Basic Concerns and Requirements of Blind and Visually Impaired Translators

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ABSTRACT

This essay has attempted to investigate the basic concerns and requirements of blind and visually impaired translators. Following such necessities, the major instruments and technologies designed to fulfil them have also been examined. The researcher has interviewed with two individuals poor in vision, one being a translator and the other having studied translation in the university. Each individual was asked six questions. Their responses to the researcher's questions were examined to draw conclusions in order to answer the research questions. The most important concern of these translators is the Persian dimension of translation process. Their major requirements include such instruments as accessible computers, high-quality scanners, specific software capable of verbalizing such visual elements as tables, diagrams, figures, etc., accessible dictionaries and databases, and such issues as appropriate financial and occupational status.

Introduction

We live in a world occupied by a population more than 6,000,000,000 people, which is increasing every day. Such a large population was distributed in numerous areas of the globe, making different cities, countries and continents all over the world. Not all members of such a large population are similar, but there exist a number of aspects in which they differ from each other, including age, gender, social class, political and economical status, educational background, abilities and disabilities, etc. They all have a set of necessities and requirements, either shared by other people or exclusively belonging to themselves. A group of world's population, which is widely distributed all around the world, known as blind and visually impaired translators, is the focus of this study.

According to Carcieri, Morris, and Perry (2009), mobility and independence are significant issues for blind and visually impaired people. While blind people live productive lives, as well as receive full education, there are still some areas where greater independence could be achieved. Modern world and its progress offers a better world with more suitable living and working conditions for people suffering from vision-related problems. Kirchner and Peterson (as cited in Enerstvedt, 1996) stated that blind and low vision individuals are successfully employed at every occupational level, for example, as scientists, engineers, secretaries, and teachers, managers of businesses, laborers, and household workers. In addition to blind and visually impaired translators, there is another group of individuals who are similar to previous group in some respects, known as deaf-blind individuals. Bourquin et al. (2006) defined deaf-blindness as a concomitant loss of sight and hearing that is severe enough to limit a person's ability to conduct many functions of daily life. Deaf-blind people may be completely deaf and blind, or they may have some usable hearing and vision, yet, it is the effects of a dual sensory loss that combine to create a unique circumstance. According to Bourquin et al. (2006), today, deaf-blind people are no longer sheltered by their families. They live in the communities of their choice and are employed in every possible sector of the economy. Many deaf-blind individuals are teachers, program administrators, and businessmen and women. One of the occupations used by many blind and visually impaired people is the profession called translation, meaning to render a text (oral or written), from one language into a different language.

There are many challenges that come with being a visually impaired or blind person. For those who have congenital blindness or blindness from a very young age, it can be very difficult to imagine objects and scenery in their mind, such as a sunset, or even a dog (Cataruzolo, 2009). Such a problem can be reflected in the translation of such visual elements as pictures, tables, figures, and diagrams. On the other hand, reading the ST and writing its translation on the paper or computer, using the necessary instruments for the task of translation such as dictionaries, encyclopedias, Internet, etc., sending the translated text to the client either physically or virtually through e-mail, and many other issues are some of the challenges facing blind and visually impaired translators. The need for visual ability is even more noticeable in oral translation (interpretation), where gestures and body languages, facial expressions, eye contacts, speaker's clothing, etc. are all-meaningful and should be taken into consideration.

Although there are many challenges for translators suffering from any visual problem, modern world and its progress has solved many of their problems. Numerous writing systems such as Braille and Moon systems, various software designed to make computers accessible for them including screen-readers, various computerized dictionaries and encyclopedias, etc. have facilitated the process of translation for blind and visually impaired translators to a large extent. Carcieri et al. (2009) stated that with the rise of various support-based organizations, more visually impaired people have received the opportunity to receive an education as well as training with various aids.

Statement of the Problem

This study discusses blind and visually impaired translators and their most significant concerns and requirements. It investigates the problems such translators are faced with while performing the task of translation. Another important issue

discussed here is how they utilize the instruments necessary to translate. It also examines other instruments and technologies that they demand to fulfil their necessities. Finally, the researcher investigates their problems regarding financial and occupational issues.

Significance of the Study

Translation by a blind or visually impaired individual is a very new subject. This topic is a unique one, as it has never been discussed before. Many books, essays, newspapers, and journals have been written and published about translation and its different aspects. However, it is unlikely to find any material discussing such a subject. As a result, it is not injustice to call this topic a unique and newly discussed one.

There are many instruments and technologies, which have been designed to provide most of blind and visually impaired translators' requirements. However, there might be a blind or visually impaired translator unaware of them. Reading this paper can make such individuals familiar with these instruments and technologies designed to fulfil their necessities, and help them enjoy an easier and faster process of translation.

As this essay mentions major concerns and requirements of translators poor in vision, it can contribute to several organizations to design more instruments that are suitable for such individuals. There are several organizations attempting to provide the best living and working conditions for individuals poor in vision. This essay may make such organizations familiar with their needs. Such a familiarity would help them design various instruments and technologies to solve such problems.

Research Questions

Q1.What are the basic needs and concerns of blind and visually impaired translators?

Q2.What are the major instruments and technologies necessary to fulfil blind and visually impaired translators' requirements?

Q3.What do blind and visually impaired translators expect regarding their emoluments and occupational status in comparison with sighted translators?

Limitations of the Study

There exist numerous factors affecting the quality of a translated text. Age, gender, social and economic class, educational background, translator's experience, his/her physical, mental and psychological status, and even the conditions under which the translation task is performed, all influence upon the quality of translation. As a result, it cannot be said with maximum amount of certainty that some changes in the translated text are due to translator's visual problem.

In the literature of translation studies, there are many different classifications. A famous classification mentioned by many scholars is the distinction between (written) and (oral) translation. Oral translation known as 'interpretation' has specific visual aspects, which are either impossible or very difficult for blind and visually impaired translators to understand and reflect in their renderings. Such factors as gestures and body languages, facial expressions, eye contacts, speaker's clothing and position, and many other factors may have semantic value and create difficulties for such translators. However, due to the limitations in space and time, the scope of this research is restricted to written translation.

Last but not least, it may be said that the researcher might be accused of being biased. The researcher himself is a visually impaired student of Translation Studies. This may lead some of the readers of his paper to suppose that he has most often tried to make conclusions satisfying such translators. This restriction is challenging, as it might lead some individuals to ignore it and to decide not to study his paper carefully.

Review of Related Literature
History
Reading and Writing

According to Enerstvedt (1996), it is very difficult for blind people both to read and to write in the same way as sighted people do. That's obvious, since vision is extremely important both in reading and writing. However, the problems concerning reading are not quite identical with the problems concerning writing. Touch is not necessary in writing but it is difficult for a blind person to write letters with continuous lines, especially curved ones.

Difficult is not the same as impossible. Therefore, a blind person can write in the same way as sighted people, especially with the help of some very simple devices (see below). However, writing in the same way as sighted people would mean that the blind person could read neither what he himself had written nor what other people had written. In reading, some kind of touch (tactile activity, kinesthetic) is required. Ordinary writing with the help of pen and ink or ordinary print cannot be read by touch. Were it possible to make a type of ink that could be touched, then this problem would be solved. Interpreting (reading) the lines (which the letters are composed of) is also not easy, but definitely possible, e.g. Latin letters and Moon letters (see below). Printed raised letters are evidently easier to read than handwriting.

The first method of reading and writing, as stated by Enerstvedt (1996), probably was done by the help of large single letters and whole words made in wood (or other hard materials). The letters and words could be arranged by the blind person and, if done by another person (blind or sighted), the blind person could read by touching the large letters. (It was impossible then to send or receive a "letter").

Then, probably very few blind people learned to write normal writing. A letter received from another person had to be read for the blind person because the letter could not be read by touch. Enerstvedt (1996) indicated that with the invention of printing, some blind people could read raised printed lines by touch. However, raised letters could not be written by the blind person.

Writing Machines

Enerstvedt (1996) has said that credit for the first conception of an idea for a mechanical writing machine goes to Henry Mill, an English engineer who was granted a patent by Queen Anne on January 7, 1714. Mill announced his patent as an aid to the blind, but no drawing of his machine does now exist nor is its construction known. Later in the same century (1779), a mechanic named Wolfgang Von Kempelen of Pressburg, designed a machine for mechanical writing for the use of Maria Theresia von Paradis.

According to Enerstvedt (1996), in 1784, a Frenchman designed a machine, in Marseilles, to make embossed or raised characters. It was intended primarily for blind people. A model of thismachine was provided with the first manual keyboard. The next report we have of a writing machine intended for a blind person was in 1808, when an Italian (name unknown) is said to have built such a machine for the use of a blind daughter of a friend. In 1830, M.X. Progin, a Frenchmen, provided a machine, described as a "clypographic" machine or pen. It was no success. We have no information to say whether this was invented for helping blind people.

The next recorded effort in building a typewriter for the blind, as discussed by Enerstvedt (1996), was by a blind man himself, François-Pierre Foucalt, a teacher in the Paris Institution for the Blind. This machine, designed in France in

1849, printed embossed letters for blind people quite successfully. It was exhibited at the World Fair in London in 1851, and attracted great attention. Foucalt earlier, however, had invented a machine called the "Raphigraph" in 1837. This machine had ten radial rods to operate the mechanism, but it was not as successful as the later machine, of which several copies were constructed. These remained for a long time in institutions for blind people but were never developed further.

As mentioned by Enerstvedt (1996), in England at about this period, there appeared the "Typhlograph", designed by William Hughes, also a worker in the field for the blind. This machine was intended for embossing letters, but it was subsequently modified to give impressions through carbon paper and thus utilizing a method of writing later to be common on "Varityper". Hughes' machine was awarded a gold metal in London in 1851.

Alphabetical Systems Designed for Blind People

In 1832, (as cited in Enerstvedt, 1996), a competition was announced in Britain for the best method of printing for the blind using raised dots. More than twenty variations of such an alphabet were submitted over the next few years, and the first prize of a gold medal was presented to Edmond Fry for an alphabet consisting of the printed capitals of the Latin alphabet. Fry himself did not receive the prize since he died before the competition was closed, but his alphabet, as propagated in a somewhat modified form by Alston, soon spread to many countries. In North America Fry's alphabet with a few changes introduced by Friedlander came to be known as the Philadelphia alphabet.

In 1829, (mentioned by Enerstvedt, 1996), Louis Braille had made public his invention but found no support among his contemporaries. At the same time, many people assumed that Braille's system, which bore no resemblance to ordinary letters, would isolate the blind from the sighted completely and would make written communication between the two groups still more difficult. Braille had in fact finished his system already in 1824-1825. He improved the system and published a second edition of his-Procédé in 1837. Braille also contributed to the construction of an apparatus, which made it easier for blind individuals to write in point writing. Together with François Pierre Foucault (who in 1849, patented a typewriter with embossed letters for blind people) the s.c. Braille-Foucault Raphigraph was created in 1841.

The first Brailler, according to Enerstvedt (1996), the Hall Braillewriter, was introduced in 1892 by Frank H. Hall. In 1900 a point writer was constructed in London by Stainsby and another in Berlin in 1901 by Picht. In 1941 David Abraham in collaboration with Edward J. Waterhouse at the Perkins School produced a prototype of a new Braille writer, now known as the Perkins Brailler. On August 20, 1990, Brailler Number 200,000 was completed. Current American Braille writers include the Perkins Brailler, the Lavender Braillewriter and the Hall Braillewriter.

Enerstvedt (1996) also indicates that another system still in use also at the end of the twentieth century, is worth mentioning: the Moon system. This is a type of raised letters named after its originator, Dr. William Moon (1818-1894). Moon lost the sight of one eye through scarlet fever when he was four and all of his vision by the time he was twenty-one. Financially well-to-do, he set out to explore the possibilities of developing a form of reading that would be "open and clear to the touch." He did not resort entirely to arbitrary characters, but took the capitals of the Roman letters and reduced them to the simplest form.

Nine simple characters in different formations resulted in an alphabet that was easy to read and legible to the eye. In 1847, the first book in Moon type appeared. When Dr. Moon died in 1894, books in his type were printed in 419 languages and dialects. In many parts of the world as well as in the late fifties, there was still a demand for Moon books, especially among newly blinded persons who feel unable to master Braille, and particularly from old people. At the end of the twentieth century Moon books are still produced but today there is little demand for Moon.

Facilities for the Deaf-Blind (SSP)

There is a strong, active national community of people with blindness, which significantly increases the resources and opportunities available to them. The blind population continues to be one of the most vocal and active advocacy groups in the disability community. Thus, as discussed by Enerstvedt (1996), a blind culture exists, and has probably existed as long as blind people have constructed communities (guilds, organizations, informal associations, etc.). This culture, however, has more the character of a sub-culture in the majority culture contrasting to the culture of the deaf, which is a minority culture with a minority language as its core.

Bourquin et al. (2006) defined support service provider as any person, volunteer or professional, trained to act as a link between persons who are deaf-blind and their environment. The SSP serves as the eyes and ears of the person who is deaf-blind. The SSP relays visual and environmental information that may not be heard or seen by the deaf-blind person. This is done in the person's preferred language and communication mode.

Bourquin et al. (2006) indicate that many deaf-blind individuals need assistance with communication, transportation and guiding, and to some degree, aspects of independent living. Since the community of deaf-blind individuals is so diverse, there are many different methods of communication, including tactile and visual signing methods, assistive listening devices, text reading on a computer screen, Braille communication, and others. SSPs should seek to become skilled in as many areas as possible. SSP programs should offer training in each area of specialized communication used by their consumer population(s).

Possible Accommodations and Assistive Technologies

If you have visual problems, there is a wide range of specialist equipment and household items available to help. These include clocks and watches with large numbers, big button telephones, and large print books and calendars (retrieved from www.stroke.org.uk). There are literally hundreds of assistive technology devices for people with low vision and blindness:

cassette tape recorder; talking clocks, calculators, timers, etc.; a Qualified Reader: a person familiar with any job-related technical language who can read material for the individual; personal Brailling computer printer or Brailling service (if the person uses Braille); a computer with text-to-speech software (screen readers) or screen enlarger software; PDA (personal digital assistant, a handheld computer organizer) with speech or Braille output; adjustable lighting intensity and a variety of possible light sources (different sources can be different colors: sunlight, fluorescent, incandescent, etc. and each person with low vision will have their own preferences for color and intensity); adjustable source lighting, such as gooseneck lamps or clip-on lamps; pocket flashlight; magnifying lenses; clocks, telephones, calculators, etc. with large numbers, buttons, and displays; prescriptive sunglasses ('Absorptive lenses'); photocopier with enlargement feature; writing tablets with bold lines or raised lines; boldly colored tape to mark edges of steps, edges of desks, etc.; tape or strips of different textures for tactile marking; large print or Braille labels to go on drawers, folders,

bookcases, etc.; visor to block out glare from sky; no reflective desktops or other surfaces; talking money identifier or talking cash register; telephone light sensor: monitors face of telephone and vibrates if a line is lit or flashing; low vision assessment, if individual is not familiar with the various low vision aid options. Here is an outline of assistive technologies that enable blind and visually impaired people to access computers, along with the most popular products in each category.

Screen Readers

Screen readers are software applications that are installed on the computer to provide translation of the information on the computer screen to an audio output format. The translation is passed to the speech synthesizer and the words are spoken aloud. Screen access programs (screen readers) speak aloud what's on a computer screen, including desktop icon labels, document contents, and drop-down and tool bar menu items. They also speak each keystroke, provide auditory cues (like the ping indicating the cursor is in a search field), and an audible hierarchy for navigating within and among applications (retrieved from www.tldp.org/HOWTO/Accessibility-HOWTO/visual.html).

Speech Synthesizers

Speech synthesizer can be a hardware device or text to speech (TTS) software application that creates the sounds necessary to provide speech output. (They can be divided into hardware and software speech synthesizers). A hardware speech synthesizer is connected to the computer's serial or parallel port and translates the text to a spoken output. Normally there are Braille labels on all controls to indicate the off and on position, and volume controls. Hardware synthesizers also have the ability to speak in different tones that can be setup to indicate various parts of a document or text. Some models will provide a connection for headphones. A software speech synthesizer is an application that translates the text on the screen to speech output and provides speech synthesis, so that the screen reader application can read information out loud to the user (retrieved from www.accesson.ca).

Screen Magnifiers

Screen magnifiers enable users that are partially sighted to view selected areas of the screen in a manner similar to using a magnifying glass. Screen magnification programs enable visually impaired computer users to enlarge what is on the monitor. Adjusting color scheme, brightness, and contrast can further enhance visibility. Most programs enable users to zoom in and out with a keyboard command or flick of the mouse wheel; some allow magnification of specific sections of the screen, or support image enlargement onto two adjacent monitors (retrieved from www.sites.allegheny.edu/disabilityservices/students-who-are-blind-or-have-a-visual-impairment.htm).

CCTV and Magnification Scanning Systems

A CCTV includes the following basic features:

Video camera with zoom lenses (hand-held or stand); monitor or television (attached camera or external); provide enlarged image of material under camera; magnification range of 2X to 60X+; switchable polarity (black text/white background or white text/black background); controls for focus, magnification, brightness, contrast; X-Y viewing table for easy material movement; variety of monitor sizes (5 inches to 20+ inches); black and white camera with color monitor (allows user selectable foreground and background colors); color camera with color monitor (view full color enlarged images); controls for foreground and background color, split image, color or b/w presentation; line markers or windowing (horizontal and /or

vertical screen masking that provides a user selectable viewing window for reading); motorized viewing table (retrieved from www.tldporg/HOWTO/Accessibility-HOWTO/visual.html).

Scanned Material Access

Screen readers read stored documents and web pages. However, students have to read many things that are not on their computers. These include book chapters, articles, and class handouts. Optical Character Recognition (OCR) scans and converts printed words into electronic text that students can read and edit. Some OCR products require flatbed scanners to capture text and use software to convert the scanned images. Other products use cameras that are connected to the computer. Some products, like the popular Kurzweil 1000 support both options. People who want to read things but do not need or want a computer can use reading machines that use OCR to convert text to speech (retrieved from www.tsbvi.edu-resources/1074-overview-of-technology-for-visually-impaired-and-blind-students).

Braille Devices

Braille terminals are normally used by individuals who are totally blind and may be hearing impaired as well. A Braille display uses a series of pins to form Braille symbols that are continuously updated as the user changes focus. A Braille embosser is a hardware device for printing a hard copy of a text document in Braille.

Braille translation software is required to translate the on-screen text to a Braille format. Braille translation software converts electronic files into Braille that can be read on a refreshable display or printed on a Braille embosser. Though many screen access programs offer Braille output, there are programs designed for specialized notation such as music. There is also disparity in how well programs format such things as captions, tables, and graphs (retrieved from www.assistivetechnology.about.com/od/ATCAT1/a/Computer-Resource-List-For-Blind-And-Visually-Impaired.htm).

Methodology

In this investigation, the researcher has attempted to gather a variety of useful information about the basic needs and concerns of blind and visually impaired translators. He has used the method known as 'structured interview'. First, he prepared 6 questions based on the research questions in order to ask the subjects. After finding the individuals who had the characteristics required for being considered as a subject in the research, he called them and explained for them his purposes and the way he was going to conduct the interview sessions with them. By receiving their consent to participate in his investigation and determining its time, they started the interview sessions. For each subject, one session was sufficient. After a short welcome, the researcher asked the subject to give some primary information about him/herself, including name, age, gender, degree, job, whether single or married, experience in the field of translation, and a brief biography. After that, he asked his questions one by one and the participant answered them as much as possible. Finally, the researcher checked the recorded interview sessions, wrote down participants' answers, compared the answer given by each subject with the answer given by the other one, made concluding points about each question based on his comparisons and at the end, made conclusions about the whole research conducted in order to answer research questions.

Participants

In this study, the researcher has interviewed with 2 people whose characteristics are as follows:

1. **Subject A**: The first participant is named Amir Parviz Molkizadeh, born in Mashhad on July 23th, 1987. He is

congenitally blind. He has Diploma in Human Science, B.A. from Mashhad Azad University and M.A. from Iran Azad University South Tehran Branch, both in Teaching (or TFL, as it is called academically), and is going to continue his education in PH.D. He himself does not regard translation as a profession, however, he has translated some texts for some of his friends and also some texts for some of his relatives and therefore, he can be said to have had some experiences in translation.

2. **Subject B**: The second participant is named Faezeh Tootoony. She was born in Mashhad on September 11th, 1986. She has received Diploma in Experiments Science, B.A. from Tavaran University of Mashhad and M.A. from Azad University of Ghouchan, both in the course of Translation Studies. She is visually impaired. Her job is teaching in some institutes.

Instrumentation

As the method used by the researcher in this study has been interview, this part of the paper mentions the devices used to conduct the interview sessions. All the interview sessions have been virtual, using computer and the software named 'Skype'. A good laptop with high-quality speakers and microphone were the instruments used by the researcher. All the interview sessions were recorded, using a recording software for which, high-quality speakers and a microphone were necessary.

Procedures

In order to prepare this paper, the researcher has gone through three steps as follows:

Step 1: Two persons who have had some experiences in translation were selected as the subjects of research. They were either blind or visually impaired. After a short conversation between them and the researcher, they agreed to participate in the study. The appropriate time for each interviewee's interview session was announced to him/her by the researcher, and at the time already determined, the interview started.

Step 2: After testing the recording devices and interviewee's announcement of being ready, the interview started. The interviewer welcomed to the interviewee and thanked him/her to agree participation in the interview. The interviewer reminded him/her that his/her answers should be based on his/her own personal knowledge and experiments, and asked him/her to feel free in answering the questions. It started with asking the interviewee to introduce him/herself and to say a little about his/her age, educational level, experiments in translation and a short biography. The questions were asked one by one and the interviewee answered them carefully. At the end, the interviewer thanked the interviewee once again and the interviewing session was finished. He later tested the recorded file in order to examine its quality.

Step 3: The researcher wrote down the responses given by each subject for each question. He made a comparison between answers given to each question and made a conclusion about a total response to each question. Finally, the researcher reviewed all the answers together and made whole concluding points about major concerns and requirements of blind and visually impaired translators so that he could answer research questions one by one.

Results

As it was said before, the researcher has conducted an interview session with each individual, during which he asked them 6 questions. The questions are listed in the last part of the paper. In the following paragraphs, subjects' responses to each question and a short analysis of their answers are mentioned.

Data Analysis

1. In order to answer the first question, subject A points out to his focus on translation from Persian to English. His main concern in this area is that most of screen-readers are unable to support Persian language and as a result, it is very difficult for a blind individual to read a Persian text. He indicates that this problem has long ago been solved in the case of English texts and all screen-readers support English language. Thus, designing a software or screen-reader able to read Persian documents is the most important concern of a blind translator from his viewpoint. Mr. Molkizadeh also emphasizes that although such a problem is solved using an audio file, it is not always possible to expect to receive a text for translation in an audio format. Most of such texts have such formats as PDF, TXT, or DOC. Thus, blind translators should attempt to find ways to read such documents.

Mis. Tootoony regards dictionary as the primary need of a translator having a visual deficiency. She also indicates that their access to data resources is very limited. Most of libraries in her city do not have most of their required sources in Braille or any other accessible format. Indeed, blind and visually impaired individuals have restricted "options" as their accessible data resources.

An accessible format for the file to be translated and use of dictionaries and data sources are the main concerns of blind and visually impaired translators mentioned by both subjects of this paper. They also indicate that another significant concern of such translators is to read documents written in Persian. As Persian language is not completely supported by many screen-readers, most of individuals poor in vision need a scanner able to convert such texts into English. The main needs of such translators, as indicated by the subjects, are individual's computer, scanner, and his/her major necessities are knowledge of computer and ability to utilize dictionaries and other types of data sources.

2. The response given by subject A to the second question has two dimensions. In order to translate from Persian to English, He considers the most important technology to be files provided in Microsoft Word format. For translation from English to Persian, this domain is broader and there are many software including JAWS, Acrobat-Reader, Adobe-Reader, Kurzweil, etc. Subject A believes that the most significant instrument for a blind translator is his laptop, which may play the role of his/her eyes. He also regards scanner as another essential tool for a blind translator. Here, once again he emphasizes the inability of existing scanners to support Persian language.

Subject B believes that individuals use no particular instrument in oral translation. They just have a domain of time in which they should render their oral renditions. Regarding written translation, she considers slate, stylus, and a Braille machine as the primary tools used by those who want to read and translate texts written in Braille. For other individuals, computer and a recording device are the major instruments used.

It can be concluded from the subjects' responses to this question that computer is the major instrument of blind and visually impaired translators. The individual's either PC computer or laptop contains the technologies utilized by such a translator. Here, technology means all the software blind and visually impaired translators utilize to perform their tasks including the task of translation. They are such software as screen-readers like JAWS and NVDA, and other software for other purposes such as Acrobat-Reader, Adobe-Reader, and computerized and on-line dictionaries.

3. Subject A does not regard existing instruments and technologies sufficient to remove all problems of blind translators. In his opinion, if it were not so, blind translators have never been so anxious about translating pictures and visual aspects of a text. Indeed, he considers translation of visual

elements to be the main source of inability of existing technologies to solve all problems of blind translators in this area.

Mis. Tootoony believes that most of primary tools required for the task of translation are available. All the stationaries, which may be used to write translation, are available. On the other hand, most of blind and visually impaired translators have a computer at their homes. Those who do not have can use the computers available in the libraries. She totally pays more attention to the skills and abilities necessary for the task of translation.

Subjects' responses to this question are different. Subject A regards existing instruments and technologies insufficient to provide all necessities of translators poor in vision, while subject B pays more attention to translator's knowledge and skills and considers them more essential for a translator to be regarded competent. The researcher concludes as a whole that although existing instruments and technologies cannot fulfill all the requirements of a translator poor in vision, translator's knowledge and skills are also influential and significant for his/her success.

4. To answer this question, subject A firstly highlights this point that blindness itself is a problem that only eyes can absolutely solve. He believes that although modern world and its advances have removed a great majority of problems imposed on blind individuals, a pair of eyes is the only phenomenon that can solve all of these problems to the maximum extent. Mr. Molkizadeh regards scanners with complete capacities to convert any document into an accessible format as the most significant requirement which has not been provided yet. He also says that although imaginative it may sound, another significant requirement of a blind translator is a screen-reader able to read every element appearing on the screen.

Subject B suggests it is useful to provide an auditorium for blind and visually impaired translators where they can sit and translate. However, she says that such an auditorium should be provided with maximum facilities like high-quality recording and playing devices, computers equipped with Braille embossers, and so on. She believes that equipment is not very important in the task of translation. In her idea, translation necessitates only the knowledge of translator.

The major instruments and technologies desired to be produced which were mentioned by these subjects can be summarized as follows:

Screen-readers able to read all parts of screen, scanners capable of scanning Persian texts and converting them into accessible format, accessible and on-line dictionaries.

The second participant's suggestion is also noteworthy. It can be very useful to provide an environment provided with several equipments for blind and visually impaired people where they can translate comfortably and without any offense. It may sound costly but would be excessively helpful. It should also be kept in mind that instruments and technologies are helpful but do not guarantee perfect translations. It is also essential for a translator to have specific knowledge and abilities (both linguistic and extra linguistic) in order to be able to produce accurate and acceptable target texts.

5. Subject A believes that the amount of payment given to a blind translator should be a little, for instance, 10% higher than a sighted translator. His reason is that as the amount of money paid for any task depends on the level of difficulty of that task, blind translators should be paid more than sighted individuals should. Blind translators face more difficulties. They ought to utilize specific tools that may not be free of charge. He

concludes that such translators have a harder task and therefore should receive more money for their performance. Subject B believes that the difference in payment should be for teachers who teach blind and visually impaired students and not in the emolument paid for translation.

The researcher concludes that the subjects believe that the payment of a blind or visually impaired translator should not be less than a sighted translator. They should be paid as much as others as or even higher than sighted translators.

6. Subject A agrees that most of companies and organizations prefer to employ sighted translators rather than blind individuals. He even makes an example and says that once he heard from an official speaking in the radio that a disabled teacher cannot communicate with his/her students. However, he believes that this is wrong and blind individuals should be prioritized over sighted ones.

Subject B says that there should exist no discrimination between blind and visually impaired translators and sighted translators regarding job and employment conditions. In order to clarifyher answer, she says that this case is similar to university examinations where no distinction is made between students poor in vision and those who have no visual problem.

The responses given by both subjects to this question are similar. They point out that most of employers, at least in Iran, make discrimination between translators poor in vision and those having no visual problem. They mostly regard blind and visually impaired translators restricted to specific texts and circumstances for translation and often prefer to employ sighted translators. However, both the subjects reject this viewpoint. They believe that it is wrong to make discrimination between these translators and sighted ones.

Discussions and Conclusions
Conclusion

It should be kept in mind that translation has specific aspects that necessitate visual ability. All texts may have non-lexical elements bearing semantic values, such as pictures, figures, tables, diagrams, and so forth. Some words and sentences may be bold or italicized or may be written in a color different from the rest of the text. Different sentences might be located in different places on the page for some purposes. All these issues can be problematic for a translator who is poor in vision. In order to solve such a problem, the researcher suggests that blind and visually impaired translators, while receiving a text for translation, would better ask the client to make them aware of such features by living some required marks in the text. Translation in the present time pays a high amount of attention to use of computer and Internet. Most of texts are produced in computerized formats. They are mostly sent to the translator via E-mail and translators send their translations to their clients in this way. Everybody would undoubtedly agree that one of the primary necessities of translation task is data sources like dictionaries and encyclopedias. Computerized and on-line data sources offer numerous advantages that make it reasonable to use them. Modern world has also offered other facilities such as translation memories, translating software, CAT (Computer-Aided Translation), MT (Machine Translation), and so forth. All these factors can facilitate the task of translation for blind and visually impaired individuals but each of them can lead to certain challenges and limitations for them.

Modern world and its progresses has made computer an accessible tool for blind and visually impaired translators. Visually impaired individuals can use a variety of software to adjust different parts of screen in a way suitable for them. Blind individuals can also use various screen-readers designed to make

computers accessible for them (see section 2.3.1). However, these technologies are not without challenges. These challenges indicate the requirements of blind and visually impaired individuals. The researcher emphasizes that all the organizations producing these technologies should make it possible for these individuals to send them their necessities. This would enable them to recognize their basic needs and make more efforts to satisfy them.

Two major problems can be assigned to this software

First, it should be noted that most of these software are designed by the organizations existing in European and American countries. Most of them do not support Persian language. On the other hand, reading Persian texts is essential for a translator either sighted or visually deficient, since translation is a bilingual phenomenon from Persian to English and vice versa. Accordingly, blind and visually impaired translators are unable to read Persian texts to either read source texts for the purpose of translation or re-examine the texts translated into Persian.

Another challenging aspect of software designed for blind and visually impaired individuals is their limitations to make visual elements accessible. Non-textual elements such as pictures, tables, figures, and diagrams are other elements that may accompany a text. They can contain some information, which is directly related to the text, and be influential in understanding the text. However, most of screen readers and magnifying software are not able to support such elements efficiently. This can lead to the loss of a large amount of valuable information about the text by the translator who suffers from visual deficiencies.

To solve the first problem, the researcher believes that there should be some Iranian companies and organizations employing computer experts whose task is to modify such screen-readers and software in a way that support Persian language. They can also design distinct software that make Persian sections of documents accessible to individuals poor in vision. He believes that the only possible solution for the latter problem is to design technologies capable of converting such non-verbal elements into accessible formats.

Another important instrument of most of blind and visually impaired translators is scanner. They use scanners in order to scan printed materials so that they can convert them into accessible formats and read their contents. This device is mostly utilized beside a famous software named Kurzweil, used to convert the scanned material into a format that the blind or visually impaired person can read using his/her screen-reader. However, there exists no scanner capable of scanning Persian documents. Thus, blind and visually impaired translators often have to reject Persian texts in print format, which are given to them for translation. Like the previous problem, this concern can also be removed only by designing scanners capable of scanning Persian documents software able to make them accessible for blind and visually impaired individuals.

One of the other challenges of blind and visually impaired translators in Iran is their occupational opportunities. The main problem is that a large majority of employers do not believe in such people and their skills and abilities. They usually prefer to employ sighted translators. This is so since they suppose that a translator poor in vision has limited abilities and cannot translate any text given to him or her.

Different solutions have been suggested by blind and visually impaired translators to solve some of these problems. For instance, they suggest that texts with more visual elements are given to sighted translators and blind or visually impaired translators are asked to translate the texts having less or no visual elements. In the recent years, a variety of software have been designed and distributed by Iranian organizations to solve the problem of reading Persian documents. They can read the texts and documents written in Persian language with appropriate eloquences. The only solution suggested to solve the problem of scanning Persian documents was to design scanners with such a capacity.

Two solutions have been given for the problem of job opportunities. Before mentioning these suggested solutions, it is crucial to indicate that in most cases, employers change their ideas about translators suffering from visual deficiencies after observing their performances and making a comparison between their translations and those done by sighted individuals. However, it was suggested that the first and primary step should be to try to change the viewpoint of employers regarding such translators. Another useful solution was also suggested. It is useful to make a law according to which all organizations must employ a blind or visually impaired individual from each 100 individuals working for them.

Suggestions for Future Research

This research attempted to examine aspects of the issues regarding blind and visually impaired translators. During the project, the researcher focused on a variety of aspects of their concerns and requirements. He also paid a particular attention to the exclusive skills and abilities of such translators. However, such a vast subject cannot be studied completely and in details in a single investigation. In fact, it is beyond the scope of this research to examine the whole world of blind and visually impaired translators. It leaves certain points for further investigations, some of which are as follows:

1. As it was said before, translation is a task, which can be influenced by numerous factors. Such issues as age, sex, social class, educational background, translator's financial and economical status, the amount of his payment, the deadline given for the delivery of a translation, his emotional condition, etc. all can influence on the quality of his translation. Discuss whether the changes occurred in a translated text are due to the visual level of its translator or any of these factors.

2. In addition to vision, the deficiencies in the other parts of body can be influential upon the quality of a translated text. Identify any other deficiency, which may have more severe effects on translation quality.

3. In the past and before the invention of computer and its expansion all over the world, the task of translation was done on the paper. The source text was given to the translator on paper and the translator wrote the translated text on paper and delivered the client in this format. Today, all the steps, from sending the text to the translator to the task of translation and sending it to the client are done using computer and Internet. Compare these two conditions and mention the advantages and disadvantages of translation using computer over translation done on the paper.

4. Dictionaries and encyclopedias are among the first and most important instruments used by a translator. In fact, no translation task can be done without using such data sources. In the past, translators had to use paper dictionaries and encyclopedias in order to find a word and its meanings. This was too exhausting and very time-consuming. Today, translators can find various meanings of a word very rapidly and without spending a large amount of energy by using computerized and on-line dictionaries and encyclopedias. This fact is also true for translators suffering from visual problems. Compare the way

blind and visually impaired translators used such data sources and the way they use them in the modern world.

5. Translation is a task, which may be done in different ways. It can be done between two different languages, between different forms of the same language, and between a verbal and a non-verbal language (see Jakobson, 1959). A translator may be stronger in one type and weaker in the other one. In other words, he or she may act in one better than the other. This is true for blind and visually impaired translators to. Discuss the translation types in which such translators perform better than the other types.

6. Translation is one of the jobs used by many blind and visually impaired individuals around the world to earn their livings. In fact, many blind and visually impaired people in the world support themselves and their families through translation for different companies and organizations. However, keep in mind that the conditions under which they work may differ from the job conditions of other people. Research about the conditions in which blind and visually impaired translators work in such countries as U.S., England, Canada and Australia, and compare them with the job conditions of blind and visually impaired individuals in your country.

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Appendix

In this study, the researcher has asked the interviewees the following questions. These questions were prepared by the researcher before conducting the interviewing sessions and they were designed based on the research questions and its hypotheses.

1-In your idea, what are the basic needs and concerns of a blind or visually impaired translator?

2-What kinds of instruments and technologies do you use in order to accelerate the process and enjoy an easier task of translation?

3-Do you think these instruments and technologies are sufficient to remove all of your problems in the area of translation?

4-What other types of instruments and technologies do you think to be required?

5-Do you think there should exist any difference between blind and visually impaired translators' emolument and that of a sighted one?

6-In your opinion, should employers make distinction between blind and visually impaired translators and sighted ones, regarding job opportunities?