

Natural Sciences Curricula and their Role in Improving the Quality of Life: Reality and Ambitions

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Abstract

This paper dealt with the concept of quality of life as it is an important concept that deals with multiple dimensions and aspects. It is one of the global trends in curricula, and one of the essential criteria in measuring the progress of nations as it contains health, educational, technological, environmental, cultural, and political concepts, and expresses the quality of life through the individual's sense of contentment, happiness and psychological security, and their enjoyment of psychological and physical health with the quality of social relations, which helps them achieve their goals, aspirations, and satisfy their needs in the light of commitment to their values, ethics and optimistic views about the future. Natural sciences curricula are among the most important curricula that have a close relationship with the quality of life and which can contribute to its achievement, since its concepts are related to health, living organisms, the interpretation of natural phenomena, global scientific issues, and the sources of the natural environment and how to preserve it. It also contributes to the development of personal values, scientific subjectivity, positive trends, and the development of cooperative work skills while conducting scientific activities in order to achieve good social relations and real citizenship. This enhances the feeling of satisfaction and happiness, and improves the quality of life of learners. The current paper recommended the need to enrich Science curricula with the dimensions and standards of quality of life.

Keywords: *Natural Science Curricula - Improving Quality of Life*

Introduction:

The era in which we live is characterized by tremendous development in all aspects of life, whether living, health, educational, cultural, cultural, and social. This makes the

individual vulnerable to pressures and conflicts while dealing with these developments to achieve their goals, and aspirations to reach satisfaction with life, which is called the quality of life. The quality of life is a concept that has many dimensions and components at the personal and social level, and it includes a wide range of contexts.

Quality of life is the general safety of individuals and societies with summarizing the negative and positive features of life, and it is related to life satisfaction, including everything about physical health, family, education, employment, wealth, safety, freedom guarantee, religious beliefs, and the environment.

Natural sciences curricula (physics, chemistry, biology, etc. ...) are among the most important curricula that can address the dimensions of the quality of life in all stages of education. It also aims to prepare positive learners who are committed to the principles of good citizenship in line with the requirements of the times and achieve happiness, and their optimistic expectations for the future, which in turn improve the quality of life.

Essence of quality of life

The concept of quality of life is one of the most important and widespread concepts of positive psychology. Contemporary life is full of psychological and social pressures due to scientific and technological progress in all areas of life, and the individual now possesses material elements and manifestations of life to a much greater degree than before. Despite that, individual's internal satisfaction has become weak compared to the past, and the modern man's need for a quality of life in its material and moral content has become more urgent.

The quality of life is a relative concept that differs from one person to another from both theoretical and practical aspects according to the criteria that the individual adopts to evaluate life and its demands, which are often affected by the quality of life, such as the ability to think and make decisions, the ability to control, the management of surrounding conditions, physical health, mental health and beliefs, through which individuals determine the important things that achieve their happiness.

Formulating a definition of the quality of life is one of the difficult tasks, due to the multiple and intertwining aspects it carries. It differs for the individual himself according to age, circumstances, and psychological state, and it also changes according to the level of progress and well-being, as each age has its indicators and criteria for its progress that are reflected on individuals in the community.

Literature has dealt with several definitions of quality of life. Good (1994, p.142) defined it as the degree to which an individual enjoys the important potentials available to him in three areas of life: family, work, and health.

The World Health Organization (WHOQOL Group, 1995, p. 1405) defined the quality of life as the individual's perception of his role in life in the context of culture and the framework of values in which he lives, and the extent to which this corresponds to his goals, expectations, values, concerns related to his physical health, psychological state, level of independence, and its relationship with the environment in general. Therefore, the quality of life in this sense refers to an individual's self-assessments of his life conditions.

El-Sayed and Said (2006, p. 204) defined it as enjoying the material conditions in the external environment, feeling good, satisfying needs, being satisfied with life, being aware of the contents of life, feeling the meaning of life, in addition to positive physical health and the individual's sense of happiness, and living a harmonious life compatible with the essence of man and the prevailing values in the society.

Shuqair (2010, 127-138), defined the quality of life in a comprehensive way, that is, the individual lives in a good condition, enjoys physical, mental and emotional health with a degree of acceptance and satisfaction, and that individual has a strong will, in spite of the pressures facing him, has high social competence, is satisfied with his family and professional and societal life realizing his needs and aspirations, is confident in himself, and is self-worthy in a way that makes him live a sense of happiness. This encourages and pushes him to be interacting with the present, optimistic about the future, adhering to his religious, moral and social values, devoted to his homeland, loving the good, defending his rights and the rights of others, and looking forward to the future.

Wang & Wei (2015, p. 13) explained quality of life as an expression of satisfaction in five basic areas: personal development, work, family life, social relationships, and sense of security.

Badawy (2017, p. 109) defined the quality of life as a concept that indicates an individual's feeling of psychological security, acceptance of the involuntary aspects of life, and his happiness, including the positives, enjoyment of the potentials available to him, and his optimism about the future.

It is clear from the previous definitions that the concept of quality of life is related to the quality of psychological life or what is called happiness and contentment, and this is consistent with what is stated in the literature on mental health. This is confirmed by (Jounker, et al, 2004, p.159-164), who indicated that the quality of psychological life is the central component of the quality of life in general, and it is closely related to the individual's liberation from symptoms indicative of psychological disorder with positive self-esteem, achieving emotional balance, desire for life, and accepting others.

In the light of the foregoing, the quality of life is defined in the present paper as the individual's feeling of contentment, happiness and psychological security, the individual's enjoyment of physical and psychological health, and the quality of social and family relations achieving his goals and aspirations, adhering to his values and ethics, defending his rights, being committed to his duties towards society, and being optimistic about the future.

Dimensions of the concept of quality of life

The concept of quality of life is of a high degree of complexity, so literature has varied in defining its dimensions, and this can be summarized as follows: Katschnig (1999, p. 3-16) dealt with it in three main components:

- The inner sense of the individual: it is the feeling of satisfaction with the life that he live, and the feeling of good condition.
- The ability of self-preservation, commitment and fulfillment of social roles.

- The ability to benefit from environmental resources (social - physical)
- In addition, Felce and Perry (1997, p. 225-233) explained three components of quality of life as follows:
 - Life conditions: it includes the objective description of individuals and their living conditions.
 - Personal Satisfaction: includes being well and satisfied with life.
 - Personal Values and Aspiration: it means the relative importance that the individual attaches to the various life circumstances or the quality of his own life.

Abdel-Moati (2005, p. 20) identified five dimensions of the quality of life, namely: material factors, expression of good condition, meeting needs, satisfaction with life, perception of the elements of life, their sense of the meaning of life, health and biological structure, the individual's sense of happiness, the quality of existential life through which the individual feels his existence and value.

In the light of the concept and dimensions of quality of life, it is evident that it is rare to fully satisfy human needs, rather it is impossible for the individual to reach a state of complete satisfaction, especially when the individual satisfies a certain human need quickly, another need emerges in search of satisfaction, so the concept of quality of life does not only differ from person to another person, but it varies from place to place and from time to time.

The perceptions of Ventegodt et al. (2003, p. 1164-1176) on the dimensions of quality of life are among the most important perceptions that have been put forward to define

the dimensions in the framework of reconciling the subjective dimension with the objective dimension, and in light of it, what is known as the integrative theory of the quality of life, has emerged, which includes two dimensions:

Subjective Quality of Life:

It includes sub-dimensions: personal well-being, sense of life satisfaction, happiness, and meaningful life.

Objective Quality of Life:

It includes dimensions of objective factors represented in: cultural norms, satisfaction of needs, fulfillment of capabilities, and physical integrity

Educational curriculum and quality of life

The concept of the quality of life is one of the global trends in curricula, and it is one of the essential criteria in measuring the progress of nations due to its concepts of health, educational, technological, environmental, political, and cultural. It refers to the development of all aspects of the individual through the provision of all material, moral, and spiritual needs, and the development of all his capabilities, energies, intellectual skill and emotional talents. This is what must be achieved by educational curriculum with its various fields.

Natural Science Curricula and Quality of Life

Natural sciences curricula, which include physics, chemistry, biology, and others are curricula that students study at all educational stages. They can contribute to the quality of life due to their close relationship with the environment of the individual. It is a two-way influence relationship because of the knowledge and concepts which

they contain relating to the environment, health, living organisms, natural phenomena and controversial scientific issues. They also develop among the learners the life skills, citizenship and different thinking styles, which in turn contribute to achieving quality of life standards.

Educational philosophy of the natural sciences curricula

Science curricula are based on the following principles:

The Egyptian society believes in a policy of equal educational opportunities for all, preserving religious values, appreciating the greatness of the Creator (Allah), and preserving the environment and its natural resources.

- Emphasizing the importance of character building represented in erasing negatives and reinforcing their strengths.
- Emphasizing the scientific subjectivity of the personality to meet the circumstances of the current era and the requirements of the future.
- Emphasizing the relationship between education, production requirements and comprehensive development in society.
- Preparing the personality that is capable of facing the future and preparing a generation of scientists capable of making scientific and technological development.
- Appreciating the efforts of scholars and understanding their role in the advancement of humanity and the accumulation of knowledge.
- Linking theoretical science with the practical aspect of science education
- Developing scientific tendencies and trends of learners in a functional way.

- Developing the ability to predict and explain scientific phenomena.
- Development of higher-order thinking skills, such as critical thinking, creative thinking, metacognitive thinking and future thinking.
- Development of life skills and citizenship.
- Emphasis on the comprehensive evaluation of all aspects of the learner's personality, achieving the cognitive, affective and psychomotor goals.

In addition, natural sciences curricula are closely related to the most important interacting variables, which are society, technology, economics, environment, and ethics, symbolized by STEEE. These variables include knowledge, skills, values and scientific issues, which develop ambition, desire to learn, excel, and self-confidence, ability to review and search for information from various sources, the ability to communicate with others, and ability to think, imagine and criticize. This in turn generates an inner feeling of good condition, contentment, happiness and psychological reassurance.

It is clear from the philosophy on which the science curricula is based that it is closely related to the quality of life and its components. The material dimension and the satisfaction of needs and satisfaction with life are achieved through the learner's acquaintance with scientific interpretations of natural phenomena in the environment and the satisfaction of their desire to know the different parts of their body, and the satisfaction of their need to discover the environment around them, which create a sense of satisfaction.

As for the dimension of health and biological structure, which is one of the most important dimensions of the quality of life, it is concerned with the biological structure and physical health of the human being, the correct performance of the body's systems and functions in a way that makes the individual in a good and sound state of health.

The ability to benefit from the environmental and social resources and employ them in a positive way is one of the dimensions of the quality of life reflected in the philosophy of science curricula, which is based on discovery, investigation and self-learning through addressing issues related to science, technology, society and the environment, presenting science from a personal and societal perspective, and clarifying the history and nature of science, development of critical thinking skills and an explanation of the basic scientific concepts. Hence, a positive employment of available resources is achieved, which is reflected on the quality of life of the learner.

In the same context, science curricula are among the most important curricula that contribute to achieving personal values and personal ambition as one of the dimensions of the quality of life through the practice of activities in the method of investigation using materials of the environment and with laboratory tools and devices. This leads to the development of mental, manual and social skills, trends and scientific values of the learner. They also develop the skills of cooperative work and scientific accuracy, and help learners acquire the ethical side of science and appreciation of the efforts of scientists, and this in turn is reflected on the quality of self-life.

Summarizing the above, science curricula are employed to improve the quality of life by using them to meet the basic needs of individuals, as well as community service, which helps them overcome difficulties and address obstacles. This enhances their sense of contentment and happiness, and this is shown through certain behavioral indicators, such as the pursuit of meaningful goals, independence, positive social relationships and real citizenship.

Factors impacting an individual's sense of quality of life and its relationship to science curricula

The concept of quality of life can be expressed in many terms such as: psychological bliss, personal happiness, inner happiness, self-satisfaction and satisfaction with others, emotions, positive, continuous improvement of aspects of personality. Accordingly, there are many factors that lead to an individual's sense of quality of life, namely:

Satisfaction

It is the individual's sense of contentment, and this includes the areas of health, the environment, and components of daily life. This is an indicator of the quality of life, and the content of science curricula reflects these areas.

Environment

The environment is a fundamental pillar of the life that we live, and it directly and indirectly affects the lives of individuals, as it includes the material and social resources available to satisfy the basic needs of the human being. Besides, any imbalance in man's interaction with the environment leads to an imbalance in life. Thus, the issue

of the environment has become societal. It is the responsibility of society with all its members, institutions and organizations. Environmental problems in their entirety are problems of human behavior, and the World Health Organization in 2018 referred to the impact of the quality of life on the threat to public health. In climate conferences, International Health Organizations as well as Humanitarian Organizations recommended the need to support renewable energy projects and push the rate of incentives towards the quality of life. The role of science curricula comes in addressing local and global environmental problems and disasters such as: (water, biological diversity, air quality, water quality, global climate change, global warming, energy, the ozone hole, disasters, waste management, extinction). They also contribute to the development of positive attitudes and values of the learner towards the environment, and the establishment of intellectual methods and holistic knowledge towards the environment, which improves the quality of life.

Rights

It is the individuals' sense that they obtain multiple rights (civil, economic and social), which provides them with a sense of the quality of life. Science curriculum deals with the resources available in the environment and their proper exploitation, preservation and utilization, and helps learners understand issues related to science, technology, society and the environment

Relations

Relationships are a reflection of the quality of life, and happiness lies in the good social relationships. It is one of

the important factors that express happiness. Individuals satisfy their needs through social relations between them, as well as the two-way influence relationship with the surrounding environment. Science curricula emphasize the importance of practicing cooperative learning among learners while conducting various scientific activities that develop their relationships and teamwork skills. This in turn moves to their relationships with individuals in society, which develops their belonging and their sense of quality of life.

Privacy

Individuals are different in their privacy; thus, each individual has his interests, preparations, trends, inclinations, aspirations and desires. It is the emotional field for them, in which they move freely away from others in a way that provides them with self-confidence and gives them a sense of security and reassurance. Science curricula emphasize personal scientific subjectivity and development of tendencies, trends and interests of the learners in a functional way to meet the circumstances of the current era and the requirements of the future in a way that achieves psychological security, away from frustrations, makes them feel happy and improves the quality of life.

Economic Security

Economy is the backbone of life on Earth and the basis for harnessing it to help people to live. It is an effective force in promoting security, prosperity and stability, and the development and prosperity of various fields of work. The role of science curricula lies in training learners in behavior and economic interaction, such as preserving resources, thinking about new sources of energy that are

not harmful to the environment, rationalizing and developing water and electricity consumption, and providing them with knowledge, skills and economic values that affect their economic behavior and build the economy of the society, which improves their quality of life.

From the foregoing, it is clear that the importance of the role of the natural sciences curricula is in achieving psychological security, economic security, self-satisfaction and satisfaction with others, health and environmental safety for the learners, which generates a sense of happiness and achieves quality of life. However, the reality of these curricula does not satisfy the needs and desires of the learners and does not fulfill their aspirations to the extent required to face the rapid changes in this era, which makes them an opportunity for psychological frustrations. This is confirmed by the results of studies, including the studies of (Shalaby, 2014; Fouda & Ghanem, 2015; Dinur, 2015; Shedid, & Al-Dafrawy, 2016; Mustafa, et al, 2019) which unanimously agreed on the shortcomings and weaknesses of the Egyptian science curricula and its failure to keep pace with contemporary global trends that aim to improve the quality of life.

In light of the above, the present paper recommends the following:

- Including the quality-of-life dimensions in science curricula at all educational stages.
- Science curricula developers take into account the interrelationships between science and technology, society, environment and economy.

- Formulating modern science curricula in the light of approaches that keep pace with the requirements of the age and meet the needs of learners.
- The necessity for science curricula to develop the scientific subjectivity and the tendencies and interests of learners in order to achieve the quality of personal life.
- Formulating activities in science curricula to support teamwork to consolidate good social relations among learners.
- The necessity for science curricula to address global scientific issues in order to establish holistic knowledge and intellectual methods towards the environment in a way that guarantees the happiness of individuals.
- Science curricula should emphasize the development of moral values among learners to ensure psychological security and improve the quality of life.
- Building science curricula that emphasize concepts of citizenship in a way that achieves the learners belonging to the homeland and a sense of satisfaction with life.

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