How much does the blind use of information technology (electronic resources and the Internet World Wide Web)?

**Table 3: The blind use rate of information technology**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Specific media | rarely | | At least once a month | | At least once a week | | Daily | | More than once a day | | mean | Standard deviation |
| Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| illustrative | 1 | 3.2 | 3 | 9.7 | 4 | 12.9 | 9 | 25.8 | 13 | 45.2 | 3.65 | 1.25 |
| Braille | 2 | 6.7 | 4 | 13.3 | 5 | 16.1 | 8 | 25.8 | 11 | 35.5 | 3.73 | 1.28 |
| Audible | 0 | 0 | 0 | 0 | 1 | 3.2 | 12 | 38.7 | 17 | 54.8 | 4.53 | 0.57 |
| podcast | 1 | 3.2 | 2 | 6.5 | 23 | 74.2 | 3 | 9.7 | 1 | 3.2 | 3.03 | 0.66 |
| Vodkas | 25 | 45.2 | 1 | 19.4 | 4 | 19.4 | 0 | 6.5 | 0 | 6.5 | 2.06 | 1.25 |

As can be seen in Table 3, the highest percentage of blind use from the specific audio information source media is 4.53 mean and a standard deviation is 0.57, and the lowest amount of blind use ofthe "Vodkas" mediais 2.06 and standard deviation is 1 .25For a meaningful analysis, the difference in obtained rank was statistically significant. Friedman test was used and the result is presented in Table 4.

**Table 4: Role of blind people in information technology**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Priority | Specific media | Average Ratings | Friedman Test Amount | Degrees of freedom | Degrees of freedom |
| 1 | Audible | 3.73 | 69.233 | 3 | 0.000 |
| 2 | Braille | 2.88 |
| 3 | illustrative | 2.65 |
| 4 | podcast | 2.08 |
| 5 | Vodkas | 1.30 |

The ranking of components in Table 4 shows that among the components of the blind usage of information technology, the "listening" component has the first priority to meet the information needs. The value of Friedman's test was 69.233 and its significance level was 0.000, therefore, there is a significant difference between the components of blind usage of information technology and the ranking of them.

Question 3: How does the use of smartphones affect the lives of the blind?

**Table 5: Distribution and percentage of smartphones usage by blind people**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Very low | low | partly | much | Verymuch |
|  |  |  |
| number | 1 | 2 | 5 | 17 | 6 |

Table 5 data shows that 56 percent of blind people use mobile phones more than average. And the results indicate that smartphones are more than usual in the lives of the blind.

Question 4: How many electronic devices do the blind use to improve their media literacy?

**Table 6: components ranking of special technologies usage in libraries and information centers**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| rank | Equipment and technology | Very low | low | partly | much | Very much | mean | Standard deviation |
| 1 | Computer | 2 | 3 | 3 | 8 | 14 | 3096 | 1/27 |
| 2 | ZY- chem. products Thermal Embosser | 8 | 19 | 2 | 1 | 0 | 1/80 | 0/76 |
| 3 | Tape recorder | 2 | 3 | 2 | 7 | 16 | 4/06 | 1/28 |
| 4 | Screen reader software | 0 | 3 | 6 | 14 | 7 | 3/46 | 0/93 |
| 5 | Audio mixers to retrieve information by hearing | 3 | 5 | 12 | 2 | 8 | 3/23 | 1/30 |
| 6 | Promise | 8 | 17 | 5 | 0 | 0 | 1/90 | 0/66 |
| 7 | soliloquist | 1 | 8 | 7 | 9 | 5 | 3/30 | 1/14 |
| 8 | (KURZWEIL) | 19 | 2 | 4 | 3 | 2 | 1/90 | 1/34 |
| 9 | ParseAva | 0 | 1 | 3 | 11 | 15 | 4/33 | 0/80 |
| 10 | Scanner (OCR scanner)  Illustrator Character | 27 | 0 | 3 | 0 | 0 | 1/20 | 0/61 |
| 11 | Braille monitor | 16 | 11 | 3 | 0 | 0 | 1/56 | 0/67 |
| 12 | Jaws and pack software | 0 | 0 | 3 | 9 | 18 | 4/50 | 0/68 |
| 13 | Braille line printer | 7 | 6 | 8 | 6 | 3 | 2/73 | 1/31 |
| 14 | Smartphones | 0 | 0 | 0 | 2 | 28 | 4/93 | 0/25 |
| 15 | Braille line software program | 4 | 6 | 17 | 2 | 1 | 2/66 | 0/92 |
| 16 | Talk back Mobile app | 6 | 2 | 10 | 8 | 4 | 3/06 | 1/31 |
| 17 | Audio detectors | 6 | 9 | 15 | 0 | 0 | 2/30 | 0/79 |
| 18 | software (Thunder) | 22 | 2 | 4 | 1 | 1 | 1/56 | 1/07 |
| 19 | Serena Software | 14 | 6 | 5 | 3 | 2 | 2/10 | 1/29 |
| 20 | Nonvisual DesktopAccess (NVDA) | 2 | 6 | 5 | 14 | 3 | 3/33 | 1/12 |
| 21 | Soroush software | 13 | 6 | 4 | 7 | 0 | 2/16 | 1/23 |
| 22 | E speak | 12 | 11 | 7 | 0 | 0 | 1/83 | 0/79 |
| 23 | Voice Assistant | 0 | 3 | 16 | 11 | 0 | 3/23 | 0/62 |
| 24 | Eye music | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | Finger Reader | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | Highlighting | 5 | 11 | 11 | 2 | 1 | 2/43 | 0/97 |
| 27 | Ibill | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

As shown in Table 6, the most used components by the blind are "smartphones" with4.93 mean and 0.25 standard deviation and the least used components are the Scanner with1.20average.Friedman test was used to determine the priority of needs by ranking means of each component. The ranking of components shows that among the available tools and technologies, the smartphone is the top priority, and the scanner is last priority.

Question 5: How much artificial intelligence of modern communication technologies is effective in improving the lives of blind people by development of media literacy?

1. Responses of people using modern information technology.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| rank | Question | very low | low | medium | much | Very much | mean |
| 1. 1 | By using smartphones and educational materials has improved my relationship with my child and wife | 0 | 0 | 2 | 3 | 10 | 4/53 |
|  | by using smart appliances at home becomes easier my homework | 0 | 0 | 4 | 3 | 8 | 4/26 |
|  | By using smartphones, health control of family members has become easier | 0 | 3 | 3 | 4 | 6 | 3/73 |
|  | By using new communication tools has become easier shopping, traveling, banking, and living | 0 | 0 | 0 | 5 | 10 | 4/66 |
|  | By using the smartphones, was reduced the time of doing things | 0 | 2 | 2 | 5 | 6 | 3/93 |
|  | The use of smartphones and modern communication technologies has increased the speed and accuracy of my work. | 3 | 2 | 2 | 2 | 6 | 3/40 |
|  | My imagination has been enhanced by using the related software oب the smartphones | 1 | 2 | 2 | 3 | 7 | 3/86 |
|  | With the help of the unique new communication, has increased the quality of doing things in my work environment | 2 | 2 | 2 | 3 | 6 | 3/60 |

B) Answers of people who did not use modern information technology.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| rank | question | Very low | low | medium | much | very much | mean |
| *1* | By using smartphones and educational materials has improved my relationship with my child and wife | *3* | *3* | *6* | *3* | *0* | *2/60* |
| *2* | Using smart appliances at home makes easier my homework | *5* | *6* | *4* | *0* | *0* | *1/93* |
| *3* | By smartphones, health control of family members has become easier | *9* | *3* | *3* | *0* | *0* | *1/60* |
| *4* | By new communication tools have become easier shopping, traveling, banking, and life spending | *6* | *4* | *3* | *2* | *0* | *2/06* |
| *5* | By smartphones was reduced the time of doing things | *5* | *3* | *2* | *5* | *0* | *2/46* |
| *6* | The smartphones and modern communication technologies has increased the speed and accuracy of my work | *7* | *6* | *2* | *0* | *0* | *1/66* |
| *7* | With related apps and software on my smartphone, my imagination has grown from surrounding | *5* | *4* | *3* | *3* | *0* | *2/26* |
| *8* | With the help of modern communication technologies has increased the quality of doing things in my work environment | *7* | *4* | *4* | *0* | *0* | *1/80* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | sig | t | df | Test results |
| Question 1 | .10 | -2.121 | 4 | Since the value of sig is more than 05, it is concluded that two samples aren't statistically different from each other and the assumption of H0 is not rejected |
| Question 2 | 0/001 | -5/047 | 8/96 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |
| Question 3 | 0/01 | -3/780 | 5/370 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |
| Question 4 | 0.004 | -5000 | 5 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |
| Question5 | 0/000 | -4/287 | 6 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |
| Question6 | 0/000 | -7/022 | 9.76 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |
| Question7 | 0/003 | -4/055 | 6/612 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |
| Question8 | 0/002 | 4.34- | 8/99 | Since the value of sig is smaller than 05, it is concluded that the two samples are statistically significant with each other and the assumption of H0 is rejected |

**Discussion and Conclusion**

In the past decade, artificial intelligence technology has been expanding, and only in few years ago, there has been a lot of improvement in training machine. Among the designers and investors involved in researching artificial intelligence using this technology are social networks. Since artificial intelligence is a multidimensional discipline, it requires more collaboration to create a theoretical and moral framework in order to be a useful force for society. Because digitization is the integral part of our culture, which makes a lot of changes in human conditions, the introduction of the intelligent machine into our lives, as an active member of the community, is a sign for end of the course.

In examining the results of our research, the blind usage of the specific information media in the provision their information needs were a priority. The results of this study coincided with the findings of Bruce et al. (Bruce et al, 1991). Blind people rely to radios and illustrative books and newspapers (recorded on cassette), and braille books. He believes that one of the things that attracts a lot of blind people is listening to TV and radio because people with visual impairment clearly need a powerful tool to empower themselves in order to communicate with events. Comparison the blind usage components of specific information media is to provide their information needs and it showed a significant difference. The results of this study coincide with the results of Ahmed et al. (2001), which showed that half of people with visual impairments preferred audio materials to other information formats. Similarly, the results of the study were consistent with the findings of the study of Atyabi (Atyabi, 1999), which states that most of the blind listen to the radio. However, in the research of NoshineFard and Razavi, auditable and the braille sources were the most used sources of blind. In reviewing the contribution of each information sources used by the blind, the "radio and television" category has the highest and the "rational" category has the least choice among them. More than half of the blind were using the information technology (electronic resources and the Internet) less than average. The results of this study were not consistent with the results of NushinFard and Razavi's research, which showed that very few users use electronic resources (Nooshinfard&Razavi, 2011). Among the available tools and technologies, Smartphones were the first priority and the Scanner was the last priority. There was a significant difference between the used tools and technologies by the blind. This finding is consistent with Steinrich's research findings, which showed that **the Internet is the first source used by the blind**.

Finally, there was a significant difference by comparing results that obtained by responses of blind people who use modern communication technologies and those that did not use. Those who used modern information technology and equipment had high media literacy and better quality of life. The impact of artificial intelligence on social networks used by blind people in personal life was more than the imagination of the researcher, but on the other hand, software and gadgets are still not available to the blind, and the most up-to-date means is smartphone that savings time and cost for blind users . According to the results of the research, it is necessary to provide special software for all blind people at affordable and free prices, and for their optimal use, the blind or his family was taught to use the above software. Obviously, by teaching the above skills to the blind with the help of modern information and communication technologies, can have aware citizens in order to play a more constructive, more dynamic, and more complete role. Considering the information needs of the blind, it can help in selecting the subject, preparing and producing programs, organizing and disseminating them based on the priorities of the media.

In an information society, everyone needs a wide range of information so that they can effectively use it. Lack of access to the information set is a disadvantage for the community. The importance of information as a means to combat social deprivation is clear and to a large extent should be investigated how information is transmitted effectively. The research proposals are:

- Providing Ravi and Braille content

-Assigning Specific Computer for the Blind in the Public Center with Software Features of the Blind

-Teaching smartphones application to the blind during side classes

-Creating the possibility to use daily technologies for the blind with the support of the blind community

- The information system of the country, welcoming this group of people in accessing information, provides information centers with advanced and up-to-date information technology for the blind and provides a ground for their life. In this regard, the use of technologies such as telecommunications with the specific capabilities of the blind is suggested.

- A guide is provided to the use modern technologies, which can often be used in writing form for ordinary people, and made available to the blind by information centers. Responsible Organizations for education will provide audio books for all levels of education, so that other learners can access the content in the desired format.

- Teaching information and communication technologies for blind users and blind families.

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1. ***Ph.D. student of Communication Science, MA of Public Relations, Tabriz Electric Power Distribution Company*** [↑](#footnote-ref-1)
2. ***Among IBM's most famous data definitions are IBM which is categorized according to three criteria (volume, speed, species) to examine the situation and events. The volume relates to a large amount of data that comes from a variety of sources (for example, data obtained from the IOT) specie is the use of multiple data sets for situational or accident analysis (for example, millions of devices that provide a fixed amount of data) the speed is related to increased information and decision making. (Oliery 2013 - Page 96)*** [↑](#footnote-ref-2)
3. ***The European Information Technology Observer Group introduced the concept of limited intelligence, an advanced form of artificial intelligence that serves the people in most cases. It relates to digital environments that are very active and include components of existing systems like sensor technology, compatible software, media management control, calculation of emotions and text awareness (Ramos et al. 2008, p. 15)*** [↑](#footnote-ref-3)
4. ***- As with the brain, the in-depth training systems process information begin with lower-level categories such as letters, and upper-level categories end with words. They use reasoning to compile and classify new information responses, and they reach the meaning and outcome without the human being, and choose name and tag for each category (Smith 2014).*** [↑](#footnote-ref-4)
5. 6 [↑](#footnote-ref-5)