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## DEVELOPING GLOBAL THINKING OF MODERN SPECIALIST AS CONDITION FOR SECURITY

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**Abstract.** In recent decades, global security has seriously been threatened by negatively unprecedented situations, arising from natural disasters, global warming, pollution, financial crises, and new epidemics. It is becoming increasingly evident that maintaining the stability of security has become a global mission. In other words, it is crucial to have global strategies and appropriate actions through the cooperative conversations of all countries in the world. To reach the purpose of sustainable development students as future citizens need to be trained with essential skills that help them effectively deal with an increasingly interconnected and complex world. To do this they need global thinking and creative ideas to coordinate efforts to solve global issues. Consequently, to develop global thinking has become an educational necessity in a multicultural globalized world. A review of the multidisciplinary literature on global thinking reveals the lack of a comprehensive theoretical concept for understanding global thinking and its implications in maintaining the stability of global security. Little attention is paid to the study of pedagogical approaches to develop global thinking skills of students as future specialists. That's why the authors claim that global thinking of a modern specialist is a condition for security. The paper aims to study the opportunities of education in developing the global thinking of modern students. The concept of global thinking and its roles in maintaining the stability of global security were given. Literature analysis let the authors shed light on the concepts related to global thinking and give the rationales for global thinking. The possibilities of the education in developing global thinking were analyzed and systemized: global thinking as a competence and aim of education; international education; education for sustainable development; problem solving methods of instruction.

**Keywords:** global thinking, global security, sustainable development, international education, problem solving of instruction

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## РАЗВИТИЕ ГЛОБАЛЬНОГО МЫШЛЕНИЯ СОВРЕМЕННОГО СПЕЦИАЛИСТА КАК УСЛОВИЕ БЕЗОПАСНОСТИ

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**Аннотация.** В последние десятилетия негативные ситуации, возникающие в результате стихийных бедствий, глобального потепления, загрязнения окружающей среды, финансовых кризисов или новых эпидемий, серьезно угрожают глобальной безопасности. Становится все более очевидным, что поддержание устойчивой безопасности стало глобальной миссией человечества. Становятся

необходимыми глобальные стратегии и действия по их реализации на основе договоренностей между всеми странами мира. Одним из реальных действий для обеспечения глобальной безопасности и перспективной цели устойчивого развития мира является обучение студентов основным навыкам, которые помогут им эффективно справляться со все более взаимосвязанным и сложным миром. Среди них необходимыми составляющими являются глобальное мышление и креативность для координации усилий по решению глобальных проблем. Следовательно, понимание глобального мышления и его последствий в значительной степени становится необходимостью для развития образования в мультикультурном мире. Обзор литературы по вопросам глобального мышления показывает отсутствие всеобъемлющей теоретической концепции для понимания этого феномена и его значения для поддержания глобальной безопасности. Относительно мало внимания уделяется педагогическим подходам к развитию навыков глобального мышления у студентов как будущих специалистов, которые эффективно готовили бы их к работе в постоянно усложняющемся глобальном мире. Авторская позиция состоит в том, что глобальное мышление современного специалиста является условием мировой безопасности. Целью статьи является исследование возможностей образования в развитии глобального мышления современных студентов. Дается определение глобального мышления и его роли в поддержании глобальной безопасности. С помощью анализа и синтеза междисциплинарных источников дается и обосновывается авторское понимание концепций, связанных с глобальным мышлением и являющихся предпосылками проведенного исследования. Анализируются и систематизируются возможности образования и педагогики в развитии глобального мышления: глобальное мышление как компетенция и цель образования; международное образование; образование для устойчивого развития; проблемные методы обучения.

**Ключевые слова:** глобальное мышление, глобальная безопасность, устойчивое развитие, международное образование; проблемные методы обучения

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## Introduction

Historically, the issue of security has been studied continuously due to its huge value for mankind. Much of the related debate has great contributions to understanding security and finding effective solutions to maintain its stability. Over the past few decades, there have been various definitions of the concepts of security. In addition to the traditional relation to external military threats, as suggested by Baldwin [3], security extensively includes multidimensional aspects, such issues as human rights, economics, the environment, drug traffic, epidemics, crime, or social injustice. In the digital era, along with the rapid development of the Internet and computer science, cybersecurity, which is concerned with the protection of actual technology-based systems on which information is normally stored and/or transmitted, has recently become a matter of global interest and significance [21, 22]. To date, due to the fact that humans are increasingly facing unprecedented situations (i.e., natural disasters, dangerous pandemics, or negative effects of climate changes), global security has been a burning issue discussed at many international forums and agendas around the world. It can be said that the complication and danger of Covid-19 pandemic are a clear demonstration of the unprece-

dent threats, which had negative effects on security in the current context of globalization.

Regardless of the different concerns, it is crucial to have immediately responsive actions for the stability of security, which facilitates much-needed conditions for the sustainable development. We are persuaded by Harris' [11] argument that "sustainable development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs" [11]. Additionally, maintaining the stability of global security has become a global mission. It is generally agreed that no single country can cope with global problems without international conversations and effective cooperation. In order to effectively solve the problems of global security, consequently, it is very important to have internationalization-related strategies and appropriate actions through the cooperative conversations of all countries in the world.

More importantly, confronting the unprecedented threats, we need good thinking skills to be able to make reliable decisions and absorb new knowledge quickly. Regarding this argument, thinking globally is a platform to recognize and understand that the world is a system of interdependent environmental, economic and social rela-

tionships [10]. In this sense, global thinking is an essential skill for modern specialists to be successful in the increasingly complex and interconnected global world. Indeed, globally competent thinkers with global thinking skills are expected to successfully deal with the stability of global security.

From the aforementioned discussion, understanding of global thinking and its implications is significantly becoming an educational necessity in a multicultural globalized world. In response to this, the primary goal of this article is to provide insights into aspects of global thinking, and its roles in dealing with global issues that a modern specialist needs to be trained to maintain the global security. For the pedagogical purposes, some theoretical concepts are respectively suggested for real-life classrooms. Accordingly, the objective of the paper is to prove the topicality of secure world and global thinking; define what the global thinking of specialists is; prove that global thinking is the means to solve global challenges; and give the pedagogical approaches to develop the specialists' global thinking.

#### **The current state of global security**

It is true that we together exist in the context of so-called "globalization". At the present time, globalization is a frequent referent in discussions of geopolitics, international business, or almost any other contemporary topic. It is difficult to straightforwardly define what globalization is; however, its features might be determined as comprehensively systemized and interconnected processes. As mentioned by Castells [7], the globally articulated processes that have the capacity to operate as a unit on a planetary scale in real or chosen time drive the core functions in societies where we are living. As the desire to bring common prosperity to the world, globalization refers to "the integration of capital, investment and labor markets or its integration with world markets" [32].

Researchers during different periods have investigated the possible effects of globalization on different aspects, including economy, politics, society, environment, or education [1, 4, 15, 24]. In terms of the gender-specific effects of trade liberalization in Indonesia, for example, Kis-Katos *et al* [15] conclude that reductions in tariffs on locally relevant inputs (i.e., a positive effect of globalization) generate more jobs and working hours for the less educated women. In addition, Ahmed *et al* [1] propose that although there has no significant effect of globalization on the eco-

logical footprint, it makes the ecological carbon footprint increase. On the contrary, globalization was found to have a worsening impact on environmental quality and sustainability and its negative impact outweighs the positive income effects on environmental quality and sustainability [24]. Additionally, an increase in ecological footprint in Turkey results from economic globalization and social globalization [4]. Regardless of whether the consequences of globalization are negative or positive, it is unquestionable that the process of globalization has certain impacts on global security.

In relation to the discussion, global issues as "problems in the world" [18] or as "issues of global significance" [2] have evident threats to global security. Of these, the increasing number of negative situations arising from climate change are a conspicuous example. To illustrate this, people living in small island nations and other developing countries are already more vulnerable to climate impacts [26]. In these countries and regions, accordingly, the sea-level rise and salt-water intrusion make many communities relocate, while others are putting at risk of famine due to protracted droughts. In the digital era, additionally, cybersecurity has been a global importance which has seriously affected global security. Recently, cyber-attacks are becoming more and more dangerous, causing great economic losses in many countries around the world.

In a nutshell, impacts of globalization and global issues are considered main affective factors to global security. For sustainable development it is necessary to take drastic and appropriate actions to prevent or minimize the negative impacts of threats affecting global security from all countries in the world.

#### **Definition of global thinking and its components**

Prior to discussing what global thinking is, we must clarify some related concepts. To start with, we interpret the concepts of "thinking" and "global". It is possible to state that only human beings have the ability of thinking. According to Holyoak & Spellman [12], thinking refers to the systematic alteration of mental symbols in the mind to describe actual or probable states of the world. In relation to the definitions of "global", as analyzed by Gerlach [10], the concept of "global" contains the meaning of undefined large parts of the world, regions, or connections across these parts.

In response to the main purpose of this

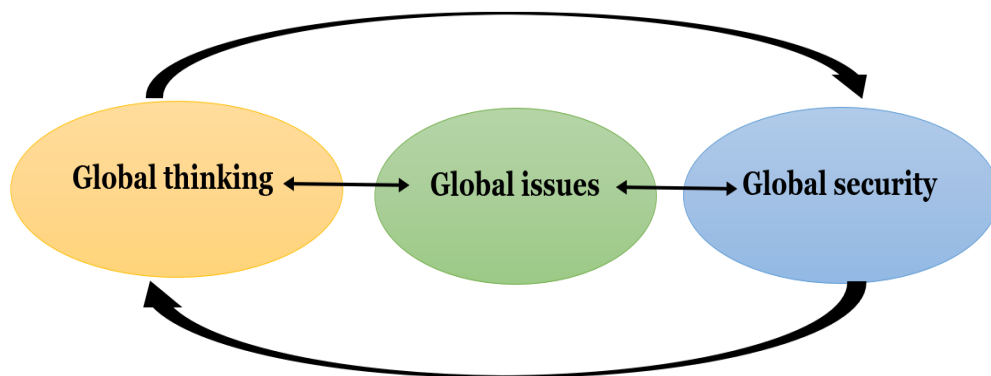


Fig. 1. The correlation between global thinking and global security

study, global thinking can be conceptualized as systematically cognitive transformations between mental symbols in the mind and tangible world, arising from the issues in areas of the globe. In other words, thinking globally intends for an adequately interconnected world and it is expected to deal with issues of international systems. Thereby, it seems to bring us to a newly necessary ability to think globally, and global competence is viewed as a core theory in the terms of global thinking. As Boix Mansilla & Jackson [5] defined, global competence refers to the capacity and disposition to understand and act on issues of global significance.

#### **Rationales for global thinking**

Repeatedly, we are deeply getting exposure to an increasingly complex and interconnected global system where many problems threaten the stability of global security. To be successful in this context, we need good thinking skills that can help us make reliable decisions and acquire new knowledge quickly. Despite having different arguments, the current context of globalization has witnessed considerable changes in concepts of citizenship. To be more specific, there has been a gradual movement towards global citizenship. According to UNESCO [25], global citizenship is defined as “a sense of belonging to a broader community and common humanity”. As a matter of fact, the phrase “global citizen” is commonly being used in daily conversations, and social interactions and relations are increasingly engaged in the internationalization-related aspects as well. For sustainable development, it is significantly important to build a spirit for global missions, coping with global issues and security. There is no question that maintaining the stability of global security requires immediate and collaborative action and changes from all countries around the world.

As a result of this, citizens in nations around the world must transfer from thinking locally to thinking globally. Gerlach [10] suggests that thinking globally is a must to recognize and understand that the world is a system of interdependent environmental, economic and social relationships. Extensively speaking, global citizens need to consider local problems as sub-factors which profoundly affect the global system. As a consequence, global thinking is a key driver for maintaining global security. Fig. 1 presents the correlations between global thinking and global security.

#### **The pedagogical approaches to develop the specialists’ global thinking**

As mentioned previously, global security has seriously been threatened by the negative effects of globalization and global issues. To successfully maintain the stability of global security, it is significantly crucial to prepare students as modern specialists for the unprecedented future. In this situation, the teacher must rethink the educational methods to help students become great global thinkers & citizens [33]. We studied and summarized the current trends and possibilities to develop the (future) specialists’ global thinking based on the analysis of the scientific results and world experience. As a result, we found the following pedagogical approaches for developing this important quality of the specialists.

#### **Global thinking as expected competence and the aim of education**

Being a globally competent thinker, as suggested by Boix Mansilla & Jackson [5], students must have ability to (1) frame significant problems and conduct well-crafted and age-appropriate research; (2) recognize perspectives, others’ and their own, articulating and explaining such perspectives thoughtfully and respectfully; (3) communicate ideas effectively with diverse audiences,

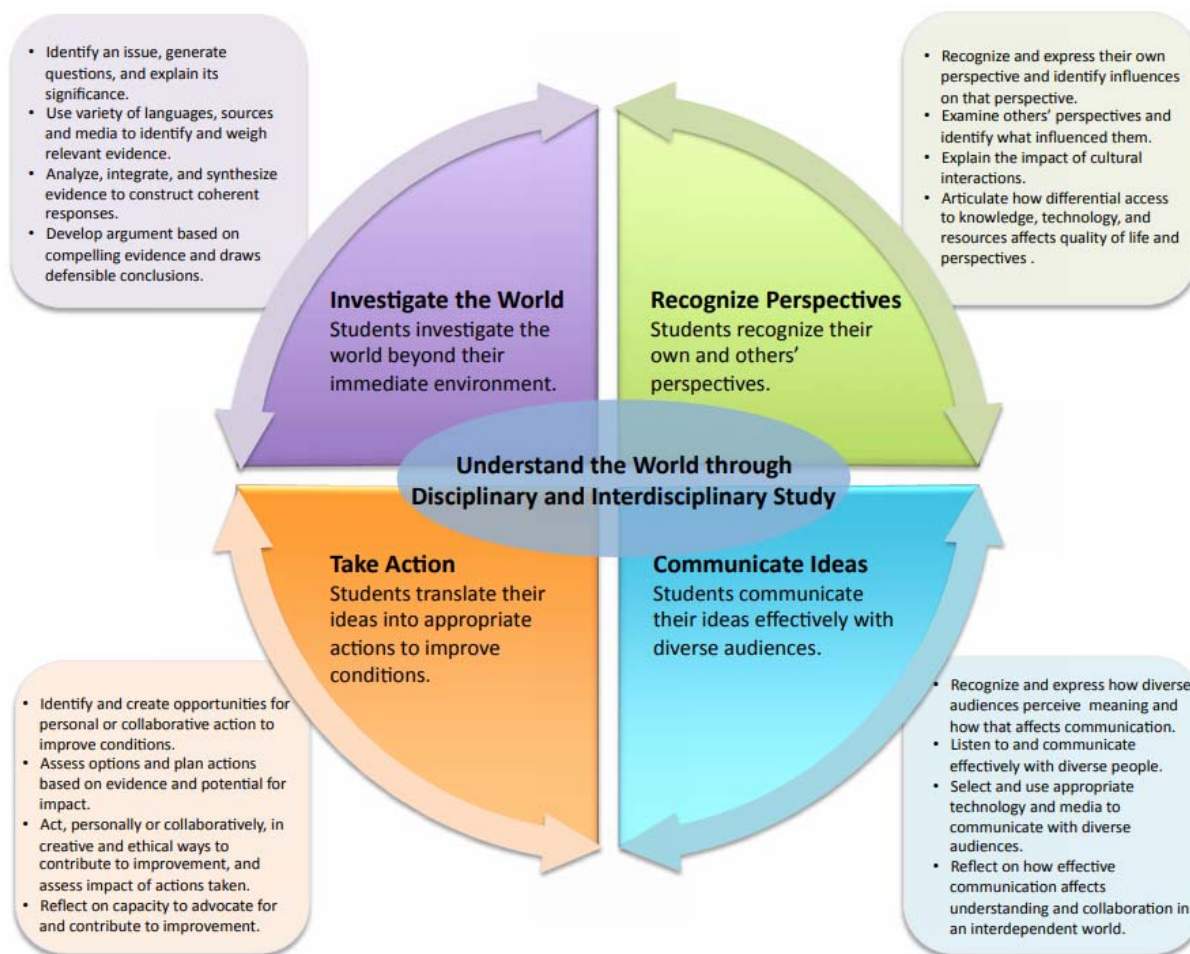


Fig. 2. Global competence [5]

bridging geographic, linguistic, ideological, and cultural barriers; (4) take action to improve conditions, viewing themselves as players in the world and participating reflectively (Fig. 2).

To successfully prepare students for matters of global interest and importance in the twenty-first century, it is important to make transformations in educational training programs and awareness of main related subjects, including teachers and students, policy-makers, or educators. In a curriculum fit for this purpose, as commented by Waters [30], critically thinking students who are not only aware of global issues and events from different perspectives but also ready to be effective participants in the work on challenges, solutions and opportunities, should be facilitated to develop their abilities. Furthermore, educating global competence occurs in the choice of the curriculum content and lesson plan that allow students to meet national or local academic standards, and concurrently provide students the opportunity to frame, analyze, communicate and feedback to issues of global significance [5].

### *International education*

Regarding the discussion, the “international education” approach should be implemented. As Cates [8] stated, international education not only develops students’ awareness of the world, understanding of economic systems, literature, culture and technological progress but also enables them to acquire knowledge, skills and commitment that world citizens need to tackle global problems. In addition, it is necessary to engage students in the learning environment where they can get exposure to hands-on activities illustrated in today’s digitally and globally interconnected world. For this purpose, along with having holistic changes in educational methods and training programs, developing effective learning materials in which global issues are integrated as main contents of learning might succeed in raising awareness of global thinking. It can be said that learning materials play an important role in the success of the educational process. To illustrate this, the content of learning materials tangibly reflects what educational methods and lear-

ning outcomings put forward. Through learning materials, students can imagine what they are learning, thereby they have appropriate efforts to meet the learning outcomes.

To successfully undertake international education in real-life contexts, students also need to be trained with adaptive skills. It is unquestionable that we no longer compete on a local or even national level, but that is, competition today is worldwide. Indeed, we all are being challenged by a future in which we will interact with people from a wide range of dissimilar cultural backgrounds. In order to harmoniously live in a multicultural globalized world, students' ability to successfully engage in intercultural communication may be one of the most important skills. As an undoubted consequence, the underlying understanding of intercommunication should be trained for students. As suggested by Caruana [6], intercultural understanding enables students to effectively work and live in a global world. Additionally, students must be aware of cultural diversity and respect individual differences to prevent possible conflicts in the process of educational internationalization.

In line with the above-mentioned arguments, when international education is on top of the agenda in multicultural learning environments, foreign language learning becomes a necessity for the process of educational internationalization. As we may know, language is a means of necessary exchanges to explore a culture where people use this language for communication. It means that students might enhance their intercultural communication through learning foreign languages. Not surprisingly, foreign language competence enables students to effectively learn in cross-cultural learning environments. Consequently, enhancing foreign language competence for students as modern specialists is significantly important for the development of the global community, which helps them understand better aspects of the international system and global issues. Based on the global conversations and collaboration, and consequently they have appropriate actions and effective solutions to the global issues, and maintain the stability of global security as well.

#### ***Sustainable development concept study***

Global thinking can be conceptualized as systematically cognitive transformations between mental symbols in the mind and tangible world, arising from the issues in areas of the globe.

Global thinking is an opportunity to see

a problem at a high, possibly planetary level, to assess its nature, complexity, risks, and be ready to design ways and means to solve it. Global thinking implies the ability to solve global problems, including the sustainable development of the world. The concept of sustainable development includes the part "education for sustainable development" [20, 23, 25, 30, 31]. Ch. Hopkins identified three main areas of education for sustainable development: the sustainable development of the university campus, the introduction of the ideas of the concept of sustainable development into engineering education, and the dual education system (adopted in Germany), which allows combining education and professional activity [13]. Let us dwell on the second aspect of understanding the concept. For us, it is important because it allows solving the problem from a pedagogical point of view, to shape the global thinking of future specialists so that they would be able to ensure the sustainable development of our world in the future. The actions of a globally thinking specialist fit into the scheme: "think globally, act locally" [9], which allows an engineer or other professional at his workplace to make decisions in terms of global consequences, take into account possible risks, predict the consumption of resources and the consequences of their actions. Global thinking is not enough for the productive activity of a specialist in the direction of the sustainable development of the world. Also, education for sustainable development should include: "education of the values of life, nature, man, humanity, development, sustainability and security; the formation of knowledge, skills and abilities necessary for productive (professional) activities that carry the minimum number of risks for the world around (natural, human community, information); formation of competence in the field of the concept of sustainable development of the world; staffing the sustainable development of the world; ensuring sustainable development of the education sector and its subjects" [16, p. 13–14].

#### ***Using problem solving methods***

Formation of mental symbols in the mind typical of global thinking is the result of the mental development. Another point of the global thinking is the possibility to see and to solve global problems. Problem-based teaching methods in this context are adequate ways to develop global thinking in students. Despite the fact that it is traditionally called a problem method of teaching related to solving a problem, in reality

Table 1

Methods of instruction effective for the development of global thinking

Method	Benefits for Developing Global Thinking
Problem-based method	Develops critical and analytic thinking
	Enhances students' creativity
	Activates learning interest
	Develops problem solving skills
Context study	Shifts the focus from solving educational problems to understanding and solving professional problems
	Promotes awareness of the role of an individual specialist in the sustainable development of the world
Project	Contributes to the formulation of multidimensional problems and their resolution
	Enriches the experience of collectively solving common problems, initiates their resolution on an interdisciplinary basis
	Forms links between problems and ways to solve them
	Activates creativity, originality of thinking
Case-study	Develops analytic and synthesis thinking
	Enhances collaborative thinking
	Develops problem solving skills

it includes many other teaching methods that are united by two common phenomena: the presence of a problem situation and the search for a way to solve it. In this context, the problem methods may include: the actual problem-based learning method, case-study, contextual learning, the project method, etc. In our work, based on a comparison and analysis of the needs and opportunities for learning (table 1), students' thinking is proved how to develop. The most perspective are project, problem-based learning, context and case-study methods. In problem-based learning “students are given the opportunities to problem-solve in a collaborative setting, create mental models for learning, and form self-directed learning habits through practice and reflection” [17]. Context teaching supposes discipline study in future professional context [28]. “Development and implementation of the project are a means and condition for developing competencies in design and creation of a high-tech product” [27, p. 2702], which increases the mental skills of solving real problems. Project-based learning prevents one-sided assessment of the situation, on the contrary, initiates its interdisciplinary study; aimed at creating an innovative tool that can solve the problem; forms a team spirit and the ability to work in a group of like-minded people [14, 19, 29]. The possibilities of case-study range from the deep analysis of the case and corresponding problem up to solving it.

Thus, there is a connection between the goal (development of global thinking) and the means

(method of instruction), due to the fact that this group of methods develops thinking, contributes to a comprehensive assessment of the situation with subsequent decision-making, involves persuading and involving other subjects to solve the problem.

#### Conclusion

The problems of sustainable development of the world, its security, global thinking of specialists, their responsibility for the fate of the world, and education for sustainable development are closely interrelated. The article solves the pedagogical task of developing the global thinking of future specialists in the context of the planetary tasks of preserving the world, ensuring its security and sustainable development. The following questions were discussed: the state of the global security of the world, the concept and structure of global thinking, global thinking of students as a guarantee of the security of the world, global thinking as the goal and expected results of education. Important directions for using the possibilities of education and pedagogy for the developing the global thinking of students are proposed: global thinking as a competence and aim of education; international education; education for sustainable development; problem solving methods of instruction. Hopefully, this paper as a critical review proposes a theoretical framework for stakeholders (i.e., teachers, policy-makers, curriculum developers or educators) to take necessary actions for sustainable education in the future.



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