

A Proposed Model For Improving The Quality Of Life Of Persons With Disabilities And Rehabilitating Them Professionally Using Artificial Intelligence Applications.

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Citation: Dr. Khaled Arab, et al (2024), A Proposed Model For Improving The Quality Of Life Of Persons With Disabilities And Rehabilitating Them Professionally Using Artificial Intelligence Applications, *Educational Administration: Theory and Practice*, 30(6), 553-558, DOI: 10.53555/kuey.v30i6.5244

ARTICLE INFO

ABSTRACT

The current study aimed to determine the effectiveness of a model built according to artificial intelligence in improving the quality of life and professional rehabilitation for disabled students from the point of view of teachers and specialists. The study sample consisted of (120) male and female students in special education centers in the city of Tabuk. The researcher used the questionnaire to achieve the objectives of the study after verifying its validity and reliability. The results showed that the sample's perceptions of the effectiveness of the model in improving the quality of life were moderate, and the effectiveness of the model in improving the professional rehabilitation of students with disabilities was great, and that the biggest challenges facing the application of these models are the incompatibility of applications with all types of devices, and the need for teachers and specialists to train on these applications.

Keywords: quality of life, professional rehabilitation, artificial intelligence, students with disabilities.

Introduction:

The term "quality of life" is a controversial concept because it is a general term that is difficult to limit to specific measures, and it varies according to the individual's life, activities, and ability to interact with different circumstances. However, there is an agreement among researchers that quality of life includes subjective and psychological indicators related to the individual's feeling of love and self-satisfaction that helps him build social relationships through which he integrates into his society and interacts with its members in different life situations. The World Health Organization defines quality of life as "the individual's perception of his position in life according to the system of values and culture in which he lives, and in his relationship with his goals, expectations, and standards of interests" (Eid, 2018).

One of the factors that works to improve the quality of life of a disabled person is his professional rehabilitation, as the professional rehabilitation of people with disabilities contributes to improving their financial situation and building positive relationships with society, in addition to pushing forward the wheel of sustainable development that depends on investing in the individual's energies and self-sufficiency from an economic point of view and providing the workforce on the one hand, and directing their potential energies to production and increasing income on the other hand. As a result of the success of the rehabilitation process and the disabled student finding a suitable job, we notice a change in people's attitudes and their view of him, so that it develops from a negative view and that he is a burden on society to a positive view. We must not forget that the success of the rehabilitation process in general cannot be achieved unless we take into account the person's circumstances, characteristics, tendencies, abilities, personality traits, level of adaptation, educational level, degree of disability, the amount of support provided by the group, and the readiness of society to provide appropriate opportunities for the success of the rehabilitation process, including changing attitudes and enacting legislation that gives the disabled person his human rights, whether in educational and social aspects or job opportunities like other citizens, and planning professional training programs that is consistent with the disabled student's abilities, tendencies, and the requirements of the local labor market, taking into account the economic change and economic conditions of the environment in which the disabled person will live and work, and taking into account the development and change that occurs in some professions and industries. (Donn, 1982).

The emergence of artificial intelligence and its applications, which have covered all fields, has brought about many developments and improvements in human life, in all practical, social and health fields, and has left significant impacts and improvements. The use of artificial intelligence applications is one of the modern methods of learning, which has spread as a result of the development of technology in various fields (Tomasik, 2019). UNESCO has emphasized the importance of employing artificial intelligence to increase human intelligence, achieve human rights, and promote sustainable development through effective cooperation between humans and machines in life, learning and work. Artificial intelligence can be used in five areas: managing and delivering education, teaching and teachers, assessing learning and teaching, developing values and skills necessary for life and work in the age of artificial intelligence, and providing lifelong learning opportunities for all (UNESCO, 2019).

However, these benefits are greater in educating people with disabilities, as people with disabilities aspire to employ artificial intelligence tools to achieve their ambitions and enable them to learn and acquire life skills, and they face many challenges, including challenges and obstacles that prevent them from obtaining their right to education, and the Internet has a major role in addressing these challenges by providing them with the expertise and experiences that qualify them to adapt to their reality, as artificial intelligence programs adapt to their needs and privacy (Laabidi, 2013).

Artificial intelligence and its various applications help adapt to the workplace, especially for people with disabilities, and in order to benefit from them, workers must be flexible in employing them effectively, and create inclusive organizations that employ these technological outputs. People with disabilities suffer from exclusion, and are deprived of participating in basic sustainable development programs in societies, especially poor ones (World Health Organization, 2011). Technological platforms and tools can enable creativity among people with disabilities and others. The development of technology has helped Microsoft empower people with disabilities and provide educational tools that helped children with dyslexia learn more. This has led to the expansion of the scope of artificial intelligence and machine learning. AI technology has been developed to perform high computational tasks with the help of computer tools (Microsoft Annual Report, 2017). Although machines can never replace humans, they can help them improve work conditions. Recent developments in AI may enable the teaching and learning sector to empower people with special needs in education (Drigas & Ioannidou, 2012).

According to WHO (2011) Disability is a human case. Almost everyone suffers from it temporarily or permanently. It has been defined in different ways, The International Classification of Functioning, Disability and Health (ICF) emphasizes on environmental factors which creating disability. ICF has classified into Impairment, Disabilities and Handicaps. The United Nations defines Impairment and Disability differently:

Impairment: "Any loss or abnormality of psychological or anatomical structure or function."

Disability: "Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being." People with Disabilities are also referred as People with special need (Gernsbacher et al., 2016).

Over the past few years, the term "special needs" have been popularly used as a synonym for disability (Berger, 2013). Rather than identifying anyone as having a certain disability, the person is referred as having special needs. As per White Paper on Rights of Persons with Disabilities (White paper on rights of persons with disabilities, 2015), "disability is imposed by society when a person with a physical, psychosocial, intellectual, neurological and/or sensory impairment is denied access to full participation in all aspects of life, and when society fails to uphold the rights and specific needs of individuals with impairments". According to this report persons with disabilities normally face three kinds of interrelated barriers: social, psychological and structural (that is infrastructure and operations).

Humanitarian societies seek to improve the quality of life for their members, especially the disabled. They are a group that needs to recognize their needs and demands, because they belong to a special type that differs from the rest of the groups in society. To provide effective ways to develop their abilities, potentials and qualifications and to enable them to overcome disability and its suffering. Which has a positive impact on the quality of life, their feeling of happiness, satisfaction, and psychological health, and reaching the maximum possible extent permitted by their physical abilities and qualifications. Schalock et al., (2011) emphasized that improving the quality of life for people with disabilities depends on spreading the concept of their quality of life. Improving the quality of life is a realistic goal for people with disabilities. It can be achieved for all members of society. This requires overcoming obstacles and overcoming difficulties, by reducing the contradictions between the individual and his environment, which works to improve the quality of life for the individual. Berastegui *et al.* (2021) believe that quality of life includes the physical functions represented by performing daily tasks, as well as the psychological functions represented by thoughts, emotions, social and environmental activity, and satisfaction with life in general. Michel (2003) stressed the importance of the services that society provides to the disabled. The social support that the disabled person receives has an impact on the quality of his life, in addition to the extent of independence that the disabled person feels in his life. While Good (2004) pointed out that disabled people share the desire that society looks at them and treats them as adults. They aspire to obtain a profession that they can pursue, and they have a desire to build relationships with others and form a family like other members of society, and this is determined in one way or another by their perceptions of the quality of life.

Among the factors affecting quality of life are employment variables, including years of seniority, monthly income, participation in non-functional activities, and severity of disability: which represents the percentage of medical disability (an objective measure) or a person's perception of the severity of his disability (a subjective measure). In addition, there are other variables. Including age, gender, physical activities, and level of injury. As well as rehabilitation, professional training and employment. Research has shown several demographic measures in relation to psychological well-being, including race, socioeconomic status, and academic achievement (Buchanan, 2011).

Jaber's study (2024) which aimed to evaluate the effectiveness of employing artificial intelligence applications in developing the performance and life skills of deaf students. This application was used as part of a 12-week intensive training program with a sample of deaf students who suffer from difficulties in verbal and written communication. The application is designed to be able to interact with deaf students in an intelligent way and motivate them to develop their performance and life skills. Interactive tasks and multiple-choice questions are also included to enhance students' understanding and knowledge of the academic content. Deaf students also overcome many cognitive and social obstacles by applying virtual reality technologies and the (social development room), which addressed many aspects of their cognitive and life shortcomings and paved the way for a healthy life for them in all aspects. The results showed that using the application led to a significant improvement in the ability of deaf students to communicate verbally and in writing and to improve their performance and life skills. Participants also noticed an improvement in the quality of their daily lives, including social integration and interpersonal relationships.

In a study conducted by Makari and Ajwa (2023) to reveal the reality of employing artificial intelligence applications and its challenges in rehabilitating children with disabilities from the point of view of teachers and specialists, and to reveal teachers' attitudes towards employing artificial intelligence applications in rehabilitating children with disabilities, the study concluded that the employment of artificial intelligence applications was moderate. Among the challenges facing the employment of artificial intelligence were (material and technical challenges, challenges in the educational and learning field, challenges in the security and privacy field, and challenges in the social field) and these challenges were to a large extent, and there were no differences attributed to the variables of type of disability, years of experience, and gender.

Artificial intelligence applications have been used to effectively rehabilitate children with disabilities in terms of their diagnosis as autism spectrum disorder, and to assist the teacher in rehabilitation, by selecting applications for effective teacher communication strategies in teaching students with autism spectrum disorder (Xiao et al., 2021).

Al-Maghazi (2018) also conducted a study to reveal the nature of the relationship between the quality of life and Professional qualification in a sample of blind adolescents (males and females). The modern societies seek to improve the quality of life of their members, especially those with disabilities such as others who need to know about To meet their needs and to provide all appropriate means of care for their abilities and potentials because they have a positive impact on the quality of life and a sense of happiness and satisfaction and mental health for them, especially those with visual disabilities because they are individuals who are unable to perform any professional work because of weakness or disability in their sight Which leads to a psychological disability so that it cannot earn a living and it has to be rehabilitated professionally until measuring abilities and psychological preparations by means of knowledge of his life and environmental and social directed to the appropriate profession until his benefit them in the field of public life.

The study problem and its questions:

Based on previous studies that the researcher reviewed, such as the study by Jaber (2024), Makari and Ajwa (2023), and the study (Xiao et al., 2021), which emphasized the importance of employing artificial intelligence applications in diagnosing, teaching, and rehabilitating students with disabilities, and the study of Al-Maghazi (2018) which aimed to reveal the nature of the relationship between the quality of life and Professional rehabilitation, Which showed the importance of work qualification for the disabled in improving the quality of life. The researcher felt this importance and a desire was generated in him. In building a proposed model to improve the quality of life of people with disabilities and their professional qualification using artificial intelligence applications. And knowing its effectiveness from the point of view of teachers and specialists responsible for educating people with disabilities. The aim of the study was represented by the main question:

- 1- What is the degree of effectiveness of the proposed model in improving the quality of life of people with disabilities and their professional qualification using artificial intelligence applications from the point of view of teachers and specialists?
- 2- What are the challenges and obstacles facing the use of artificial intelligence applications to improve the quality of life of disabled students and their professional rehabilitation.

Objectives of the study:

The study aimed to the following

- 1- Detecting the degree of effectiveness of the proposed model in improving the quality of life of people with disabilities and their professional qualification using artificial intelligence applications from the point of view of teachers and specialists.
- 2- Identifying the challenges and obstacles facing the use of artificial intelligence applications to improve the quality of life of disabled students and their professional rehabilitation.

2. Methods and materials

2.1. Participants

The study sample consisted of 120 students, males and females, from 12 special education centers in the city of Tabuk.

3. Study tools

- 1) A model built according to artificial intelligence to improve the quality of life and professional rehabilitation

- Model description:

The model consisted of several artificial intelligence-based applications (Listen at home), which is for those with hearing loss, (The Miracle Modus) application, which is for children with autism, and the (Learn Braille) application. A beginners guide that helps blind people who want to learn to read in the famous Braille method.

- 2) The questionnaire

- The questionnaire description:

The questionnaire consists of three sections, the first on the effectiveness of the model in improving the quality of life and consists of 12 items, and the second section on the effectiveness of the model in qualifying students with disabilities professionally and consists of 8 items, the third section about the challenges which face the implementation of the Artificial intelligence applications and the response to it according to a five-point Likert scale.

- Validity of the tool

- a) - Validity of the arbitrators: The scale was presented to eight specialized arbitrators to ensure the soundness of the linguistic structure, the suitability of the items for the age group of the sample, and the item's belonging to the field. Their observations were taken into account by adopting an agreement of six arbitrators at a rate of (75%).
- b) - Construct validity
- c) The scale was applied to a sample of the study population and from outside its sample of (30) teachers and specialists, where the correlation coefficients of each field with the total score of the scale ranged between (0.692-0.892), which is acceptable for the purposes of this study, and is as in Table (1).

Table (1): Coefficients of correlation of the questionnaire areas with each other and the total score of the scale

Domain	Quality of life	Professional qualification	Challenges	Total
Quality of life	1	0.692**	0.776**	0.892**
Professional qualification	0.883**	1	0.758**	0.808**

- Reliability:

The reliability was found in two ways: Cronbach's alpha equation, and the Spearman and Brown equation, and the results of these procedures are shown in Table (2), where the reliability ranged between (0.883 - 0.950), which are high reliability coefficients.

Table (2): Quality of life reliability

Reliability parameter name	Amount of reliability coefficient
Alpha Cronbach	0.950
Spearman Brown	0.883

2.3. Results

- 1- Results related to the first question: What is the degree of effectiveness of the proposed model in improving the quality of life of people with disabilities and their professional qualification using artificial intelligence applications from the point of view of teachers and specialists?

To determine the level of effectiveness of the proposed model from the point of view of the study sample, the arithmetic means and standard deviations of their responses were calculated as in Table (3)

Table (3): Arithmetic means and standard deviations for quality of life and professional qualification

Domain	Arithmetic means	standard deviations
Quality of life	1.53	1.59
Professional qualification	2.73	1.20
Challenges	2.31	0.88
Total	6.57	3.45

The results showed that the arithmetic averages for the effectiveness of the model in quality of life were (1.53), with a standard deviation of (1.59), and to a moderate degree. Also, the arithmetic averages for the effectiveness of the model in professional rehabilitation were (2.73), with a standard deviation of (1.20), which is to a large degree. The averages were to estimate the challenges facing the application. Artificial intelligence in improving the quality of life and professional rehabilitation (2.31) with a standard deviation of (0.88) to a moderate degree, where the score was adopted as (0- 1.33) low, (1.34- 2.67) medium, (2.68- 4) large.

The researcher attributes these results to the presence of health problems suffered by disabled individuals and the associated medical reviews and ongoing therapeutic procedures that are reflected in their emotional and psychological conditions, and thus their low level of self-satisfaction. In addition to the problems related to the extent to which society accepts disability and understands the problems of people with disabilities, the extent to which an accessible and safe environment is provided for them, especially in the work environment, and the environmental obstacles they face that may be reflected in the low level of their psychological health and satisfaction with their quality of life.

While the researcher attributes the high degree of respondents' appreciation of the program's ability to professionally qualify people with disabilities to increasing their ability to communicate, understanding the principles of jobs, increasing their desire for them, and increasing their ability to train for them through simulation provided by artificial intelligence applications.

2- Results related to the second question: What are the challenges and obstacles facing the use of artificial intelligence applications to improve the quality of life of disabled students and their professional rehabilitation from the point of view of teachers and specialists?

To determine the challenges and obstacles facing the use of artificial intelligence applications to improve the quality of life of disabled students and their professional rehabilitation, the arithmetic means and standard deviations of their responses were calculated as in Table (4)

Table (4): the challenges and obstacles facing the use of artificial intelligence applications to improve the quality of life of disabled students and their professional rehabilitation

The challenge	Arithmetic means	standard deviations	arrange
Availability of modern devices (mobile, computer)	2.45	0.96	4
Providing the Internet for students with disabilities	2.35	1.023	5
The student's desire to learn	2.75	0.88	3
The degree of disability prevents the ability to handle the devices	2.01	0.85	7
Availability of applications for people with disabilities	1.75	1.253	8
Qualifying teachers and specialists in employing artificial intelligence applications	3.26	0.87	1
Availability of equipment in the centers	2.13	0.86	6
Compatibility of applications working on all types of devices	3.1	0.96	2

The table shows that paragraph "Qualifying teachers and specialists in employing artificial intelligence applications" is ranked first with arithmetic mean (3.26) and standard deviation (0.87), followed by paragraph "Compatibility of applications working on all types of devices " with arithmetic mean (3.1) and standard deviation (0.96), and paragraph "Availability of applications for people with disabilities " is ranked last with arithmetic mean (1.75) and standard deviation (1.253).

Acknowledgment

The authors extend their appreciation to the Deanship of Research and Graduate Studies at University of Tabuk for funding this work through Research no.0012-1444-S

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