

Natural sciences curricula as one of the solutions to the issue of hunger and lack of food sources in the world .. Reality and suggestions

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Abstract

This paper dealt with the issue of hunger and the lack of food sources in the world, and it included the causes of the food problem. Pollution is one of the manifestations of environmental deterioration and one of the most important reasons that contributed to the problem of food and hunger; Pollution, whether air or water, etc., affects food production, and this appears through the low rates of agricultural production, livestock and fisheries. Natural science curricula are the curricula entrusted with including global social issues and problems related to the environment, technology and society, and despite that The results of the studies indicated that there are shortcomings in the science curricula addressing this issue, as well as the low level of learners in understanding this issue. Accordingly, the current paper recommended the necessity of including the issue of hunger and food shortage in the natural sciences curricula, and suggested approaches and methods for dealing with and teaching it, which has a global impact on individuals and the well-being of individuals. societies and their development, and achieving sustainable development.

Keywords:*Natural sciences curriculum - the issue of hunger - lack of food sources*

Introduction

The progress of nations and societies is measured by what they have of human forces capable of working and giving for the advancement of society to keep pace with the

rapid and successive changes in all areas of life, and this force requires care to be able to advance the wheel of progress. Therefore, any society that seeks progress, prosperity and development must first take care of the health of its members. Health is linked to food, and the health of the body depends on the quality and style of food that varies according to each age stage.

Healthy food is food that contains all the nutritional requirements that the human body needs on a daily basis at all stages of life. A healthy, sound food is the mainstay of good health and a disease-free body. Therefore, attention must be paid to the nutritional value of foods.

Despite the importance of proper nutrition, the reports of the Food and Agriculture Organization of the United Nations (FAO) in 2021 showed acute food insecurity in the world, which requires humanitarian assistance, and it has risen in an unprecedented way during the past five years, reaching 161 One million people will suffer from hunger in 2021.

The issue of food is one of the contemporary global environmental issues, as the lives of many of the world's population are threatened by the threat of hunger and malnutrition, which is a problem, although it has a global character, but it is considered the problem of Arab countries and developing countries in particular, as these countries suffer from the widening food gap between local production and consumption.

At the Arab level, a United Nations report has issued warning of hunger and malnutrition in the Arab region in a

way that threatens the efforts made by the countries of the region to achieve sustainable development for 2030, including the goal of eradicating hunger. Near East and North Africa “More than 51 million people in the region suffer from hunger.

Manifestations of hunger and lack of food:

The United Nations report in 2021 confirms that the three-dimensional burden of the problem of malnutrition represented in under nutrition, overweight, and micronutrient deficiencies, which are problems often associated with poor diets that have risen at an alarming speed, especially in the Arab region among children, and this is consistent with what was stated In the UNICEF report in 2019 on the state of the world’s children, that at the global level there is at least one out of every three children under the age of five who does not grow properly due to malnutrition in its most obvious forms (stunting, wasting, overweight), and at least one child suffers from One in two children under five suffers from hidden hunger due to a lack of vitamins and other essential nutrients, and under nutrition continues to take a heavy toll. In 2018, nearly 200 million children under five were stunted or wasted, while at least 340 million were stunted. Hidden hunger.

The problem of food means a clear deficiency in the quantity and quality of food from the acceptable rates that can achieve the minimum required calories for the individual, While the deficiency of the minimum required of structural and protective nutrients is called the problem of malnutrition.

Overcoming hunger and malnutrition in all its forms, including overweight and obesity, is not limited to securing enough food to survive. The food eaten by individuals, especially children, must also be nutritious.

The causes of the food problem in the world:

The food problem in the world is considered one of the global problems facing humanity in our time, as it affects the lives and survival of hundreds of millions of people. Accordingly, there are several reasons for this problem that can be clarified as follows:

- Environmental deterioration: a group of natural and human factors that harmed the environment overlapped, which led to the emergence of many problems, and the reasons that led to it: the absence of environmental awareness, technological progress and its impact on the environment, weak institutions and laws regulating the ways in which humans deal with environmental resources And its elements, the increasing rate of population growth, which led to the damage of many natural resources, as a result of the irrational behavior of humans towards them, through the continuous excessive depletion of these resources.
- Environmental pollution: Pollution, as a contemporary environmental problem, is one of the reasons contributing to making the food problem, as pollution affects food production through its clear impact on the low rates of agricultural production, livestock and fisheries.
- Desertification: Desertification negatively affects the productivity of food. Desertification resulting from soil

salinization affects the rate of agricultural production, and thus affects the productive capacity of the soil, and it may be completely eliminated when the encroachment of sand intensifies and turns it into sandy desert areas, thus losing its role in food production.

- Scarcity of water resources and the spread of drought: The arable water resource represents an essential component of agricultural production, as growing food crops and feeding livestock need large amounts of water. However, the food problem is becoming more acute, especially in Arab countries due to water scarcity and the spread of drought.
- Climate fluctuations: The basic climate elements represented in temperature and rain are among the basic components of food production from food crops and livestock, and these two elements are exposed to sharp fluctuations than normal rates in most Arab countries, which affects agricultural food production in them.
- It is considered one of the main causes of the food problem in the Arab countries, as the lack or lack of income of individuals makes them unable to obtain the necessary food in terms of the components necessary for the growth of the body, especially in light of the high price of food products, whether local or imported.

In the current era, the severity of the food problem and its disadvantages emerge as a result of its contradictory nature. On the one hand, hunger leads to the death of millions. In the second half of the twentieth century, more people died because of hunger than all those who perished during the previous 150 years due to wars, armed conflicts

and social problems, and dying Annually due to hunger and the diseases resulting from it in the world, the numbers of people are several times more than those who were killed as a result of the explosion of the two atomic bombs that the United States of America dropped on the Japanese cities of Hiroshima and Nagasaki at the end of World War II in 1945. On the other hand, the level of development of productive forces and scientific developments The technology used in agricultural production makes the world production of food generally able to meet the food needs of the world's population.

The universality of the food problem is evident in the production and trading of foodstuffs between countries, but rather the main concern of governments, if not in all countries of the world, while countries suffer from hunger and malnutrition, other countries seek to achieve a balance in diets and in the quality of food, and at the same time We find other countries seeking to solve the problem of surplus food or to address the health problems resulting from the large consumption of food by some social groups in them.

For our Arab world, the issue of food security is one of the main challenges in the Arab world, as the Arab world faces great challenges related to the availability of natural resources and their optimal exploitation in order to achieve their sustainability, and drive growth in the agricultural sectors, in addition to other obstacles represented in societal conflicts in a number of countries The region, droughts and severe climatic fluctuations, high population growth rate, low productivity, high levels of waste and pollution.

The report of the Arab Organization for Agricultural Development of the League of Arab States in 2019 indicated that the problems of malnutrition reached its highest levels in some Arab countries, in addition to an increase in the number of children under the age of five who suffer from wasting, stunting, overweight and obesity, in addition to the prevalence of anemia among women. in childbearing age.

Understanding malnutrition increasingly requires a focus on food and nutrition at every stage of a child's and adolescent's life, and the picture becomes clear to reveal a disturbing situation: Too many children are eating little healthy food, while eating a huge amount of foods Unhealthy and this leads to malnutrition diseases.

The issue of access to adequate food is an essential element of the right to adequate food, and the food that a person receives must be sufficient in terms of quantity and quality, and adequate food is the one that contains all the nutrients, calories, proteins, vitamins, and what hunger and malnutrition are Except the consequences of not getting enough food. Malnutrition is not necessarily synonymous with lack of food, but it may occur as a result of poor quality food, and this or that is often one of the results of poverty.

It is clear from the above the multi-dimensionality of the issue of hunger and food shortage, it does not mean only the lack of food, but the type and quality of nutrition and practices related to food, which represent the main reason for the emergence of individuals suffering from

malnutrition, which results in the lack of healthy growth and the inability to participate in the development and development of societies .

Natural sciences and global issues curricula:

Education bears the greatest burden in helping children and youth acquire environmental culture, nutritional culture and health culture. It must seek to develop individuals' awareness of environmental problems and the dangers that threaten them, which in turn affect the nutritional and health aspects, and provide them with the ability to make decisions to resist and treat these dangers, through its curricula. There is no doubt that the natural sciences curricula play a major role in addressing these global issues, and they are the primary means of improving the relationship between the individual and his environment, in addition to the environmental education and health education courses, which have an important role in developing awareness, skills and values among learners towards global problems and issues.

The issue of hunger and food shortage is one of the issues that arose due to the scientific and technological progress that the world is witnessing now, which has left a great impact on the environment and society, causing many problems for man and his future. These problems were called issues arising from the interaction of science, technology and society "STS" represented in: Quality Air and atmosphere, human health and disease, lack of energy sources, population growth, land use, hazardous materials, mineral resources, nuclear reactors, extinction of plants and animals, and war technology.

These issues and problems pose a challenge to education, as they impose on the human being in this era the necessity of familiarity with environmental culture in order to be able to keep pace with progress and rapid development, and the educational institution's tool in this is the curricula, which have an effective impact in developing awareness and understanding of these issues and contributing to solving them.

The curricula of the natural sciences represented in chemistry, physics and biology are the curricula entrusted with dealing with "STS" issues, because the sub-concepts of these issues are related to different branches of science such as all kinds of pollution, soil desertification, nuclear energy, wildlife, mineral resources...etc, and their role in providing learners A conscious understanding of these issues and the development of their skills, attitudes and values to enable them to contribute to making decisions and solutions towards them.

And for the role of natural sciences curricula in developing environmental, food and health awareness as official curricula, the inclusion of global environmental issues is an urgent necessity, on top of which is the issue of food, one of the most important indicators of which is the spread of famine and poverty, which is confirmed by the statistics of "FAO" that half of the world's population is below the nutrition line due to environmental deterioration and damage to elements. Food corruption, resource corruption, pollution, and with every population increase accompanied by less food productivity due to soil deterioration, which warns of a food gap that the world has not witnessed before.

Based on the foregoing, science curricula are among the curricula most closely related to the life of the learner and can contribute to developing awareness of issues related to food, health and knowledge of nutritional components, promoting healthy dietary patterns, and improving the level and quality of food to avoid many diseases.

With regard to the issue of hunger and food shortage, it is considered a main focus in the biological approach because of its sub-dimensions such as preserving agricultural crops, preserving livestock, rationalizing food consumption, searching for new sources of food, neglecting agriculture, poor food production, improving animal and plant production, food Genetically modified, sustainable food patterns that depend on sustainable farming practices and reduce food waste and reduce the use of meat, healthy food, food security, starvation and its causes, unhealthy eating habits, plant biotechnology, healthy biotechnology.

The issue of food is also an important aspect of the chemistry curriculum; It deals with the application of principles to the diet, and focuses on its nutritional components, functional properties, interactions and impact on human health in what is known as food chemistry. and protect it from diseases.

The field of food chemistry is closely related to many fields such as biochemistry, analytical chemistry, biological sciences (botany and zoology), molecular biology, dead biological materials (post-harvest physiology of plants, meaning fresh fruits and vegetables during their

marketing, and muscle physiology after slaughter).) and the changes they undergo when exposed to environmental conditions, engineering and processing, agricultural production, legislation and consumer policies.

Among the topics covered in the field of food chemistry are: water and its physical and chemical properties - proteins and the content of foods from amino acids, carbohydrates and their chemical structures, determining the percentage of sugars in many foods - fats, their properties and ability to dissolve in water, organic solvents, their basic components and their percentage in foods, and the atoms involved in the composition Amino acids - Vitamins and their structural formulas - Minerals and what they contain of toxic and non-toxic nutrients and ways of transferring toxic metals to foods - Food quality in terms of color, texture and flavor - Viscosity and measuring the degree of viscosity of some liquids - Food additives, whether natural or manufactured - Food contamination, its types and effects On Human Health - Formulating new foods from better food for the future.

It is clear from the above the importance of the topics covered by biology and chemistry curricula as two natural sciences curricula, such as preserving agricultural crops and livestock, rationalizing food consumption, searching for new sources of food, improving animal and plant production, genetically modified foods, sustainable food patterns, reducing food waste, Food security, plant biotechnology, as well as for food chemistry topics in terms of its properties and components of proteins, carbohydrates, vitamins and minerals, methods of

production, processing, storage and handling, and factors that affect food quality and safety, which provide these topics to learners with knowledge of the quality and style of healthy food that helps their healthy growth. They develop nutritional awareness that protects them from malnutrition diseases so that they become productive members of society.

The above is consistent with what was recommended by the report issued by the “FAO” for the year 2020, which emphasizes the importance of educational programs and curricula in the school to achieve nutritional culture, and the role of complementary interventions such as healthy school meals and nutrition education, which helps learners to improve their diet and develop healthier food practices and expand its scope to include their families and communities.

In addition to the science curricula, education has dealt with global, national and regional problems in a holistic and integrated concept of the environment to reduce the environmental crisis through environmental education courses, which are the result of a process of reorienting and linking the various scientific branches to educational experiences, which facilitates the comprehensive understanding and understanding of environmental problems, one of the objectives of which is to provide learners with knowledge and the skills, awareness, attitudes and motives that oblige them to work individually and collectively to find solutions to current problems, and also contribute to the formation of values that govern human behavior towards his environment, thus

complementing the role of education with environmental legislation and laws.

Despite the assertion of the World Health Organization "WHO, 1995" that the astonishing increase of diseases related to nutrition requires educational programs for awareness and food culture, however, in view of the results of studies, it indicated the low, deficiency and lack of awareness of learners at all educational levels of the concepts of food culture and food security, as a study (Shanash,2015), (Ramadan, 2020), (Al-Ghazali, 2019), (Ali, 2016) (Al-Khodari, 2017).

Methods of including the issue of hunger and food shortage in the natural sciences curricula:

The curriculum, with its various elements of objectives, teaching methods, learning resources, and evaluation methods, is the tool entrusted with addressing the dimensions of food culture at all levels of education. This educated attitude towards the reality of his environment and society, and then helps him to face the problems that he may encounter that hinder his progress and take appropriate decisions about them, as well as the entrance to the interaction between science, technology, society and the environment "STSE", which develops in the learners a level of awareness and understanding of this issue as one of the global issues and problems.

The realistic teaching model comes as one of the constructivist learning models that are based on the constructivist philosophy, as well as the constructivist learning model, through which it is possible to link

between the learners' real knowledge and their real problems, that is, the link between their personal experiences and the problems and issues they encounter in their daily lives and the ability to make decisions about them as a study (Sabry&Nobi, 2000) (Ahmed,& et al, 2021),Some studies also suggested teaching methods for these issues based on active learning and blended learning as a study (Al-Ashqar, 2015).

In light of the foregoing, the current paper recommends the following:

- Focusing on global issues and problems, especially the problem of hunger and food shortage, considering it a main objective for planning and designing natural science curricula at all levels of education.
- The necessity of including the issue of hunger and food shortage in the natural sciences curricula as it is one of the most important global issues and problems at the present time.
- Paying attention to developing healthy nutritional awareness among learners as a primary goal at all levels of education.
- Holding training courses for science teachers in service to develop their level of understanding of global issues and problems, especially the problem of hunger and food shortage.
- Inclusion in the programs of preparing science teachers at the College of Education for the problem of hunger and food shortages and methods of teaching them through the Science Teaching Methods course.

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