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PHARMACEUTICAL INDUSTRY DEVELOPMENT: KEY POLICY INSTRUMENTS IN CHINA

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Abstract

The article provides an overview of programs, plans, tools of scientific and technological, innovation and industrial policy aimed at creating and producing new drugs in China; it is substantiated that the Chinese government uses an integrated approach in the implementation of mechanisms to protect and strengthen the pharmaceutical industry. It is demonstrated that the Chinese government provides business support in the form of subsidies, tax incentives, the creation of special zones for the development of high-tech industries, and helps to attract foreign direct investment in contract manufacturing and research and development, accompanied by technology transfer; through the public procurement system, a program for the development of endogenous innovations is implemented through the provision of price preferences, and advanced foreign technologies are involved. State support contributed to an increase in the level of localization of production and an increase in the number of jobs, an increase in the added value of production and the competitiveness of the pharmaceutical industry, the formation of scientific and technical competencies and the development of technologies, the creation of objects of intellectual property rights. The Chinese model of investment and innovative development, relying on the use of external technological, production, human resources, has made it possible to form a high-tech pharmaceutical sector capable of producing endogenous innovations. Given the objectives of the policy documents, Chinese enterprises are encouraged to invest in other countries in the interests of the development of Chinese pharmaceuticals.

Keywords: pharmaceutical industry, technology, innovation, government aid, tax incentives, subsidies, public procurement, industrial policy.

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1. Introduction

According to the updated forecast of the International Monetary Fund, the fall of the global economy in 2020 as a result of the COVID-19 pandemic may be 4.9 % [1], will have significant negative socio-economic consequences for all countries, worse than from the global financial crisis of 2008. Leaders of European countries-world leaders are looking for ways to help businesses that are suffering from the problems caused by the outbreak of the epidemic, relying traditionally on horizontal support measures [2]. At the same time, China has focused on the restored stable operation of leading industries, which are the “pillars” of the national economy. One of them is pharmaceuticals. According to the US National Science Foundation Report – 2020 [3], in terms of value added, China’s drug production already ranks third in the world – 162,527 million USD, the value of the USA indicator – 181,800 million USD, EU – 183,542 million USD.

Experts who have studied the phenomenon of exponential development of China’s pharmaceuticals state that the intervention of the Chinese government at the infrastructural and political levels and concrete actions for state aid contributed to the creation of a prosperous industry [4]. Numerous works confirm this thesis. The authors of the study of obstacles and opportunities for innovation in the pharmaceutical industry [5] point out that the key barriers in China in the development of new drugs are academic, industrial, institutional and financial constraints, therefore structural transformations and a change in reputation from “made in China” to “developed in China”. Require significant effort and resources. Bartlett and Ghosal (2000) [6] found the cost curve of the pharmaceutical industry to illustrate the evolution of manufacturers from low- to high-performance segments, characterized by technological complexity and profitability, and indicated that such a transition requires complex research and development, and therefore more scientific and human potential. Given the constant increase in technological innovations, the process of overtaking world leaders by Chinese manufacturers requires an increase in the number of networks and

a more complex organizational structure, goes beyond the national innovation system [7, 8]. This process of follow-up occurs in four stages: (1) pure imitation (2) innovative imitation (3) imitative innovation and (4) endogenous innovation. In this evolution, the government plays a significant role, implementing various policies, passing laws and strategies to cultivate and stimulate domestic drug research and development [9]. As indicated in [10], to speed up the process, China encourages its companies to enter the international market through the acquisition of shares, mergers and acquisitions, leasing, construction of research centers and factories abroad, trying to create an improved institution of supervision and management. The above and other works are mainly a generalization of the approaches used by the Chinese government, ignoring the details of the basic conditions of the program documents, which are aimed at building national potential, and for this they orient Chinese companies to actively use foreign resources.

The **aim** of the article is to identify the key instruments of state policy in China that determine the scientific, technological and innovative development of the country's pharmaceutical industry.

2. Materials and methods

The theoretical and methodological basis for writing the article was scientific concepts and theoretical developments on the development of the pharmaceutical industry; regulations, targeted programs and plans of the Chinese government in science and technology, innovation, finance, investment, taxation, staffing, public procurement, which contributed to the development of the pharmaceutical industry. The study was carried out using the methods of theoretical generalization, comparative analysis and synthesis, which made it possible to identify the key determinants of the development of the high-tech pharmaceutical industry in China.

3. Research results

Purposeful and selective industrial policy focused on structural shifts towards high-tech industries, including pharmaceuticals, has been implemented in China since the 1980s, with the coming to power of Deng Xiaoping [11]. In 1986, the Government launched the State Plan for the Development and Development of High Technologies – Program “863”. Biotechnology was identified among its priorities, incl. in the interests of pharmaceuticals. In 1988, they introduced the Guideline Plan for the Development of High-Tech Industries – the Torch Program and began to build zones for the development of high-tech industries in China of both national and regional significance to accelerate the commercialization of scientific achievements of the 863 Program. Today in China there are more than 40 zones for the development of high-tech industry, specializing in the development and development in the production of new drugs [12]. Along with incentives for R&D and innovation, there are a number of preferences for investors in such zones, including: incentives for the lease of land under industrial facilities, incentives for the payment of income tax and VAT for new companies, financial assistance for the purchase of production equipment and its leasing. There are also incentives to attract professionals and young professionals to businesses and institutions. They are provided with subsidies for the purchase of housing, as well as financial assistance. In addition, pharmaceutical companies located in the zones receive “bonuses” related to infrastructure, in particular, access to electricity, water and other utilities, as well as to the processing and disposal of general waste.

The 863 and Torch programs have laid the foundation for the development of Chinese pharmaceuticals based on advanced technologies. The next step was the *State Program for Long-Term and Medium-Term Planning of Science and Technology Development for 2006–2020* [13] (hereinafter referred to as the State Program), which focused further government measures on endogenous innovation. The State Program emphasizes the need for new large projects that should improve the ability of the economy to develop important pharmaceuticals, accelerate the development of their production on an industrial scale, and ensure the development of advanced technologies, machinery and equipment for the production processes of the pharmaceutical industry. In the “Strategies and Measures Are More Important” section of the Program, the **strengthening of imports, absorption, assimilation and reinvention of foreign knowledge and experience and the forma-**

tion of endogenous innovations in China are noted. So, the State Program focuses on the further borrowing of foreign know-how, however, not copying Western developments, as was done at the initial stage of the “Chinese revival”, but the absorption and adaptation of advanced technologies in order to rethink them for their further development.

The content of Chinese re-innovation is a thorough study of the principles of functioning of a particular object through the use of techniques for reverse engineering and reproduction of research. Ways to obtain foreign technologies can be either completely legal under technology transfer agreements or not entirely, for example, recruiting researchers, industrial espionage or “investment looting” (this term was used by the French Minister of Economy Bruno le Maire [14]). The paper [15] examines China’s policy regarding access to Western technologies through mergers and acquisitions and measures by the EU and US leadership related to the protection of their economies and national technological advances from such Chinese investments.

In pursuance of the directives of the State Program, the government introduced a **scientific and technological special project “Creation of new important drugs”** (hereinafter referred to as a special project) [16], aimed at solving the problems of major diseases, improving the national drug supply system and reducing dependence on foreign technologies and pharmaceutical products. A special project guides researchers to adhere to the “triple” principle of innovative positioning set by the Chinese government - creating new products, meeting important needs and solving key problems of society. In 2019, the guidelines for the implementation of the Special Project were improved by the directive of the line ministry – priority is given to the development of endogenous innovative drugs with new clinical value, generics and biopharmaceuticals that are in dire need of clinical practice, and which have good market prospects. The mechanism of state financial assistance depends on the category of the project:

1) “*Basic development of innovative drugs*” – a pre-project subsidy from the state in a ratio of at least 1:1. The project applicant must have a clear plan for their own investments and first make a contribution to the R&D fund of their project;

2) “*Internationally approved endogenous innovative drugs*” – post-project subsidies.

In 2015, on the recommendation of the Ministry of Industry, the Government approved the Program for the Development of High-Tech Industries “**Made in China 2025**” [17]. Among its priorities are pharmaceuticals and, in particular, the development of new drugs, as well as the development of the production of machinery and equipment for the modernization of the industry. The program is aimed at endogenous innovation, achieving self-sufficiency and reducing the dependence of the Chinese economy on advanced technology and high-tech goods. For the implementation of this program, the Government of China provided the “**Guidelines for planning the development of the pharmaceutical industry**” (hereinafter referred to as the Guidelines) [18]. This document clearly reflects the content of the aggressive policy of the Government of China in the interests of accelerating the endogenous innovative development of the national pharmaceutical industry through the use of foreign resources.

The guide calls on all stakeholders: “*Take advantage of the country’s existing capabilities in the implementation of the Belt and Road Initiative, and make full use of international resources to strengthen technology and attract talent to foster the development of pharmaceutical companies and increase their international competitiveness*”.

In the context of the implementation of the internationalization strategy, the Management points out the priority “*to support enterprises in acquiring or investing in the construction of production bases for chemical raw materials, drugs and traditional Chinese medicines abroad, to promote international cooperation in the use of production facilities and foreign environmental resources, and to expand their presence in local market*”; and encourages “*mergers and acquisitions and investment in promising properties*” to access foreign technology and encourages the international registration of pharmaceuticals, create new sales channels and develop Chinese brands in foreign markets.

To attract foreign capital and technology for the development of the industry, the Guide calls for “*encouraging foreign companies to establish research and industrial bases in China for the implementation of contract clinical trials of new drugs and contract manufacturing*”, as well as to

expand the production of equipment for the pharmaceutical industry in order to get the opportunity to implement complex solutions.

Separately, the Guidelines indicate the strengthening of mechanisms for financial and tax support for the development of pharmaceuticals, the implementation of which is considered in the context of the State Program and the Special Project. The emphasis is on three instruments: *a tax credit for R&D, tax relief for high-tech enterprises, and accelerated depreciation of fixed assets*. At the same time, the Management notes the need to develop venture capital funds and equity funds, improve export credit policy and insurance, expand debt financing instruments, and the like. To stimulate demand for pharmaceutical products, it is recommended to improve the public procurement policy in terms of supporting endogenous innovations, as well as in setting standards for assessing the quality of medicines purchased.

In the context of the implementation of the guidelines in 2016, the Government of China clarified the **list of high-tech industries for targeted government support** [19]. It includes the category “Biotechnology and new pharmaceutical technologies”, which covers the following industries: biopharmaceuticals; Chinese medicine, natural medicine; production of chemical medicines; production of new dosage forms and technologies for the preparation of drugs, and the like. Business entities that work in these industries have the opportunity to receive a number of preferences (priority when obtaining permits for office and industrial land, priority to receive assistance from state support funds, participation in large-scale projects supported by the state, receiving subsidies for rent, etc.), but subject to the availability of a **certificate of a high-tech enterprise** [20]. The main provisions of the approach to the identification of high-tech enterprises in China are analyzed in [11].

To strengthen endogenous innovations, the government of the country in 2018 issued a “Report on an increase in the rate of deduction in the taxation of research and development expenditures”, which raised the size of the tax credit for R&D from 50 to 75 % [21]. Also, to facilitate technological transformations of the economy, the country has improved the policy of *accelerated depreciation of fixed assets* of enterprises in six industries, of which pharmaceuticals [22]. Accelerated depreciation applies to machinery and equipment used not only in production, but also in R&D.

Since the technology gap between China and developed countries is still significant, in 2019 the National Development and Reform Commission and the Ministry of Commerce of the PRC presented a new edition of the **Catalog of Industries to Encourage Foreign Investment** [23], including the pharmaceutical industry, which included 13 areas, including : production of new complex drugs or drugs with active ingredients; production of amino acids, anti-cancer drugs, cardiovascular and cerebrovascular drugs, and the like. Investors who invest in these industries are entitled to preferential treatment for doing business, in particular, tax incentives, simplification of the procedure for considering and approving a project, discounts on land lease, exemption from customs payments. In 2018, the Chinese authorities extended preferences to foreign investors by abolishing the levy of income tax, reinvested in projects in the country (in areas prohibited for foreigners), including those related to the construction of new enterprises.

The population of China is about 1.4 billion people, and then the country’s leadership, considers the large domestic market for **public procurement** as a powerful tool for the development of national pharmaceutical manufacturers. Article 10 of the Chinese Public Procurement Law [24] states: “Public customers **must purchase domestic goods, equipment and services**, but except for one of the following situations:

- 1) projects or services that need to be purchased are not available in China or can’t be obtained on reasonable commercial terms;
- 2) purchases are for use outside of China;
- 3) other laws and regulations provide otherwise. The definition of domestic goods, projects and services is carried out in accordance with the provisions of the State Council. “

The document “Guiding procurement measures for health protection” (article 4) also states: “Public customers *should purchase domestic goods*” [25]. Although the law does not clearly specify the concept of “domestic goods” (国 货物), in the work “Public procurement in China: the experience of European business that competes for government contracts in China” [26] indicates that such goods are considered, in which at least 50 % of the added value is created on the territory of the

PRC. According to “smart commercial reasons”, these are cases when public customers can purchase foreign products if the domestic equivalent is more than 20 % more expensive than the imported one.

4. Discussion

Summing up the above, it is possible to say that the technological breakthrough of China's pharmaceuticals is due to the active policy of the government of the country to introduce: programs for the development of high-tech sectors, including the program “Made in China 2025”, where pharmaceuticals is a priority for which the resources of the state and private sector are directed; tax incentives for R&D, accelerated depreciation of fixed assets, reduction of income tax for high-tech enterprises contributed to the modernization and growth of the innovative potential of the industry; support of pharmaceuticals through certification of high-tech enterprises; encouraging foreign investment; provision of preferences in public procurement systems; incentives for the internationalization of production and R&D to gain access to foreign technologies. Thus, the Chinese government implements a policy of strengthening national potential and its absorption capacity for innovation, as well as large-scale interaction with the external environment as a resource. This thesis is consistent with the theory of Pfeffer and Salancik (1978) [27] on resource dependence and ways to overcome it, as well as Bert's (1992) [28] concept of interorganizational relations (in formal and informal networks) as a way to build competitive advantage. The most important resources required for the innovative development of pharmaceuticals are knowledge in the field of chemistry, physics, biology, medicine, etc., based on the long-term achievements of scientific schools in developed countries; and also the carriers of this knowledge are people. As Veblen noted, industrial excellence is a body of knowledge obtained from past experience, is contained and transmitted as an indivisible property of the community as a whole [29]. Therefore, attracting foreign resources, the Chinese government is trying to “transfer” this skill and, according to Gerschenkron's concept of the “advantages of backwardness” [30], to accelerate development with a “great spurt”.

According to [31], the control of developed countries on the transfer of technologies to China affects the allocation of resources, but can't prevent technological progress and an increase in the competitiveness of the Chinese pharmaceutical industry. At the same time, a number of researchers believe that “Soviet planning can't reproduce Silicon Valley,” despite “intrigue, theft of intellectual property rights and the forced transfer of technology by TNCs” [32].

According to [33], China's policy is aimed at obtaining knowledge from foreign companies, at the same time contributing to the formation of China as a partner of global pharmaceutical companies in research and development through contract research organizations that provide outsourcing services for the development of biopharmaceuticals, the implementation of biological analyzes, preclinical and clinical studies and the like. Relatively stable political conditions in China, for foreign investors in China's pharmaceuticals are more important than low labor costs and other factors. A survey conducted by the American Chamber of Commerce in China in March 2020 showed [34] that most companies do not plan to relocate manufacturing operations and change supply chains from China any time soon. In particular, in the short term, more than 70 % of respondents do not plan to move manufacturing and supply operations outside of China through COVID 19. About 40 % of respondents say their long-term supply chain strategy for China will remain the same regardless of the impact of COVID 19.

At the same time, the existing restrictions on access to regulatory documents of China on government assistance in attracting foreign resources and statistics on the transfer of foreign technologies to China, it is impossible to assess their scale and impact on the development of scientific and technological potential of drug production in China based on endogenous innovations. A promising area for further research is the specifics of the Chinese government's policy to attract foreign resources in the context of COVID 19, in particular, new policy documents and their fundamental conditions aimed at the use of foreign resources.

5. Conclusions

Thus, the policy of the Chinese government contributed to a change in local factors and the market, intensified the advantages of placement, which led to a change in the strategy of TNCs in

China from resource-oriented to strategically oriented, aimed at finding new assets to strengthen their own competitive advantages.

At the same time, Chinese companies, following the guidelines of the Pharmaceutical Industry Development Planning Guidelines, continue to pursue an aggressive policy of using the assets of other countries, incl. European, to develop their technologies and innovations in the production of medicines, through direct and portfolio investments, using production facilities and environmental resources. In 2019, the EU leadership approved Regulation 2019/452 “Establishing a framework for the screening of foreign direct investments into the Union Retrieved” [35], according to which biotechnologies, the development of which affects the pharmaceutical industry, are identified as “sensitive” areas, among other things. On October 11, 2020, the rules of the Regulation will enter into force. Many countries have adjusted their existing legislation to filter foreign investment. At the same time, it is possible that China will try to take advantage of the weakening economies caused by the COVID 19 pandemic to expand its presence in the markets of European countries, realizing its programs for the absorption, assimilation and reinvention of foreign knowledge and experience to strengthen the potential of endogenous pharmaceutical innovation in China.

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THE IMPACTS OF CORRUPTION ON ATTRACTING FOREIGN DIRECT INVESTMENT

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Abstract

Investment is a macroeconomic variable and its well-known as the engine of economy that boosts economic growth, economic development and sustainable development. Investment plays an important role in the livelihood welfare of citizens. All economies require different types of investments, particularly Foreign Direct Investment/ FDI in different sectors. Based on empirical researches, mostly FDI has positive impacts on the sustainable economic growth of the host economies. On the one hand, FDI transfers technologies, skills, innovations, experiences, techniques and knowledge to the host economies. On the other hand, it provides host economies with stable financial resources for a long period of time. Thus, it is the responsibility of governments to open their borders toward FDI inflows in order to attract this valuable financial resource. Despite the fact that countries require FDI, but corruption is one of the main obstacles against it.

Theoretically, there is a negative correlation between corruption and FDI inflows. In other words, corruption negatively impacts the FDI inflows and decreases FDI volume. Because, corruption increases costs and decreases benefits of FDI, corruption deteriorates the competitive trade environment; corruption discourages foreign investors through protecting domestic investors and corruption negatively effects the productivity of foreign investors. In practice, although most of the empirical researches showed that corruption negatively impacts the FDI flows, some empirical researches also confirmed that there is a positive correlation between corruption and FDI flows. Hence, countries are responsible in fighting against corruption to attract more FDI and in return benefit their sustainable economic growth.

Keywords: Corruption, Investment, Domestic Investment, Foreign Investment, Foreign Direct Investment.

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1. Introduction

Investment is a macroeconomic variable that works as the engine for sustainable economic growth, economic development, sustainable development, and overall production level of economy in the country. It is derived from savings of the citizens in a country. The balance between investments and savings constitutes an important basis for having a sound and strong economic system. While the imbalance between investments and savings means a surplus or shortage of investments compared to the savings. This imbalance between these two variables (savings and investments) can be risky for the whole economic system. On the one hand, if a country has more savings rather than investments this can be hypothesized that the economy does not have enough capacity to absorb all its resources. Thus, for the sake of efficient use, the extra resources should be invested abroad. On the other hand, if a country has fewer savings compared to the investments, the high officials of the certain country are responsible for opening their borders for the foreign investors.

1.1. Definitions and Types of Foreign Direct Investment

In fact, there are two main types on foreign investments, such as foreign direct investment and foreign indirect investment. Foreign Direct Investment (FDI) is defined as “an investment, made by a company or entity, based in one country, into a company or entity, based in another country” [1]. While Foreign Indirect Investment is defined as buying securities of a company by a foreign investor without any control or influence on its operations in the host country [2].

This paper discusses the impact of corruption on attracting FDI. This paper is in four parts: First, it introduces the topic and particularly describes the importance of FDI attraction on the economy. Second, it describes the importance and impacts of FDI. Third, it describes the results and findings about impacts of corruption on FDI inflows and finally it ends up with a conclusion.

Aim of research

This paper is mainly focusing on three most important scenarios; evaluation of the term corruption, evaluation of the term foreign direct investment and impacts of corruption on attracting foreign direct investment. Therefore, the main purpose of the current paper is to evaluate impacts of corruption (theoretical or practical) on attracting foreign direct investment.

2. Materials and Methods

2. 1. Importance of Foreign Direct Investment

Foreign Direct Investment provides stable financial resources with a long time horizon that can play an important role in the economic growth, economic development and sustainable development of a host economy. FDI is crucial for all countries, especially developing countries (developing economies) compared to the developed economies (developed countries). Because, on the one hand, the domestic resources of developing countries are not sufficient to meet their needs and requirements and on the other hand, the economic problems of developing countries like unemployment rate, high inflation rate, low investment, low production, low economic growth, deficit of trade balance, unequal income distribution, low savings, low consumption, low living standards and high poverty rate is much higher compared to the developed economies. Thus, it is essential for developing economies to attract more FDI in order to meet their wishful requirements. FDI transfers knowledge, techniques, skills, technologies and innovations to the host economies. Thus, FDI can impact the macroeconomic and microeconomic variables of the host economies in spheres of business, competition, innovations, technology, growth, employment, development and citizen's welfare areas [3].

2. 2. The Impacts of Foreign Direct Investment

As per evidences, the impacts of FDI on macroeconomic variables of the countries are mostly positive. For instance, Classens (1993) conducted his research on “different forms of mobilization of financial resources”, his findings showed that FDI is the best form of financing for the developing economies [4]. In other words, if we compare different forms of financing resources like FDI and domestic financing, according to Classens (1993) the best way of financing developing economies is FDI. Laura Alfaro (2003) in her empirical research on “Foreign Direct Investment and Growth: Does the Sector Matter?” collected cross – countries panel data for the period of 1981–1999 and found that FDI has positive impact on manufacturing sector [5]. Beatrice Farkas (2012) in a research on “Absorptive Capacities and the Impact of FDI on Economic Growth” showed that “contribution of FDI to economic growth is positive and significant depending on the level of human capital and the development of financial markets, but its presence in developing countries must complement rather than substitute a set of other growth determinants.” [6]. In all above studies one can observe that FDI has a positive role on the whole economy of a country.

Mostly impact of FDI on sustainable economic growth is positive, but when FDI works as substitutes for domestic investments or when it occurs in the primary sector, such as an agriculture sector, it could have negative consequences on the sustainable economic growth of a country. For instance, according to Misun and Tomsik (2002) with evidences from Poland in 1990s, “If FDI crowds out domestic investment, total private investment rises by less than the FDI and the benefits for the country are reduced.” [3]. Alfaro (2003) also argued that FDI in the primary sector has negative consequences on economic growth of a country [5]. From above studies it is obvious, that sometimes FDI has negative consequences on sustainable economic growth of a host country in the most cases.

3. Result

Mostly corruption is defined as “the abuse of public power for private benefit” [7]. Corruption is an illegal activity which negatively impacts the business environment, economic growth, economic development, citizen's welfare, FDI attraction, and the overall quality of governance in a country. Typically corruption occurs in two major types such as petty (administrative) and grand (political) and it affects the performance of a government to achieve its predetermined goals and

objectives. As well as, corruption occurs in other forms like bribery, extortion, embezzlement, money laundering, forgery, fraud and nepotism in public and private offices. Corruption works as a cancerous disease and it negatively impacts FDI inflows (FDI attraction) in a host economy. The main purpose of FDI inflow is profit maximization and the major challenge against this profit maximization is assessed corruption.

In theory, corruption has a direct impact on the cost of FDI in host economies [8]. On the one hand, in a corrupt system the foreign direct investors require to pay money as a bribe to the corrupt officials in order to run their businesses. The reasons for this payment are due to the long registration processes of FDI, licensing requirements, taxation issues and long bureaucratic procedures in the host economies. When foreign investors pay money as a bribe to the corrupt officials it significantly increases the costs of doing their business. According to the Transparency International report, more than half of the respondents in a survey complained that corruption has increased their costs of doing business by 10 percent [9]. Thus corruption increases costs of doing business and it is a challenge in FDI attraction in a host country.

In addition, theoretically corruption affects the competition environment in the host economies and in turn it affects the FDI attraction. An FDI is beneficial where the competition environment is protected by the government under the certain regulations and supported by the officials. When foreign investors want to invest in a host country, firstly they want to maximize their profits by investing in a well manageable environment. Thus, foreign investors want to get market power gradually by raising their market shares that leads to the profit maximization. Since the FDI transfers new technologies, knowledge, experiences and skills to the host countries, it will be beneficial to compete with the domestic investors in a regulated and protected environment for FDI. Thus, corruption negatively impacts the quality of competition and government intervenes in the market. This means that corruption deteriorates the competitive environment and reduces the FDI inflows in the host countries by the low protected environment.

Moreover, in theory, corruption protects the domestic investments against FDI and in turn it reduces the FDI attraction in the host countries. In other words, corruption discriminates between domestic investments and FDI in terms of the origin through the violation of the national treatment principle of WTO [10]. Corruption increases the opportunity cost for businesses by foreign investors compared to the domestic investors, particularly during the registration, licensing and tax procedures. In turn, corruption decreases FDI attractiveness of host economies, because under a corrupt system foreign investors pay an additional amount of money as a bribe to the corrupt officials otherwise they will suffer from long bureaucratic procedures that increases their opportunity cost. But domestic investors are familiar with the system and they do not pay such an additional amount of money as a bribe to the corrupt officials and they will not suffer from long bureaucratic procedures (opportunity cost). In turn, corruption negatively affects the prices of goods for foreign investors and it reduces the FDI attraction in the host country.

Furthermore, corruption increases the risks of doing business and decreases the confidence level of foreign investors. In turn, corruption reduces the attractiveness of FDI in the host economy [11]. A corruption level is one of the indicators of measuring the governance quality in a country and it can directly impact the FDI attraction in the host economy. The low level of corruption can be hypothesized as a symptom of better governance and the high level of corruption can be hypothesized as a symptom of bad governance. In bad governance, the foreign investors' feel high risk and low confidence in front of their business. That is why they prefer to not invest their money in a host economy with bad governance. It means that, bad governance creates high risk and low confidence level for foreign investors. Thus, foreign investors do not invest their money in a host economy with high risk and low confidence level. In turn, bad governance reduces the FDI attraction in the country.

In addition, corruption reduces the productivity, resource allocation, quality of goods and services, innovations and efficiency of FDI and in turn it reduces the FDI attraction in the host economies [8]. More specifically corruption works as a cancerous disease that negatively impacts the volume of FDI in the host economies.

In practice, most of the empirical researches also showed that there is a significant negative correlation between a level of corruption and FDI attraction in the host economies, but some re-

searches also showed that there is a positive relationship between these two variables. For instance, Ali Al – Sadig (2009) in his empirical research on “The Effects of Corruption on FDI Inflows”, with panel data from 107 host economies for the period of 1984 – 2004 showed that there is a strong negative correlation between corruption and FDI attraction [12]. He argued that one point decrease in corruption causes 11 percent increase in FDI per capita inflows [12]. In addition, Aye Mengistu Alemu (2012) in an empirical research on “Effects of Corruption on FDI Inflow in Asian Economies”, with a panel data from 16 Asian host countries over the period of 1995 – 2009 showed that there is a strong negative correlation between corruption and FDI attraction (1 percent increase in corruption decreases 9.1 percent FDI) [8]. Moreover, Rahim M. Quazi (2014) in an empirical research on “Corruption and Foreign Direct Investment in East Asia and South Asia: An Econometric Study” with panel data from all East Asia and South Asia economies over the period of 1995–2011 argued that there is strong negative correlation between corruption and FDI attraction in the host economies [13].

As mentioned above, in practice, some empirical researches show that corruption positively affects the FDI attraction in host economies. This means that foreign investors by paying some additional amount of money (bribe) avoid the opportunity cost and other types of cost in their businesses. For instance, Katrina Pla Gutierrez (2015) conducted an empirical study on “The Effect of Corruption on FDI in Argentina”, she collected panel data over the period of 1995–2013 and her findings showed that in Argentina there is a positive correlation between corruption and FDI [9]. Because, in Argentina FDI is mostly attracted in natural resources and since natural resources are limited around the world, so it is beneficial for foreign investors to keep their investments in this area. In addition, Eagger and Winner (2005) conducted their empirical research on the relationship between corruption and FDI attraction, they collected panel data from a sample of 73 developed and developing economies over the period of 1995–1999 and their finding showed that there is a significant positive relationship between corruption and FDI attraction in the host economies [14].

4. Conclusion

As a result, currently investment is known as the engine of sustainable economic growth in the economy. Investment (domestic or foreign) plays an important role in the welfare of citizens. All economies require investments in different areas and in different types. However the importance of FDI is much higher rather than any other investments. Based on empirical researches, mostly FDI has positive impacts on the sustainable economic growth of the host economies. On the one hand, FDI transfers technologies, skills, innovations, experiences, techniques and knowledge to the host economies. On the other hand, it provides host economies with stable financial resources for a long period of time. Thus, it is the responsibility of governments to open their borders toward FDI inflows in order to attract this valuable financial resource. Despite the fact the countries require FDI, but corruption is one of the main obstacles against it.

Theoretically, there is a negative correlation between corruption and FDI attraction in the host economies. In other words, corruption negatively impacts the FDI inflows and decreases the volume of FDI attraction. Because corruption increases the costs and decreases the benefits of FDI (return on investment), corruption deteriorates the competitive environment; corruption protects the domestic investors against foreign investors and corruption impacts the productivity of foreign investors. In practice, although some empirical researches showed that there is a positive correlation between corruption and FDI, most of the empirical researches also showed that corruption negatively impacts the FDI attraction. In conclusion, one would infer that corruption is a cancerous phenomenon and countries are responsible for fighting this illegible phenomenon in order to attract more FDI and in turn benefit their sustainable economic growth.

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EVALUATION OF THE FEASIBILITY OF IMPLEMENTING INNOVATIVE ENERGY EFFICIENT TECHNOLOGIES ON THE WAY OF ECONOMIC DEVELOPMENT OF THE REGION

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Abstract

Innovative energy efficient technologies are the driving force behind the economic development of the region. The feasibility of introducing such technologies is determined by the degree of innovative development of this region. Today there are a large number of models that substantiate certain indicators used to calculate the integral indicator of an innovative energy-efficient focus. The dynamics of the development of an administrative unit depends on the ability to create favorable conditions for the dissemination and use of innovations, the intensification of scientific and innovative activities. The article also uses the concept of “innovative orientation” rather than “innovative development”. The innovation orientation is considered as the degree of intensity and timeliness of the implementation of certain actions by economic entities aimed at innovative development. To calculate the indicator of innovative orientation, the method of integral assessment of innovative orientation is used, which makes it possible to: determine a large number of indicators; explore individual sectors of society; not to analyze generally accepted economic indicators that are not sectoral known in the research subjects, and to determine the energy-efficient focus at the expense of the selected indices of the focus of innovative potential. As part of the study, primary indicators are collected from 14 administrative units of the Kharkiv region. At the next stage of the study, indicators of innovative orientation are determined. In accordance with the principles of conducting research and identifying innovative potential, the indicators are formed in 5 groups. The ranking of integral indicators of innovative energy-efficient orientation is carried out, which makes it possible to reasonably and purposefully give recommendations on energy savings in the studied subjects in accordance with the rank of this index.

Keywords: management of economic development, integral indicator of innovative energy-efficient focus, energy efficiency barriers, innovation focus of the region, innovation management.

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1. Introduction

As part of this study, it is necessary to assess the ability of society to reduce the consumption of energy resources on the path of economic growth. In [1], it is described how, using the theory of barriers, one can analyze the direction of development of the non-production sector of administrative units. Research has shown that, first of all, communities overcome technological, technical and material obstacles to the efficient use of energy resources. Grant projects are not aimed at barriers of skills, knowledge, skills and social consciousness. However, the ability to innovative transformations of society ensures the functioning of the system of innovative regional development, it occurs precisely through the acquisition of new knowledge and skills (**Fig. 1**).

The approach to the development of innovations in the modern world has changed. Earlier, in the era of industrialization, innovation was based on a combination of resources and inventions. In the postindustrial era, the development of strong positive feedback loops of the knowledge production process comes to the fore. The management of information dissemination channels significantly affects the pace of economic, social and cultural development of society. In the context of decentralization, the role of regions has grown, functions are shifting from the center to them in addressing the growing demand for innovation. There is an urgent need to expand innovation networks to overcome global challenges [2].

The aim of research is to assess the feasibility of introducing energy-efficient innovative measures on the example of the Kharkiv region.

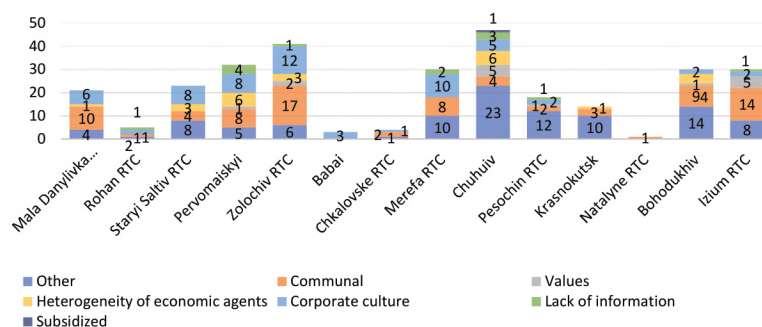


Fig. 1. Intensity of overcoming barriers by the number of projects in 2017–2020 in the studied administrative units

2. Methods

There are a large number of methods to determine the innovation orientation of the community as a component of the regional innovation policy. These methods are constantly being updated, adapting to changes in the development conditions of the region. The innovation potential of the region can be defined as technological, economic, intellectual, production, institutional, administrative, research, in general, the integrated ability of the region to combine all its available resources to fulfill external and internal development tasks [3].

The main methods for assessing innovative development are shown in **Fig. 2**.

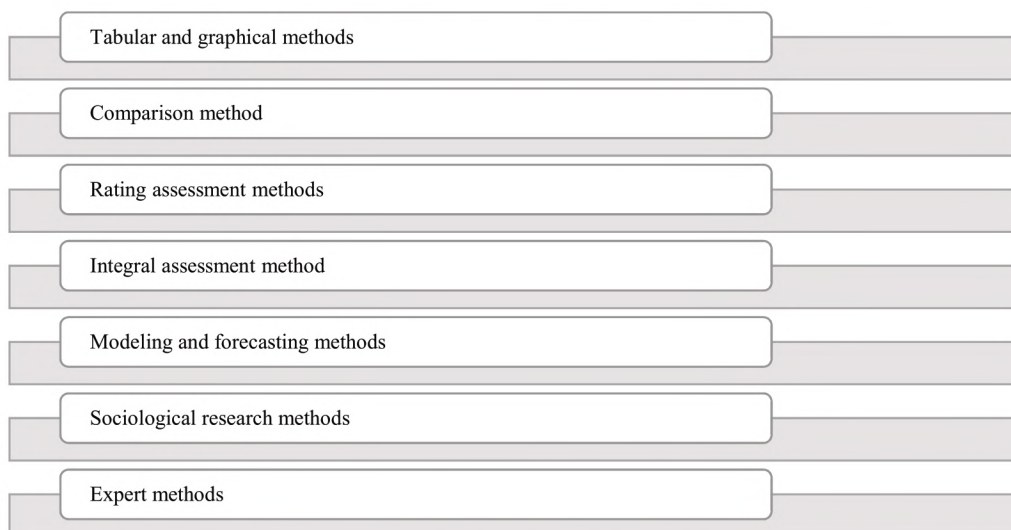


Fig. 2. The most common methods for assessing the innovative potential of regions

Source: compiled by the author based on [4]

The complexity of the formation of a system for assessing innovative potential leads to significant methodological difficulties. The mechanism for forming the stages of the assessment and its result itself must meet a number of requirements, which are given in **Table 1**.

In addition to a principled approach to methods for assessing innovative indicators, it is necessary to apply a comprehensive and systematic assessment. Having worked out the scientific potential of the direction of assessing innovative development, let's come to the conclusion that most scientists are inclined towards the integral assessment method [4]. The most acceptable in our study is the method of integral assessment of innovative orientation, which allows:

- define a large number of indicators;
- explore a separate sector of society;
- not to analyze generally accepted economic indicators that are not known sectorally in the research subjects;

– ensure the determination of the energy-efficient direction of the research through the selected indices of the direction of the innovative potential.

“Integral assessment of innovation orientation is an indicator in which the values of other indicators are reproduced, adjusted in accordance with their weight and other factors, which allows combining in one indicator many factors that are different in name, units of measurement, significance and other characteristics” [4].

Table 1

Principles for assessing and determining the result of Innovative Potential (IP)

No.	Principles	Content of the requirement
1	Sufficiency	The data available should ensure the determination of a sufficient number of indicators that are involved in the formation of IP indicators, if it is impossible to form the number of indicators, the scientific approach requires the formation of the most significant
2	Unambiguity and accuracy of assessment	The quantitative assessments of the IP should be formed into equivalent groups for all subjects of assessment and be sufficiently informative to obtain the most accurate result
3	Completeness of accounting information	In the study, it is necessary not only to take into account the primary indicators obtained from the research subjects and their own analysis results for the subjects, but also to use open public data posted by the subjects themselves and state institutions, which are necessary for the completeness of the characteristics of the studied subjects
4	Objectivity	When evaluating individual entrepreneurship, it is necessary to rely primarily on primary indicators and open data obtained from official sources. The IP assessment should be based on a scientific approach and proven methods

As a basis for the assessment, let's take the definition of the generalized innovation index (Summary Innovation Index (SII) [5]. In the European Union, this index is calculated as an indicator of the development of innovations in the context of regions. According to the method of calculating SII, the definition of 26 indicators is provided, which have a common name and are divided into five groups of indicators: the development (implementation) of innovations (applications) innovation drivers, diffusion of innovations, knowledge creation of intellectual property [6].

Based on the European method for determining the generalized innovation index (SII), let's approach the study with an understanding of the levels of perfection of the Ukrainian and European socio-economic systems. Taking this into account, under the Ukrainian socio-economic system, it is correct to call the groups of indicators of innovative development as groups of indicators of innovative orientation. Determining the groups of indicators of the innovative orientation of administrative units, let's consider the sufficiency, unambiguity and accuracy of the assessment, the completeness of accounting for information and objectivity. Let's determine the indicators that primarily affect the introduction of energy efficient technologies. Let's define an energy-efficient innovation focus as a set of indicators characterizing the activity of an entity to mobilize its potential to attract grant funds and their targeting. The competitiveness of the studied subjects is formed from the intensity of grant contributions and their focus. Using this technique, let's determine the index of innovation orientation by the method of integral assessment (generalized innovation index) of each investigated administrative unit with a simultaneous rating ranking. This method was chosen because of the possibility of standardizing heterogeneous indicators.

Based on this, let's consistently track the five stages of the study, shown in **Fig. 3**.

First of all, let's create a base of primary indicators for 14 communities (surveyed subjects). Let's take these indicators of primary data from and analytical data as well as data from passports of communities for 2020 [7]. From these data, let's calculate the indicators that will form the basis of the entire calculation.

At the stage “Formation of initial data” let's systematize all available data into five groups of indicators and form groups of these indicators for each subject of the study separately. All five groups of indicators are present in every research subject. However, different research subjects have a different number of indicators in indicator groups, and the numerical value of indicators in groups has a different dimension, which is determined by:

- primary data on the consumption of energy resources;
- availability and hunting of development strategies;
- carried out innovative changes;
- targeting of grants and other financial investments;
- development of infrastructure, including through grants.

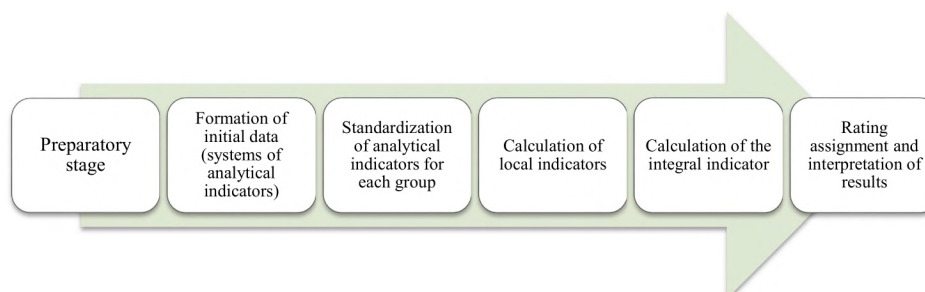


Fig. 3. Research stages

Source: author's development

Calculated from the primary data, 20 indicators are distributed into 5 groups of indicators of innovative orientation, namely:

1. Development (implementation) of innovations. Includes indicators determined by the available investment grant funds aimed in the community on energy saving and energy efficiency, at the same time overcoming energy efficient barriers, promoting the introduction of energy efficient innovative technologies; this also includes the community capacity indicator, which is calculated methodically from community passports, and includes the presence of administrative service centers (ASCs).

2. Economic growth. Including grants aimed at the development of investment infrastructure, and indicators derived from them, this indicator includes funds directed to development, and derived indicators and subsidies. Let's classify this group of indicators as innovative, since, despite the depreciation of fixed assets, the location of the overwhelming number of communities in rural areas, the capital construction of new modern energy-saving facilities is a revolutionary breakthrough.

3. Diffusion of innovations. Defined as overcoming energy efficient barriers in society and the spread of energy efficient changes in society, the diffusion of innovations confirms the intensity of overcoming the barrier. This includes changes in energy consumption and the presence of energy efficient measures in the development strategy of society.

4. Innovation drivers. The leaders of the communities participating in the Covenant of Mayors have been identified. In addition to addressing CO₂ pollution issues, this contributes to the creation of regional horizontal ties of economic, cultural and energy efficient cooperation. Energy efficient managers bring innovative energy efficiency knowledge to communities. This is an institutionally well-strengthened line of business, which becomes the center for the diffusion of all energy innovations. The population, acquires secondary education within the community, often remains in the community. Already in high school education they possess information technologies and distribute them in the social environment.

5. Knowledge creation. Creative development is deliberately included in this group, because the indicator of creative development, according to foreign scientists, leads to innovative breakthroughs. The weight of creativity and the dissemination of knowledge help to more accurately assess the prevalence of activities in the region and to estimate the share allocated to the creation of new hotbeds of knowledge and creativity in administrative units. New regions from countries of catch-up development [2] are reshaping the geographical map of innovations. Not only technological leadership, but investment in non-technological innovation, talent and creativity are powerful productive systems in creating added value. This impact is well researched in foreign scientific literature and is cultivated in Western society as a corporate culture.

The calculated indicators of innovation orientation in the context of communities and formed groups of indicators will be shown in **Table 2**.

Table 2
Indicators of the effectiveness of using the innovative potential of the innovative orientation of the administrative unit

Groups of indicators	indicators	Mala Danylivka RTC	Rohan RTC	Staryi Saltiv RTC	Pervo-maiskyi RTC	Zolochiv RTC	Babai RTC	Chkalovske RTC	Merefa RTC	Chuhuiv RTC	Pesochin RTC	Krasnokutsk RTC	Natalyne Bohodukhiv RTC	Izium RTC
Indicators of development (implementation) of innovations	investment ability	0.04	0.01	0.04	0.02	0.2	0.04	0.01	0.13	0.58	0.21	1.22	0.22	0.38
	investment per capita	324.72	69.84	382.21	203.97	1913.39	126.98	63.39	1035.5	6405.94	1553.17	4588.83	4840.75	4228.9
	ability of society	4.5	2.9	4.6	4.5	4.6	3.1	4.8	4.5	3.2	5.3	2.2	3.9	5.2
	productive innovation	0	1	0	6	1	1	0	3	3	0	0	0	0
Indicators of economic growth	organize	0	0	1	1	1	0	0	1	3	0	1	1	1
	capitalization of the budget	0.009	0.046	0.02	0.005	0.008	0	0.002	0.355	0.017	0.924	1.584	0	0.004
	investment per capita	79.714	377.304	193.293	46.328	77.904	0	21.93	2793.6	182.235	6757.96	5957.44	0	219.572
	GIR per capita population	8568.444	8283.82	9495.67	10262.3	9603.99	3255.47	9257.64	7873.19	10986.3	7310.31	3761.33	22261.6	11071.5
Innovation diffusion	Budget of development	0	0	0	0.013	0	0.07	0	0.011	0	0.001	0	0.001	0
	subsidization of the budget	0.113	0	0.095	0.145	0	0.177	0.102	0.139	0	0.15	0	0	0.142
	localization of the barrier	0.617	0.531	0.617	0.38	0.792	1	0.646	0.896	0.975	0.981	0.992	1	0.746
	prevalence of barriers	0.158	0.158	0.158	0.263	0.263	0.053	0.105	0.158	0.316	0.211	0.105	0.053	0.211
Indicators of innovation drivers	energy changes	-0.002	-0.272	-0.154	-0.052	0.155	-0.146	0.191	0.021	0	0.063	-0.138	0.258	-0.18
	energy efficiency development strategy	0.047	0.017	0	0.138	0	0	0.111	0.079	0.107	0	0	0	0
	«Mayors-innovators»	1	0	0	1	1	0	1	1	1	1	0	0	1
	energy management	0	0	0	1	1	0	0	1	1	0	0	0	0
knowledge creation	secondary education	0.052	0.078	0.08	0.115	0.1	0.359	0.092	0.14	0	0.099	0	0.191	0
	creative development	0.125	0.316	0.412	0.395	0.361	0.357	0.321	0.267	0.422	0.375	0	0.659	0
	scales of creativity	18.533	1.472	8.084	56.762	5.625	0.000	2.453	615.098	0.000	197.968	110.770	0.000	49.106
	dissemination of knowledge	159.265	29.105	261.221	76.849	144.082	0.000	22.446	2873.764	132.519	8278.504	2124.115	0.000	86.908
														47.767

At the third stage, “Standardization of the indicators of each group,” it is necessary to bring the native indicators into a comparable form. For this, the primary indicators are normalized, that is, a transition is made from absolute values to standard ones. To carry out calculations, let's differentiate the indicators for stimulants and de-stimulants. Such differentiation will make it possible to conduct an analysis more accurately, because each of the indicators has a characteristic effect on the level of development of the object under study. So, stimulants have a positive effect on the level of development of the object of research, and destimulants, on the contrary, slow down its development. In this case, stimulants are calculated by the formula:

$$l = \frac{M - M(\min)}{M(\max) - M(\min)}, \quad (1)$$

and destimulants:

$$l = \frac{M(\max) - M}{M(\max) - M(\min)}, \quad (2)$$

where l – the value of the indicator of the block of indicators of the integral assessment; M – the current value of an indicator, a block of indicators; $M(\min)$, $M(\max)$ – minimum and maximum value of an indicator, block of indicators.

Due to the heterogeneity of the data obtained, there was a need for standardization. The indicators obtained as a result of such normalization are in the range from 0 to 1. The value of the integral indicator in this case will also have the range $[0; 1]$, facilitates the procedure for quantitative or linguistic interpretation of the integral indicator.

At the next stage, on the basis of the calculated standard values, local indicators of administrative units are determined for each group (S_{ik}).

$$S_{ik} = \sum_{j=1}^m l_{ijk} \cdot a_{ij}, \quad (3)$$

where m – the number of indicators characterizing the innovative energy-efficient focus of the i -th group; a_{ij} – weight coefficient of the j -th indicator of the i -th group; k – the number of administrative units, ($k=1...l$) (Table 3).

To establish the weighting coefficient of the indicators, a scoring method for assessing indicators is used. The points were selected from a special rating numerical scale. Points are natural numbers from 1 to N which, in decreasing order of priority, are assigned importance to each indicator of the corresponding group. Score 1 – minimum score; score N – maximum.

Table 3

Calculation of local indicators for each group of indicators

Name of the settlement	Indicators of development of innovations	Economic growth indicators	Innovation diffusions	Indicators of innovation drivers	Knowledge creation
1	2	3	4	5	6
Mala Danylivka RTC	0.1406	0.1323	0.4095	0.3604	0.0783
Rohan RTC	0.0759	0.2574	0.1855	0.0716	0.1564
Saryi Saltiv RTC	0.2226	0.1628	0.2405	0.0713	0.2096
Pervomaiskyi	0.4158	0.1500	0.5967	0.7753	0.2370
Zolochiv RTC	0.3253	0.2480	0.5496	0.7674	0.1904
Babai	0.0918	0.2007	0.2905	0.3197	0.1842
Chkalovske RTC	0.1435	0.1498	0.5888	0.4195	0.1750

Continuation of Table 3

1	2	3	4	5	6
Merefa RTC	0.3627	0.2632	0.5835	0.8102	0.5962
Chuhuiv	0.6547	0.2848	0.8037	0.6796	0.2300
Pesochin RTC	0.2585	0.4256	0.5272	0.4103	0.6158
Krasnokutsk	0.4296	0.6037	0.3575	0.0000	0.1424
Natalyne RTC	0.3385	0.3996	0.4960	0.1486	0.3252
Bohodukhiv	0.3138	0.2123	0.3877	0.3359	0.0088
Izium RTC	0.4200	0.1490	0.4065	0.4148	0.2667

Thus, the obtained data are necessary for the transition to the fifth stage – the calculation of the integral indicator of the innovative energy-efficient orientation of the research subject. This indicator is calculated using the formula:

$$IP = \sum_{i=1}^q S_{ik} \cdot \lambda_i, \quad (4)$$

where IP – the indicator of the integral assessment; q – the number of blocks – indicators of the integral assessment; λ_i – the impact (significance) of the i -th group of indicators on the integral, innovative energy-efficient focus of the administrative unit.

3. Results

As a research result, an indicator of innovative orientation is determined, which allows to analytically establish the feasibility of introducing innovative energy-efficient technologies in administrative units. These indicators for each object of research are shown in **Table 4**. The integral indicator is the result of a comprehensive assessment of the data obtained by calculating and economic and mathematical analysis of the system of specified indicators characterizing the innovative potential of the administrative units under study.

Table 4

The results of the calculations of the integral assessment

Name of the settlement	Integral assessment
Mala Danylivka RTC	0.226409225
Rohan RTC	0.144466091
Stryi Saltiv RTC	0.18236301
Pervomaiskyi	0.435368054
Zolochiv RTC	0.413001486
Babai	0.212590986
Chkalovske RTC	0.287090186
Merefa RTC	0.516797742
Chuhuiv	0.536560717
Pesochin RTC	0.439607084
Krasnokutsk	0.304656449
Natalyne RTC	0.337611442
Bohodukhiv	0.256016997
Izium RTC	0.334976303

For the purpose of constructing a rating of the innovative orientation of administrative units, integral indices of ranks are obtained (**Fig. 4**). Let's define the most and least favorable administrative units for the introduction of energy efficient innovative technologies.

For this, the results are ranked. The closer to one is the value of the integral indicator, the higher the level of innovative energy-efficient orientation has an administrative unit [8]. It is based on one of E.K. Harrington's logistic functions – the “desirability curve”. When solving multicriteria problems, the Harrington function is considered one of the most convenient ranking methods. Harrington's scale, which has a universal character and consists of five intervals of the value of the integral indicator [9]:

- 0–0.2 – very low;
- 0.2–0.37 – low;
- 0.37–0.63 – medium;
- 0.63–0.8 – high;
- 0.8–1 – very high.

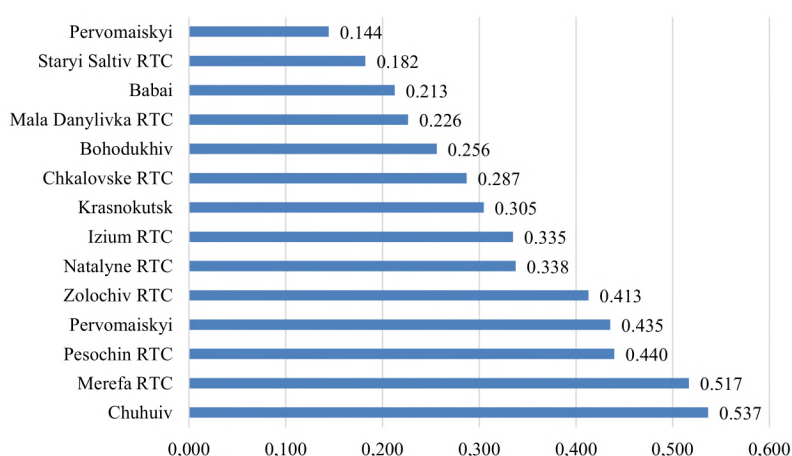


Fig. 4. Innovative orientation of the administrative units of the Kharkiv region

According to the “desirability curve”, all analyzed administrative units are in the first three levels, namely very low, low and medium.

At the middle level are Chuhuiv, Merefa RTC, Pesochin RTC, Pervomaiskyi and Zolochiv RTC. These administrative units are actively introducing energy efficient technologies and applying energy efficient management. In addition, Chuhuiv and Pervomayskyi due to their status cities have the opportunity to attract funds and investors for the implementation of energy efficient programs.

Natalyne RTC, Izium RTC, Krasnokutsk, Chkalovske RTC, GBohodukhiv, Mala Danylivka RTC and Babai entered the low level in accordance with the “desirability curve”.

To very low Rohan RTC and Saryi Saltiv RTC. This indicates that despite the development of these administrative units, their level of innovative energy efficient focus is not enough. Their level is not sufficient for the introduction of energy efficient technologies and the introduction of such technologies is not economically feasible.

In their development, communities should take into account that resources are finite, and needs are unlimited, and in the indicators from 0.2 to 0.8 there is a significant potential for the development of energy saving and energy efficiency, which should be achieved primarily through modern methods and tools defined by our European Cooperation and are widely represented in grant and other foreign and Ukrainian funding.

4. Discussion

This article is the result of a scientific study of the energy efficiency gap theory and the taxonomy of energy efficiency barriers. The indicators derived from these theories formed the basis

for calculating the integral indicator of innovative orientation. In the study, the integral indicator was calculated sectoral, without taking into account the private and industrial sectors, expands the possibilities of scientific observation. These studies made it possible, according to certain indicators, without the use of generally accepted economic indicators, to establish the innovative environment favorable to the perception of energy efficient technologies.

The study of the feasibility of introducing energy-efficient innovative measures based on the taxonomy of barriers and the theory of energy efficiency gap was not carried out by Ukrainian scientists. The energy efficiency gap theory was derived and developed in the USA [10, 11]. Subsequently, empirical studies of the gap in energy efficiency were carried out [12, 13]. Groups of barriers to energy conservation were formed and further divided into subgroups: institutional, market, organizational, and behavioral [14, 15]. In further studies, new groups of technological, scientific and educational, lifestyle barriers were identified [16, 17]. However, in matters of introducing energy efficient technologies, the taxonomy of energy efficiency barriers of S. Sorrell et al. Is the most complete and detailed work as a tool for studying the energy efficiency gap [13, 18].

5. Conclusions

Integral indicators of innovative energy-efficient orientation have been established. Administrative units have been derived according to homogeneous groups of primary indicators. The use of a wide range of primary indicators makes it possible to display the quantitative and qualitative characteristics of the level of innovation orientation of the studied subjects.

The method of integral assessment of such primary indicators in the process of synthetic analysis made it possible to determine a generalized integral indicator for each subject and compare the results obtained to compare the innovative capabilities of the studied subjects. The very level of the generalized integral indicator, its mathematical value, made it possible to determine the readiness of the studied subjects for the implementation of innovative energy efficient technologies. The Harrington scale was used. The introduction of the proposed methodology, together with the ability to independently form a system of primary indicators, is an additional tool for internal assessment of innovative energy-efficient focus in a specific period of economic growth and to determine the further direction of development of the research subject.

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REPRESENTATION OF ISLAM AND MUSLIMS IN WESTERN FILMS: AN “IMAGINARY” MUSLIM COMMUNITY

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Abstract

This article provides a textual and visual analysis of Hirs Ali and van Gogh's controversial short film *Submission* (2004) and Marc Forster's *The Kite Runner* (2007). Emphasis is placed on rhetorical and plot strategies, aimed at reinforcing unproductive Orientalist stereotypes of Islam and Muslims. The aim of this analysis is to find out how Muslims and Islam are presented in *Submission* and *The Kite Runner*, based on E. Said's (1978) work “Orientalism” and to identify Theo van Gogh's assassination, influenced public attitudes towards Muslims. The following means are used to reach the aim: to analyze the concept of Orientalism and stereotypes, connections with the media and the influence of popular culture on their expression; to find out the role of the Muslim minority in the process of constructing social reality (stereotypes); to analyze how Muslims and Islam are presented in the films *Submission* and *The Kite Runner*.

Summarizing the analysis of the film *Submission*, it should be noted, that the main character is supposedly portrayed as being oppressed by Islamic culture, who lived in complete isolation, thus reinforcing the negative attitudes and stereotypes in society towards Muslims, especially women. However, the subject of *Submission*, feminism or the oppression of women was never the main subject of discussion, on the contrary, it was Islamic radicalism, extremism and terrorism. Meanwhile, after analyzing the film *The Kite Runner*, it should be noted, that the plot reveals stereotypes about Islam and Muslims that exist in both Western and Eastern societies. Oriental characters are portrayed in the film as much lower in morality and values than, for example, Westerners. The film's episodes emphasize the fanatical consequences of both terrorism and Islamism, and the relationship between the main characters reflects the orientalist culture of Afghanistan.

Keywords: orientalism, stereotypes, “*Submission*”, “*The Kite Runner*”, representation, Islam, muslims, Islam-related films, E. Said, media, Netherlands, discourse analysis.

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1. Introduction

More than 30 years have passed since E. Said wrote the book “Orientalism”, in which the author completely deconstructed his approach to the Orient. His assumptions have provoked controversial debates that remain relevant today. First of all, due to the fact that the theory of the “clash of civilizations” is gaining more and more followers, and orientalist discourse has a strong influence on Western culture, both in the academic and artistic fields [1]. Today, the focus is more on not only Orientalism, but also on post-Orientalism, in which new cultural colonialism is gaining tremendous momentum. Moreover, Orientalism remains one of the most important concepts in post – colonial studies, which require detachment from the dominant Western approach to the Orient. Finally, an increasingly prominent new field of study, called neo-orientalism, where the dichotomy between the East and the West was prepared and transferred to the global system level. This dualism has been more or less influenced by increasing globalization. This is important in a world, where communication networks reduce the distance between continents, where a crisis in one region of the world can easily affect another. It is important to take a broader look at today's expression of Orientalism, both in politics and in the media, and in social relations between different cultures.

It is assumed, that films have become one of the most important sources for people to get to know foreign nations, cultures and religions. For this reason, the analysis helps to under-

stand the reproduction of stereotypes not only in the media, but also in popular culture (cinema). Screenings, that is based on a certain perspective, have an impact on the assessment and attempt to understand other cultures. The construction of identity in any society is inseparable from power and the desire to dominate the world [2]. The separation between West and East in international relations has always occupied an important place. The never-ending struggle between these two confrontations determines the destinies of many people [3]. In the 21st century, there is an increasing return to criticism of the Western world and its image of Muslims and Islam, so the issue remains relevant today.

Popular culture (media, TV, cinema) presents and reproduces stereotypes: “biased information inevitably becomes incorporated into “general knowledge” and the schemas that the audience forms about stereotypical groups” (p. 251) [4]. Once formed, such biased characteristics can be consistently portrayed in movies. This, in turn, can influence subsequent perceptions, decisions, or behaviors about the social group [5]. Moreover, when examining stereotypes of certain cultures, we inevitably face contradictions, arising from the intertwined interests, lack of intelligence and cognition. Thus, this article analyzes the expression of stereotypes, intertwined with the dominant images of Muslims and Islam. In this study, stereotypes will emerge as a consequence of Western imagination, undoubtedly associated with power and politics.

The Kite Runner is a 2007 drama film, directed by American director Marc Forster (based on a 2003 novel by Khaled Hosseini of the same name). In the film, the story of a small boy named Amir, who grows up in a wealthy family in Kabul, is depicted. The story takes place against the backdrop of turbulent events, ranging from the collapse of the monarchy in Afghanistan through Soviet military intervention, the mass exodus of Afghan refugees to Pakistan, to U.S. politics and the Taliban regime [6].

The main character of the film, Zekeria Ebrahimi, after the film’s screening, was constantly persecuted in Kabul for portraying the Hazara Shia community as weak and for portraying the Pashtun Sunni community as bad and cruel [7].

Meanwhile, the short film *Submission* was made in the Netherlands in 2004 and produced and directed by Theo van Gogh, and the story was written by Ayaan Hirsi Ali (former member of the Dutch People’s Party for Freedom and Democracy). The film tells the story of four fictional characters, played by one actress wearing a veil, but in her naked body one can notice the written verses of the Qur’an. The main actors are Muslim women, who have experienced violence. The film was aired on Dutch public TV channel (VPRO) (29 August 2004). On 2 November 2004 Van Gogh was killed by a second-generation Moroccan-born immigrant with Dutch citizenship. A letter, thrown on the victim’s body, was condemning the director’s film for expressing a negative attitude towards Islam (calling for jihad against unbelievers, against America, Europe, the Netherlands and Hirsi Ali himself. Tens of thousands gathered in central Amsterdam in honor of Van Gogh [8]. The murder in the Netherlands sparked media discourse on the Muslim threat and terrorism, with aggressive demonstrations against Muslims in the Netherlands, the burning of mosques, the bombing of Eindhoven’s Islamic school, and the film’s lack of opportunity to promote on the problems of Muslims [9]. The murder of Theo van Gogh shifted the focus from oppression, experienced by women, to a heinous crime.

2. The aim, goals and methods of the study

The aim of this paper – to find out how Muslims and Islam are presented in *The Kite Runner* and *Submission*, based on E. Said’s (1978) *Orientalism* and how the murder of Theo van Gogh affected public attitudes toward Muslims. **The goals** of the study are:

- 1) to analyze the concept of Orientalism and stereotypes, connections with the media and the influence of popular culture on their expression;
- 2) to find out the role of the Muslim minority in the process of constructing social reality (stereotypes);
- 3) to analyze how Muslims and Islam are presented in the films *The Kite Runner* and *Submission*. **The object** of this work is the representation of Muslims in the movies and the depiction of Theo van Gogh’s murder in the press.

Methods: This work uses the method of analysis of scientific literature, which will help to reveal the concept, the most important features and main characteristics of Orientalism and stereotypes. Discourse analysis and a comparative method are also used to show the links between Orientalist imagination and film-based stereotypes in Western societies, or in other words, the links between Muslim representation in films and the evaluation of Muslims and Islam in society after Theo van Gogh's assassination.

3. Theoretical background

The Concept of Orientalism in E. Said's Book "Orientalism"

"They can not represent themselves - they must be represented" (p. 25) [1] – famous 20th century intellectual – E. W. Said begins his work "Orientalism", one of the most important works to be considered a strong basis for post-colonial studies in the Western world. Orientalism is portrayed as a work of European illusions, an unrecognized and alien object, finally formed in the 19th century, when colonialism gained its greatest momentum. Britain established itself in the south of the Arabian Peninsula, and France began to dominate the territories of present-day Syria and Lebanon. They were the main states that have carried out both political, cultural and even social expansion. Of course, after World War II, they abandoned their positions to America, but the approach towards the Orient remained unchanged.

There are three main paradigms of Orientalism. First, Orientalism is identified as an area of academic study. Scholars use Orientalism as the prism, through which the Orient is seen, explored, and evaluated. It is a system, used to understand the very different, mysterious and "intimidating" people of the Middle East, *static and underdeveloped* society [1]. In this study, we will not apply this paradigm, so we can move on to the second.

"Orientalism as a Way of Thinking Based on the Ontological and Epistemological Distinction of the Orient and Usually the Occident" (p. 28) [1] is the second meaning of the concept of Orientalism. Thus, Orientalism can be described as an ideology, related to the idea of Western and Islamic dualism. For many centuries, myths, stories, descriptions of people, living in the Orient, their customs, traditions or simply lifestyle have been created without any evidence or research. There is a constant emphasis on a certain hierarchy – Europe's unquestionable advantage and the deplorable backwardness of the Orient. This "law" was universally accepted by Western society, which lacked research based confirmation and whose denial was rejected. All this led to the dualism of East and West. Denys Hay (1968) raised the idea of a European collective identity, defining "us" Europeans as the opposite of "others", in other words, non-Europeans. Constructing a European identity, inseparable from the dichotomy: "We" and "Others". By constructing their own identity, each society creates antagonism – an irreconcilable contradiction between 2 subjects. Orientalism is the result of long-term interests that sought not to critically evaluate, but to confirm irreconcilable opposing identities [10, 11]. Orientalist knowledge arises from trying to interpret the "Other", an alien, unfamiliar reality, but Said emphasizes that Orientalism intertwines with other political, intellectual, cultural, moral powers, and various interests that shape our view [1].

The third meaning of the concept of Orientalism is often singled out – Orientalism as a corporate institution, the main task of which is to find solutions to problems, related to the Orient. In other words, to formulate statements, describing the Orient, to identify the attitude, to describe it, and ultimately to manage it. As E. Said put it, "This does not mean that Orientalism unilaterally defines what can be said about the Orient, but it includes many intertwined interests that we always inevitably encounter when talking about a specific universe called the Orient" (p. 27) [1].

Thus, in Orientalism, an important role was given to the academic world, which formed statements, prejudices, certain stereotypes. Western academia has described a foreign and unfamiliar Eastern culture, manipulating people's belief that everything written is unquestionably true. The East was weak and backward part of the world, underestimating the Occidental intellectual superiority and true interests. The East belonged to a subordinate race, and uncivilized regions, such as the East had to be annexed by the advanced states [1]. In summary, stereotypes about the Orient, its people, and culture have been presented as unchanging and unquestionable.

Orientalism is based on the opposition of the West (imperial metropolis) and the East (colonial periphery), where special importance is given to imperialism and colonialism. Orientalism, above all, is a tool for justifying Western dominance in the Orient. It was a British and French cultural project, an initiative, driven by expansive motives and manifested as the formation of power and awareness of the Orient. Eastern states are seen as colonies that must be ruled by Europeans. The reason for that is “Orientals”; do not know self-government, so it is in their own interest to be governed so. It was an institutionalized Western instrument to dominate and govern the Orient, as Europe has historically always held a position of power and dominance over the Orient. The weak and less developed regions, such as the Orient, was considered favorable and suitable for colonization. The most important thing is not what people think, but the fact that their worldview can be constructed. E. Said’s approach is based on the fact that the meaning of a descriptive object does not exist before the description, so Orientalist discourse performs not only the function of representing the Orient, but also the function of creation [11]. In summary, it can be said, that Orientalism as an institution plays a legitimizing role and justifies the Occident’s position, dominance and attitude towards the East as a territory, in which the goals and interests, set by the great European empires, can be realized.

One of the main features of Orientalism is the defined space, in which the Orient is located. The change in Western attitudes allowed us to look at the Orient as a geographical space that could be explored, recycled, or even protected. Orientalists have the right to classify the Orient, to present their observations not only to Western society, but also to help the Orient himself to understand himself. Thus, Orientalism is equated with a territory, geographically located in the Middle East. In 19th century Europe, the Orient meant nothing more than the Arab world or the East in general. Most importantly, this concept did not cover regions of the world, such as India, China or the Far East. Central to the search for links between Orientalism and Islamophobia was the fact that Orientalism did not focus on immigrants or their communities in Europe, as at that time, this was completely irrelevant, the world was not yet covered by global phenomena [12]. Thus, Orientalism considers the Orient to be immutable in terms of both time and space, but territory, as a fundamental element of classical Orientalism, becomes less significant.

The phenomenon of fear is important in analyzing the features of classical orientalism. As Orientalism puts it: “However, Europe has more often felt fear than disrespect. After the death of Muhammad in 632, the military, cultural and religious hegemony of Islam grew tremendously” (p. 90) [1]. The preconceived notion of Christian thinkers, seeking to know Islam, was the search for analogous phenomena. Moreover, in traditional Orientalism, the state was stronger than society, and therefore despotism towards Muslims was a universally accepted norm [13]. In reality, however, in 19th-century Orientalist discourse, the phenomenon of fear is connected with the entire Orient and its culture, not with Islam as a religion. At that time, there was no critical discourse – the threat of Islam. There was another phenomenon – xenophobia (hostility to foreigners, hatred of another culture or civilization). The West despises and describes the Orient as eccentric, backward, and passive. It is despotic and lacks progress. Its progress and values are comparable to the West, so it inevitably becomes an “other” competitor. This approach was unchanging and based exclusively on one aspect – the opposite of the modern world – the West [1].

Analyzing the relationship between the Orient and the Occident, another feature is described – the incompatibility of civilizations. Alienation to Islam reinforced the image that European culture was superior, and antipathy was directed to the entire Orient. Islam is given the role of a very dangerous representative. In the West, it has become a universally accepted component of Orientalism. Because of its historical ties to both Christianity and Judaism, Islam has always raised fears that Islamic civilization will oppose the Christian West. The representations of Orientalism in relation to Islamic civilization acquired a new power that served the aforementioned colonial interests. Naming an Oriental or a Muslim was an evaluative decision – the Oriental belonged to a subordinate race. Moreover, Orientalism considers the Orient to be immutable in space and time. Similarly, Orientalism expresses ideas about Islam and the supposed, Muslim resistance to change [1]. Western culture has always looked at the Orient, especially Islam, with a distrust that has permeated the artificially constructed identity of the enemy and that has hindered seeing the true Orient.

The concept of stereotypes, key features and key characteristics

Stereotypes are “cognitive schemes, used by social actors to process information about others” (p. 239) [14]. They not only reflect beliefs about the characteristics of group members, but also provide information about social roles. In other words, how members of a particular group are linked by specific characteristics. Stereotypes create expectations about other individuals and are therefore treated as a “preconceived notion of behaviors and traits that conform to stereotypes” (p. 7) [15]. These are the beliefs that all members of a group share “the same characteristics, attitudes, and living conditions” [16]. Thus, stereotypes are simplified representations of social groups that reject any diversity or, in other words, difference between members of the same group (national minorities, women, etc.) [17].

Stereotypes can be perceived as a kind of social reality belief system about specific social groups. The author [18] mentions the power of myth, where myth becomes part of the communication system. In other words, myths embrace social/cultural differences and make these differences natural and universally understood. It can be argued, that racial stereotypes are a manifestation of racial myths that exist only because individuals interact with each other. Based on empirical evidence, the media portrays specific social groups in stereotypical ways that can affect our thinking, feelings, and behavior [19]. For example, one group is consistently portrayed negatively: Arabs and the Middle East [20]. Stereotypes in the media or in popular culture (such as cinema) are presented to justify, shape, reinforce, or perpetuate hostility and are therefore conducive to racism [5]. According to the researcher [21], the information we receive from the media leads to the creation of stereotypes that help simplify our environment. Therefore, the media can act as a socio-cultural agent or a source of stereotypical information about certain groups.

The association process is defined as “self-activation of mental associations in memory” (p. 221), so stereotypes are defined as the consequence of automatic associations between a group (e. g., a minority group) and characteristics, attributed to it (e. g., crime) [22]. In the West, for example, Islam has become a symbol of problems with ethnic minorities and immigration. Public debate focuses on how to force Islamic groups to assimilate and restrict the rights of Muslim minorities [23, 24], argues that stereotypes depend on how groups interact with each other, how members of different social groups interact in the real world. Imaginations, held by people, are formed from images and information, found in the media. Popular culture is often seen as a mediator that conveys an accurate picture of the world [19]. For example, racial stereotypes in the media or cinema can influence our interpretations to support a dominant racist myth. Automatically repeated stereotypes may perpetuate lies and dominant perceptions of a particular race, and certain linguistic signs may reinforce such interpretations and perceptions [25].

[26] note that people’s attitudes are formed according to the way the media (especially press and television) are presented. The media draws attention to a specific problem, creates public perceptions of public figures, constantly presents objects and phenomena by presenting what individuals should think about, know about, and have some understanding of. However, not many studies have been conducted that could synthesize all of these elements into a research hypothesis and test it, based on empirical data.

The role of the Muslim minority in the process of constructing social reality (stereotypes)

[27] described a minority as a group of people who, because of their physical and cultural characteristics, are distinguished from others in the society, in which they live, and who therefore consider themselves to be subject to collective discrimination. This removes minorities from full participation in social life. The existence of a minority in society means the existence of a dominant group with a higher social status and greater privileges.

According to the theory of social identity, the identity of an individual is linked to the main characteristics of the social groups, to which he/she him/herself belongs. Thus, in order to maintain self-awareness, people are encouraged to create a distinction between “we” and “they” (“in-group-outgroup”), which is particularly useful for the “ingroup”. In most cases, the characteristics, associated with the negative characteristics of the outgroup, are very conducive to discrimination

and social exclusion. Internal group identification can be strong enough to change individual orientations [28]. When stereotypes are created, individuals are perceived by general group characteristics more than by their personal characteristics [29]. Categorical membership, defined by clearly noticeable differences between groups, is most noticeable in terms of racial/ethnic differences.

Thus, the most common form of social categorization is between “us” and “them”. People usually see members of the inner group, that is, “us” more positively than members of the outer group, which is “them”, and also add more value to the inner group, compared to the outer. This occurs when group membership is based on long-term cultural or social relationships [30]. Thus, when a conflict exists between groups, the perception of an external group member becomes negative. Intergroup relationships are often characterized by negative emotions, directed to the outside group ([31, 32]). The minority status of a group is a cause of prejudice and discrimination, as the stereotype of a minority is an image, in which the characteristics are unfavorable to the whole group. In other words, it is a learned behavior and an institutionalized model [33]. Prejudice by a dominant group against a minority group leads to discrimination. This can be seen as a majority group that does not allow minority members to have the same opportunities or rights as the majority group.

The opportunities of the Muslim minority in constructing social reality (and thus changing the negative stereotypes formed) are limited. This is connected with their position in society [34] defined social exclusion as “a condition, in which individuals or communities are geographically part of that society, but feel unable to participate in the normal activities of citizens because, according to their understanding,

- a) conditions and institutions exist to actively limit or deny such participation;
- b) public and/or government institutions portray them as “outsiders” [35].

Individuals or communities may feel that society and institutional structures prevent them from participating in public life as citizens. It can be argued, that in such a case, the possibilities of constructing social reality are limited. In other words, social exclusion can be perceived as the limited opportunities of a certain section of society to participate in the political, social, cultural or economic life of the state [35]. The minority community cannot convey its position, eliminate the stereotypes that exist in society through the media. A minority does not have sufficient political, cultural, or economic capacity to exert any influence [36].

The common experiences that unite nations are often conveyed through specific social interactions and the media. Minorities receive information about how people treat them. From the media (press, television, films), they receive signals of inclusion/exclusion, aimed at minority groups or other individuals, which in turn leads to their perception of the social inclusion or exclusion of the group [37].

According to [38], prejudices are usually determined by stereotypes - entrenched and inflexible descriptions of people. It is ingrained in cultural attitudes and is difficult to break down even when it strongly distorts reality. Many minorities are distinguished from the rest of society by ethnic characteristics (this is especially true for individuals of Asian descent). The author identifies a form of “new racism”, in which hierarchies of superiority are created in accordance with the cultural values of the majority. Groups that have left the majority may be marginalized or portrayed negatively, when they refuse to assimilate. This is also closely related to ethnocentrism (the habit of judging another culture in relation to one’s own culture). Strangers are considered barbarians, morally unworthy. The closedness of groups is created by applying methods of social exclusion, which reinforce the differences between one or another ethnic group. In accordance with this, members of minority groups have a strong sense of solidarity that results from shared exclusion [38].

The stereotypical portrayal of Arabs and Muslims has received more attention since the events of 9/11, but this has been going on for many years. It has some basis in the Orientalist discourse. Said explained this concept in his book *Orientalism*. It is a volatile imagination and a boldly polarized geography that divides the world into two unequal parts, the larger – the “other” called the Orient and the other, also known as the “our” world and called the Occident or the West [39]. Popular concepts are associated with Arabs and Muslims: insane dictators, ruthless, violent, insidious, barbaric, hateful of Jews and Americans, and with secret intentions to destroy America [40]. Moreover, the

terrorist stereotype, while significant before the events of 9/11, was only universally acknowledged after the 9/11 attacks: “(1) all the terrorists of 9/11 were Arabs and Muslims; (2) because most Arabs are Muslims; and (3) because terrorists emphasize the religious motivation for their actions; (4) all Arabs and Muslims can be terrorists” (p. 24) [41]. In summary, therefore, existing stereotypes of Muslims are deeply rooted in people’s imaginations.

4. Materials and Methods

The Representation of Muslims and Islam in Western Movies

This study seeks to elucidate how Muslims and Islam are presented in the films *Submission* and *The Kite Runner* based on E. Said’s (1978) “Orientalism”. The main research methods are discourse analysis and comparative analysis. The main research question is descriptive in nature. For this reason, the analysis is based on a clear research tool to provide adequate conclusions.

The study sources were selected based on the following criteria:

1. The storyline relates to the Middle East.
2. Popularity of films: ratings in the Internet Movie Database (IMDb) and/or number of views.
3. Availability of films on the online platform.
5. Film genre (looking for films that belong to different genres).
6. Statistics on Muslim minorities in Western countries, their position, relations with the number of majority of the society.

Thus, the following films were selected as the main sources of research under the conditions listed above:

The Kite Runner is a 2007 drama film, directed by American-born director Marc Forster (based on a 2003 novel of the same name by Khaled Hosseini). The story of a small boy named Amir, who grew up in a wealthy family in Kabul, is depicted in the film. The story takes place on the background of turbulent events, ranging from the collapse of the monarchy in Afghanistan through Soviet military intervention, the mass exodus of Afghan refugees to Pakistan, to the U.S. policies towards the region and the Taliban regime [6].

Meanwhile, the short film *Submission* was created in the Netherlands in 2004, produced and directed by Theo van Gogh, and the screenplay was written by Ayaan Hirsi Ali (former member of the Dutch People’s Party for Freedom and Democracy). The film tells the story of four fictional characters, played by one actress wearing a veil with verses of the Qur’an can be seen on her naked body. The main actors are Muslim women, who have experienced violence. On 2 November 2004 Van Gogh was killed. A letter, thrown on the victim’s body, was condemning the director’s film for expressing a negative attitude towards Islam [8]. The murder in the Netherlands has sparked media reaction over the Muslim threat and terrorism. The assassination of Theo van Gogh eliminated any opportunity to foster a meaningful dialogue, and the focus was shifted from the oppression, experienced by women, to a heinous crime.

The analysis of scientific literature helps to reveal a broader context, to provide generalizations, so the number of films is limited to two in order to compare two different films that belong to different genres.

This article analyzes the expression of stereotypes in films, based on the main features of Orientalism, described in E. Said’s work “Orientalism”:

1. Justifies the hegemony of the West (dominance and attitude towards the East as a controlled territory).
2. The phenomenon of fear (threat of Muslims and Islam, predisposition to violence, characterized by despotism).
3. Incompatibility of civilizations (enemy identity, value attitude towards the West).
4. Dichotomy between members of the “ingroup” and the “outgroup” [1].

The concept of Orientalism and stereotypes and their manifestations in films are analyzed using **discourse analysis** as the most important method of data collection and analysis. One of the reasons why the discourse analysis was chosen that the discourse analysis is a tool which helps to

analyse the language, used in the text, and to reveal a certain value orientation by representing or stereotypically depicting specific groups (religious, national minorities). The statements of certain groups (politicians, activists, representatives of dominant or oppressed groups) can penetrate the discourse and become an acceptable part of the structure [42]. The basic premise is that any film, as well as culture, is made up of certain constructions, elements, arranged in a specific form. In other words, cinematographic analysis can be based on the common experience that the worldview in films is constructed as close as possible to reality or the real world.

While discussing the results of the analysis, there is presented the plot lines of the films, the corresponding scenes and dialogues. This is related to the discourse analysis, as not only visual information is analyzed, but also verbal information plays an important role in the arguments, related to the representation/discourse of Islam and Muslims on these scenes. This is based on the concept of Orientalism, described in the theoretical part, the concept of stereotype and the ability of the Muslim minority to represent “themselves”.

As described in the book [43], discourse models are theories (including images, structures, and storylines) that are often overlooked by viewers or readers (in other words, subconscious structures), because they relate to individual, personal experiences, that is why such structures are used to understand the world. In this context, discourse is associated with a pattern of the arrangement of certain words, symbols, images, thoughts, time, or even place. For this reason, data collection for discourse analysis takes into account the language (dialogues), used in the films, as well as the images displayed, the time indicated, the context, or the space chosen. It is also important to answer the question of how language used in certain situations can lead to perceptions of certain scenes.

The validity of the arguments can be judged to be appropriate, but questioned because our samples are not randomly selected [44]. However, the scenes and dialogues are selected on the basis of non-personal observations, but the theoretical part analyzes the scientific literature, related to stereotypes, Orientalism, Islam and Muslim representation. However, in order to replicate the study and analyze the different scenes, it is likely that the results of the study may differ. The study does not call into question ethics, as films do not change (in other words, our observation and analysis do not change the structure of the film, or in sociological terms, “behavior”, such as how it could be in the context of groups).

Research questions: This research aims to answer the following questions:

1. How Muslims and Islam are portrayed in the films *Submission* and *The Kite Runner*.
2. What stereotypes are attributed to Islam and Muslims and how perceptions of this religious group are created in films based on Said’s work “Orientalism”.
3. What context (historical, social, cultural, etc.) leads to the under-representation of Islam and Muslims in films.
4. How this representation relates to the film industry in presenting Islam and Muslims in a Western cultural environment.

Research ethics

Maintaining impartiality in data collection and analysis is difficult in qualitative research. When it comes to Islamic and Muslim stereotypes, we already have some images, related to behavior or appearance. So it would be unethical to say that our pre-defined ideas do not reflect how we interpret the results of the study. However, ethical principles are based on four main areas. As for the first principle of “harm of participants”, this is not a problem for this study, as participants are not real characters (i.e. real people). Based on the argument that “participants” are not real people, but are analyzed only in the context of stereotypes and representation, other issues, related to “lack of consent”, “invasion of privacy” and “deception”, are examined, leave no area for doubt [45].

To ensure the objectivity of the study, the author declares that there is no conflict of interest. No personal or financial relationships with other people or organizations and no personal beliefs, which could be significant for objectivity or motivation to interpret the data accordingly. The analysis of the data collected and the presentation of the information are in no way related to the author’s ethical or other beliefs or belonging to a particular ethnic, social, religious or any other group.

5. Results

Analysis of Marc Forster's film *The Kite Runner* in the context of stereotyping

The Kite Runner is one of Marc Forster's famous films, based on Khaled Hosseini's best-seller. Amir lived in the suburbs of Kabul and had a friend, Hassan, who belonged to the lower (hazara) class. The children grew up together, flying kites together, but Amir betrayed his friend and lately it was given a chance to correct his mistakes.

As a child, Amir fled to the United States with his father, so he is not really a foreigner and is treated as "other", hostile or foreign to Western culture. Meanwhile, the other main character, Assef, is portrayed as "inhumane", "barbaric" and "foreign". This creates a contrast, as his role embodies the opposite of liberal Western ideology. Therefore, it can be said, that Western viewers find themselves in the framework of orientalist stereotypes. In other words, the Orient (East) continues to be portrayed as barbaric, outmoded, uncivilized, and substandard by Western standards. Orient characters (Assef, his friends) are always portrayed as far lower in morals and values than, for example, Westerners. The main features of the Assef highlight the contrast to make it much easier to emphasize Amir's Western identity. Thus, it can be argued, that the Orient and his people are portrayed in stereotypical ways, emphasizing hostility to the West and their ideological attitudes (usually characterized by inferior moral attitudes).

Meanwhile, the relationship between Amir and his best friend Hassan also reflects the orientalist culture of Afghanistan. Amir belongs to the Pashtun religious group and Hassan to the Hazara group. Historically, relations between these two religious groups have been highly conflicting, with Pashtuns always exploiting representatives of the Hazara (plundering their lands, houses, women) [46]. So Amir actually belongs to a privileged class that occupies a dominant position and is in a higher position in the hierarchy.

Amir's ethnicity is constantly emphasized in their relationship. One of the scenes in the film depicts Hassan, defending his friend Amir (3 older Pashtun boys are going to beat Amir). Assef asks, "how can Amir call Hassan his friend, because he is a hazara, and Afghanistan is a Pashtun land. This "flatness nose" is a hazard. We are the true Afghans, the pure afgans. Their people soil our blood" (author's note – dialogue from the film). Nevertheless, Hassan saves Amir. In summary, ethnicity plays an important role in characterizing Hassan and Amir and in shaping stereotypical attitudes towards the lower class as inferior members of society. This once again shows the difference between "We" and "They" and forces us to return to E. Said and his concept of Orientalism. The social exclusion between Amir and Hassan creates a bipolar relationship between East and West, where the Orient is treated as having no equal status and can therefore be exploited.

Another stereotype emerges in the film: Muslims and Islam are portrayed as inherently prone to violence. For example, the 1998 Hazara massacre is treated as an act, committed in the name of God. Thus, the stereotype is so entrenched to Western audiences that the Muslim religion is violent. In addition, the film depicts another gruesome scene, in which Hassan after a kite-shooting competition is raped by Assef and his gang. Although Amir had the opportunity to stop and save his friend, his desire to win the contest was stronger (by winning this contest he would win his father's love as well). The question is whether this was really the right "price". Hassan is depicted as an object that can be exploited for the benefit of the West, as the Orient belongs by nature to a subordinate race. Hassan's characterization embodies an ethnic minority that can be oppressed and treated as unequal.

The film also reveals stereotypes, deeply rooted in society about career choices. On one scene, there was a celebration of Amir's graduation. His father pronounces a phrase that undoubtedly reveals his expectations: "one day you will be a good doctor" (author's note – dialogue from the film). Amir replies that he does not want to become a doctor, he wants to write. Amir's propensity for creativity and writing, noticed by his father as a child, was very worrying. Amir was different from the other children, he could not defend himself, to fight for himself against those, who insulted him. Even then, Amir's father said, "A child who is unable to defend himself will not become a real man when he grows up" (author's note – dialogue from the film). A similar situation is when Amir meets a general (his father's friend) and he asks what Amir is doing after hearing the answer that he is writing, asked if it is a historical book. When he learns that these are novels, he

contemptuously retaliates that Amir writes “fiction” (nothing serious). It is clearly shown, that certain professions are considered prestigious and universally accepted in society (due to factors such as pay, public recognition or respect). The work or profession of a writer is considered unprofitable, it is hard to imagine that in this way a man could earn enough to support a family. It can be said, that this is another stereotype in the film *The Kite Runner*, when the writer’s profession may be considered honorable, but by no means profitable, as a rare author can expect to live off his work.

It is quite important to mention another episode, when the father is examined by a doctor, when he is ill, but when it turns out that doctor is a man of Russian origin, his services are immediately refused and asked to be replaced. Thus, ethnicity plays an important role and although in public places (especially in the US) this should be seen as unacceptable to the existing social order. But behind it all are historical and “personal grievances”, as Amir’s father is from Afghanistan, where the Soviet Union’s military intervention in 1979 lasted until 1989. His hatred and rude treatment of a doctor of Russian origin is understandable, but nonetheless, it shows deeply ingrained stereotypes and stereotypical thinking in society, because the doctor’s ethnicity or origin is not chosen. The actions of the Soviet Union have nothing to do directly with his personality, choices, behavior, or moral dispositions. Moreover, if he was a physician of American descent, he would have to be treated in exactly the same way, since the Soviet Union was also involved in the military intervention in Afghanistan, as well as the United States. This only confirms that ethnic divisions and stereotypes still exist in society, with some nationalities, being seen as “privileged” and more entitled to respect than others.

Finally, another stereotype prevalent in the West should be discussed: Muslims are treated as terrorists, Islamists or fundamentalists. The second part of the film is filled with images, related to the “horrors” of war, endless massacres and brutal actions of officers. This shapes and strengthens the perception of Western audiences that Islam and Muslims are inherently prone to violence. That this is the daily life of their society – thousands of deaths, endless struggle and aggression. Islam and Muslims are portrayed as a threat to the last 1400 years of attempts to conquer the West, so it is clear that Europe has always felt fear of a “barbaric” and “uncivilized” Orient, rather than respect. The episodes of the film constantly emphasize the aspect of fanaticism, associated with both terrorism and Islam, as those fighting the Soviet Union are portrayed within the framework of absolute fanaticism.

In general, the film is accompanied by a stereotypical presentation of Afghan life (caravans, camels, burqas, etc.). It presents an orientalist culture in Afghanistan, in which religion occupies the most important place in society, thus creating a misconception that the ongoing war and the violence experienced are inevitably related to Islamic religion. In one scene, Amir seems to be forced to pray to a Muslim god, but he makes a fatal mistake – he hesitates, what a true Muslim would never do. There is a certain discrepancy with the stereotype of a “real” Muslim (but this can be explained by the fact that Amir’s cultural identity is not just “Muslim”). Amir’s actions in the East would be treated as sin, but in the West it would be “justified”. The examples, mentioned in the analysis, show that cultural differences play an important role in terms of the expression of stereotypes and their impact on society.

Muslim representation in the film *Submission*

In 2004, the film *Submission* criticized the situation of a woman (Muslim) in Islam, after which the film’s director, Theo van Gogh, was assassinated. The event drew the world’s attention to Islamic extremism, fundamentalism, terrorism, but the film “avoided” critical analysis. For this reason, this paper will explain the representation of “Others” (Muslims with a focus on women) in the context of Orientalistic stereotypes [47] argue that “third world” women often find themselves in an ambiguous situation. Firstly, it is a struggle against gender inequality in their own societies and secondly, against the publicity of universally applicable feminist ideas. The film *Submission*, which depicts a Muslim woman and the tragic events that followed in 2004 in the Netherlands, shows the difficult situation for equality on both sides.

Meanwhile [48] treats this film as an emerging expression of feminism. The screenplay for *Submission* was created by Dutch politician Ayaan Hirsi Ali (a former Muslim from Somali)

and independent filmmaker Theo van Gogh. The film criticizes the position of women in Muslim societies. The main character tells the stories of 4 women, during which a depicted text from the Qur'an is engraved on a woman's injured body. The action takes place on an imaginary land – Islamistan. Appearing on Dutch television in August 2004, it may have gone unnoticed like many other short films, but 3 months later Mohammed Bouyeri kills the film's director and draws worldwide attention [49].

The murder in the Netherlands has sparked media debate over the Muslim threat and terrorism. However, the oppression of Muslim women has almost never been the subject of debate. According to a Wall Street Journal reporter [50], this was a brutal “awakening” that opened the Dutch eye to the threat of terrorism. So women's problems and feminist implications were simply forgotten. There were aggressive demonstrations against Muslims in the Netherlands (mosques burned, Eindhoven Islamic school bombed). In the words of the then Prime Minister Jan Peter Balkenende: “The Netherlands did not fight, it only fought against radicalism” (p. 7) [51]. Thus, in the film *Submission*, feminism or oppression of women did not become the main topic of discussion, but it was Islamic radicalism, extremism and terrorism [48]. Thus, it can be said, that in this case the representation of “Others” (Muslims) is related to the dominant attitude towards this religious minority in a particular society, in other words, the orientalist discourse in the West.

Today, Theo van Gogh – dead, Bouyeri – in a Dutch prison for life, Ali – exiled, and Muslim women face a greater struggle as the director's assassination has further hampered their efforts to integrate into Western society. Van Gogh is considered a victim, Ali is a hero, and the film *Submission* itself is an “image of oppression” of Muslim women. However, in order to understand the film and its aftermath in the Netherlands, the socio-political environment in the Netherlands in 2004, social positions, cultural background, the ideological positions of the three individuals, the role of the media in depicting Islam and Muslims are becoming important. Each of these aspects relates to an asymmetric power relationship, in other words, the relationship of the Muslim minority in the dominant culture in the Netherlands [48].

On the one hand, the film seems to hide a feminist undertone that seeks to draw attention to the oppression of Muslim women. Bouyeri's letter (pinned to van Gogh's chest) shows that the film is interpreted as a public language of hatred, directed against Muslims and Islam in general. It is important to mention Said's “Orientalism” here, as Muslims are portrayed as uncivilized, barbaric and unsuitable for Dutch society. In this way, their oppression and isolation in Dutch society seems to be justified. It is worth noting, that after the year 2000, the integration of the Muslim minority became a major problem. The high level of unemployment among immigrants and cultural conflicts should have led the government to step up its efforts to integrate minorities into Dutch society, but many countries mistakenly believed in the success of Dutch multicultural integration. Indeed, the gap between minorities and indigenous Dutch grew very rapidly [48]. All this can also be seen in the film *Submission*, where the representation of Muslims and Islam is associated with negative attitudes towards immigrant Muslims in society itself.

The stories, narrated by Ali, relate to colonial thinking, paraphrasing the insights, provided by E. Said (1978) in “Orientalism”, that the Orient has always been considered an appropriate object of colonization and that the Orient has always belonged to a subordinate race [1]. Ali is allegedly portrayed as oppressed by Islamic culture. In the script, the woman lives in an uncertain era, in the imaginary land of Islamistan – a land of oppression for women, living in complete isolation, in dark rooms – harems. Imprisoned, powerless and oppressed by their religions. Thus, the film depicts a harem scene – the arrangement of women in harems as a reflection of oriental fantasies. *Submission* has led to the image of Muslim women as experiencing oppression, violence and cruelty. The blurred boundaries between the main characters and the stories they tell contributed to the monolithic representation of the Muslim woman in the film. A Muslim woman is the same everywhere, in other words, their differences are completely irrelevant. The very fact that the film depicts 4 stories and each woman, who had her own name only, became clear when Ali made the script public in 2006, 2 years after Van Gogh's death [48].

Similarly [52] states: “The issue of women arose only as a side part of the Western narrative of Islam. In this way, Europeans continue to pursue colonialism in Muslim states”(p. 150). Ac-

cording to the author, the image of a Muslim woman-victim is presented as a “moral justification” for the Western “civilizing mission” in Muslim cultures (p. 152) [52]. The film *Submission* is very close to the links between this image of the Muslim woman as a victim and the colonial footprint. So when it is said that attempts are being made to save Muslim women from oppression in their own cultures, the film “subjugates” them into a new form of subordination, where another culture (Western culture) should dominate. The main characters in the film reflect the characteristics of children. This reinforces the impression that, like children, these women need the protection of their parents, men, and ultimately Allah, and deep beneath their anger lies the frustration of not being protected.

The assassination of Theo van Gogh has sparked debate over the failed integration of Muslims. The Prime Minister Balkenende described this as an attack on the foundations of the constitutional state and democracy. Liberal Party (VVD) leader Jozias van Aartsen said, “Jihad has come to the Netherlands”, and Deputy Prime Minister Gerrit Zalm has declared “a war against Muslim extremism” [53]. In response to the assassination of van Gogh, the government has taken certain security measures to combat Muslim radicalism (such as the development of a Dutch intelligence and security institution, the strengthening of security and surveillance agencies) [54]. Thus, it can be concluded, that Islam and Muslims are associated with terrorism, Islamism, and with it a threat to liberal Western values. Islam is seen as a source of violence and nuclear weapons. Politicians’ speeches illustrate that Orientalist discourse is still followed in the West, representing Islam, Muslims, and the Orient as a whole.

One of the government’s proposals was that Islam (its practices) should be banned in the public sphere. Starting from the fact that a clear distinction should be made between what is public and private in society. Many opinion leaders have suggested restricting religious activities in general, including Islam. Under this proposal, the wearing of headgear in public institutions and covering the face on the street was to be banned, and it was recommended that no new Islamic school should be established [54]. In summary, therefore, it can be concluded, that Islam is perceived as a threat to the Dutch (Western) society, a source of unwanted immigrants, whose values are incompatible with the principles of liberal Western democracy.

“Jihad” in the Netherlands after Theo van Gogh’s murder?

“Jihad came to the Netherlands”, were the headlines of many press releases. The letter on Van Gogh’s body received a radical reaction to the rhetoric of violence and Islamic fundamentalism. Born in the Netherlands, Bouyeri was considered a “integrated” member of society in all respects: he spoke Dutch at home and took part in local projects, aimed at integrating newcomers. On the one hand, this was seen as an attack on the right to freedom of expression, on the other hand, Van Gogh was killed by a second-generation immigrant with Dutch citizenship, whose integration into society was beyond doubt [55]. All this has encouraged and reinforced the stereotypical view of Islam and Muslims in the West as a community, characterized by violence and hatred.

In general, the long-standing stereotypes of minorities in the Dutch society (first-generation immigrants do not speak Dutch, tend to live in poorer neighborhoods in large cities, etc.) only intensified after the release of the *Submission* and the assassination of Theo van Gogh. After 2004, second-generation Moroccans acquired a negative image of aggression and street crime. The Netherlands has long been associated with progressive values and practices (high standards in education, skilled workforce). Unfortunately, in fact, the Netherlands faced a lack of tolerance, where religious and social practices (mostly associated with domestic violence, female circumcision, anti-Semitism, the Holocaust, etc.) are encountered. Muslims often become “losers” in this intercultural encounter, for example, they experience discrimination at work. In other words, they become “targets” of negative Orientalist stereotypes. Ironically, however, in this tolerant and progressive society, manifestations of alienation prevail among Moroccans and other young people of Muslim descent [55].

The main reason for van Gogh’s assassination was not Islam, but rather the attitudes, expressed in the film. For a long time, when the discussion was about Dutch culture, the focus shifted to liberal values. The results of Jonathan Israel’s analysis of the events surrounding the murder of

van Gogh revealed that the Dutch had forgotten their own history, in which tolerance occupied a large place, but highlighted problems with the education system [9]. However, the real reason is more related to Islam and the situation of Muslims, as well as the problems arising from their integration.

Most of the population were not direct witnesses to van Gogh's murder, so was informed by the media reports. Research, related to the dissemination of news, shows that the dissemination of information depends on the coverage of the event in the media and the persons, entitled to speak in press releases. The more important the event, the less significant the individual characteristics are for understanding the situation. It has long been recognized, that a real-world event can be different from its representation in the media, and especially in the aftermath of a disaster, the media tends to act "through media advertising" as the scale of the event intensifies and expands. It refers to an incident, in which the victim died, and the perpetrator's identity as an Arab/Muslim and responsibility for the incident is clearly assigned, indicating that van Gogh's murder has received significant media attention [56]. Van Gogh's murder sparked interest in news, related to Islam and other similar topics (terrorism and immigration issues).

The reaction was not limited to the Netherlands, but the debate on Muslim integration spread throughout Europe: Danish Prime Minister Anders Fogh Rasmussen described the assassination as an attack on Western society; The British newspaper *The Independent* wrote that deteriorating relations between immigrants and locals in the Netherlands could lead to bigger problems across Europe; In the *Frankfurter* newspaper, the *Allgemeine Zeitung* wrote that "militant Islam is dangerous on this continent" while the *Economist* warned that the murder of van Gogh could replace tolerance to intolerance [57].

The film *Submission* allegedly tried to reveal women's lives "beyond the border", but in fact, obscured the perception of their real experiences through orientalist "fantasies". Muslims saw *Submission* not as an invitation from Muslim women to oppose patriarchy, but as an invitation to the entire Western world and Dutch society to crack down on Muslims and tighten their policies towards immigrants. The film had little opportunity to foster a meaningful dialogue on the issues of Muslim women. Murder eliminated that possibility, so the focus was shifted from the oppression, experienced by women, to a heinous crime. Bouyeri's letter (left on the victim's body) suggests that the film is interpreted as a public language of hatred, directed against Muslims and Islam in general [9].

Bouyeri saw the film *Submission* not as an invitation from Muslim women to oppose patriarchy, but as an invitation to the entire Western world and Dutch society to crack down on all Muslims, tighten their policies, isolate and oppress. Bouyeri draws a resemblance between the film *Submission* and Orientalist-colonial discourse. In a letter, Bouyeri says the West was little different from Ali and Van Gogh's "Islamistan". Both monolithic and oppressive, both associated with a colonial footprint. Just as colonial fantasies permeate Ali and Van Gogh's imagination of "Islamistan", so memories of colonialism remain in the Western image that Bouyeri has. In a sense, Bouyeri observed criticism of Islam as part of an ongoing global conspiracy against Muslims [58].

Thus, summarizing the analysis of the film, it can be stated, that two monolithic views "Islamistan" and "West" clashed in the film *Submission*. Murder completely changed the course of subsequent discourse. The film had little opportunity to foster meaningful dialogue, so the focus was shifted to a heinous crime.

6. Conclusion

The analysis of Islam and Muslim representation in movies is still neglected in the communication and other social sciences. Not many studies were investigated across the field of stereotypes, which would be related to the practical use of theoretical knowledge in the context of cinematography, therefore the foundation of this research was to analyze the content of Islam related movies. Cinematography is the most complex and multifaceted form of interaction and involvement, consequently the analysis of movies allows us to gain insights into the hidden stereotypical undercurrents that exist in our society. The analysis of *Kite runner* and *Submission* enables to understand how movies affect society, form its intertwined attitudes or public opinion towards Islam and Muslims,

as well as deepens understanding about expressed or encoded topics, meanings, themes, images, representations that would otherwise be unnoticed. It might determine our own identities and behaviour in real life.

Thus, after analyzing the concept of Orientalism, it can be stated, that representations, which help to form statements, prejudices, stereotypes, play an important role in the phenomenon of Orientalism, but in the modern world, academic representations are replaced by the media and the film industry which, by attributing terrorism to “anti-Western” Islamist movements, forms a negative image of Islam and Muslims. This was also the case in 2004 with the release of the film *Submission*. Stereotypes are cognitive schemes, used by social actors to process information about others. They not only reflect beliefs about the characteristics of group members, but also provide information about social roles. These are beliefs that all members of a group share the same characteristics, in other words, simplified representations of social groups that rule out any difference between members of the same group.

Summarizing the analysis of Marc Forster’s film *The Kite Runner*, it should be noted, that the plot reveals stereotypes about Islam and Muslims that exist in both Western and Eastern societies. Oriental characters are portrayed in the film as much lower in morality and values than, for example, Westerners. The film’s episodes emphasize the fanatical aspect of both terrorism and Islamism (some characters are portrayed as inherently prone to violence). The relationship between Amir and his best friend Hassan reflects the orientalist culture of Afghanistan (Amir belongs to the Pashtun religious group and Hassan – hazara group). In a way that justifies their oppression, separation or isolation in the West.

In summarizing the analysis of the film *Submission*, it should be noted, that the stories, told by Ali, are related to colonial thinking. To paraphrase E. Said’s (1978) insights into “Orientalism”, the Orient has always been considered a suitable object of colonization, and the Orient has always belonged to a subordinate race. Ali is allegedly portrayed as oppressed by Islamic culture, where she lives in complete isolation, thus reinforcing the negative attitudes and stereotypes that exist in society towards Muslims and Islam. However, the film had little opportunity to foster a meaningful dialogue on the issues of Muslim women.

The Dutch public debate on Islam and Muslims, following the assassination of van Gogh, was fueled by the assimilationist discourse, such as Hirsu Ali, Wilders, Cliteur and many others, who focused on Islam as the main source of terrorism today, thus contributing to the polarization of Dutch society, creating a clear distinction between “We” and “They”, between “autochthons” and “allochthons”, between “Dutch” and “Muslims”. The subject of *Submission*, feminism or oppression of women has never been the main focus of discussion, on the contrary, it has been Islamic radicalism, extremism, terrorism or “failed” integration.

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A PATTERN OF RESEARCH IN CORONAVIRUSES IN SAUDI ARABIA FROM 2014–2018

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Abstract

The aim: to observe the contribution of authors and the collaboration of institutes functioning in Saudi Arabia through the bibliometric review of literature in Coronaviruses.

Design/Methods/Approach: Authors as solo or corroborators in research are the main sources to retrieve the material of their original articles, case reports and review articles published from 2014–2018 in PubMed indexed journals for estimation and tabulation.

Results: Total 895; 3.5 % institutes (522; 58.3 % functioning locally and 373; 41.6 % internationally) in Saudi Arabia with the support of 1878; 7.4 % authors produced 253 articles from 2014 to 2018. Position of the author always matters in research, 207; 81.8 % authors had the first position followed by 28; 11 % as a second. Majority 72; 28.4 % articles published by single institute followed 46; 18.1 % and 49; 19.3 % by two and three institutes. Johns Hopkins Aramco Healthcare, Dhahran, Kingdom of Saudi Arabia publish 57; 6.3 % stand on lead followed by the Ministry of Health (All Regions) Kingdom of Saudi Arabia and King Saud bin Abdulaziz University for Health Sciences, Jeddah & Riyadh, Saudi Arabia. Pathology and Laboratory Medicine, Community & General Medicine and Hospital Administration & Health Informatics were major disciplines of publications. Three journals, Journal of Infectious and Public Health, International Journal of Infectious Diseases and American Journal of Infection Control grab 147; 58.1 % share of publishing research.

Conclusion: This study illustrates the determinations of the Saudi public and private healthcare sectors to handle the epidemic situation and uphold the esteem of people residing in catchment areas by means of technical, logistical and financial aid to managers and decision-makers.

Keywords: bibliometric, Middle East respiratory syndrome, coronaviruses, communicable diseases, Saudi Arabia.

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1. Introduction

Global healthcare facilities always been threatening by numerous viral infections. Coronavirus or Middle East respiratory syndrome coronavirus (MERS-CoV) being counted as a danger to public health [1]. The mode of communications and transmission of this significant threat to humans poorly characterized. The intensive care unit is the best canopy for laboratory-tested infected patients for clinical treatment. In September 2012, the Saudi Ministry of Health sends alert to healthcare workers in emergency departments (EDs) for the chances of the existence of MERS-CoV infections, and this alert attracted the attention of healthcare providers [2]. A data for study of MERS-CoV was obtained from World Health Organization (WHO) to identify the prevalence and occurrence measures taken by various countries and their allied ministries to minimize the rate of morbidity and mortality in country [3]. There were 2048 laboratory-confirmed cases of MERS-CoV infection were reported from June 2012 to Dec 2017 from all over the world. A seasonal outbreak of variations in cases was found in June as highest, while the lowest was found in January from 2012 to 2017 [4].

Scientists, researchers, and academics can assess various risk factors to forecast trends and seasonal variations of MERS-CoV on the bases of monthly global reported cases of MERS-CoV by the World Health Organization [5]. A study discovered the risk factors of MERS-CoV such as: camel contact, male, old age and living in Saudi Arabia and Middle East regions were a potential target of this danger. In an-other analysis researchers claimed winter and summer months were considered as two seasonal outbreaks of MERS-CoV, hygrometry

and ambient temperature were noticeable transmissions associated with the human-camel interactions in these seasons as healthcare-associated infections. Meanwhile, the World Health Organization informed that laboratory-confirmed cases arisen in 27 countries. Human-to-human transmission of MERS-CoV not deemed to fit in healthcare settings, and far from the epidemic potential [6–8].

Bibliometric study helps a researcher to find-out objective information for facilitating in policy decisions and better use of resources and services to measure the scientific output of subject specialty and sub-subject specialty for further innovative procedures [9]. Before June 2016, there were no bibliometric studies have been found specifically on MERS-CoV. With the support of the PubMed database, 443 articles were written from 2012 to 2015 and published in 162 journals to retrieved for analysis. Results of the research show that prevention and control of the disease were focused by researchers [10]. Similar to above study, the same research was conducted on Scopus database to retrieved data of published publications in the years 2012–2015 [11]. A total of 883 articles were participated and written by 92 countries and published in cross the world on the term of MERS-CoV. With 319; 36.1 % articles, the USA was the largest contributor, followed by Saudi Arabia 113; 12.7 % articles [12].

The aim of the research: the research aimed to estimate the spectrum of investigation, dedication, and collaboration among academic institutes through the participation of authors in the production of literature related to medicine and health sciences published in the journals.

2. Material and Methods

The research data in Coronaviruses published in the PubMed indexed from January 1st, 2014 to 31st December 2018, and affiliated with Kingdome of Saudi Arabia was downloaded to tabulate in MS Office Excel Sheet 2010. The file format with comma-separated value (CSV) and Abstract on Note-paid techniques was used, typed “Coronaviruses”, “Middle East Respiratory Syndrome” and “MERS” in the Boolean operator and appears by default, typed “Kingdome of Saudi Arabia” select as “Affiliation” in next menu. Firstly, to estimate the position of authors; to calculate the collaboration of institutes nationally and internationally; to evaluate the association of topic with health sciences specialties and sub-specialties; to check the status of attention by health-care providers in Saudi Arabia, were set to explore as objectives.

3. Results

Total of 280 articles were downloaded and 253 articles were selected for this study, and case reports, original and review articles existing nomenclature of analysis. The basic medical, clinical, and radiological sciences with health administrative and informative management disciplines, set as basic criteria for this estimation. **Table 1** shows that, 895 institutes per 3.5 % articles through 1878; 7.4 % authors made participation in 253; 4.2 % per month average from 2014–2018.

Table 1
Study design

S. No	Years	Articles Download	Articles Excluded	Articles Included for analyzed	Average per month	Total authors	Authors per article	Total institutes	Institutes per article
1	2018	48	6	42	3.5	372	8.8 %	203	4.8
2	2017	67	5	62	5.1	461	7.4 %	238	3.8
3	2016	64	6	58	4.8	426	7.3 %	183	3.1
4	2015	48	6	42	3.5	314	7.4 %	120	2.8
5	2014	53	4	49	4	305	6.2 %	151	3.0
Total		280	27	253	4.2	1878	7.4 %	895	3.5

Table 2 reveals the breakdown of authors collaboration, that the 207; 81.8 % authors were identified as a first author following by 28; 11 % authors as a second author in 253 manuscripts.

Table 2

Author's position in manuscript

Author's Position	2018	2017	2016	2015	2014	Total with %
As a First Author	36	56	42	32	41	207 81.8 %
As a Second Author	3	2	12	6	5	28 11 %
As a Third Author		2	2	3	1	8 3.1 %
As a Fourth Author	1	2			1	4 1.5 %
As a Fifth to Ninth Author			1	1	1	3 1.1 %
10 to 19 Authors	2		1			3 1.1 %
Total	42	62	58	42	49	253

Table 3 is related to calculate the stake of public and private institutes in corroboration of production with each-other nationally or internationally. Total 72; 28.4 % institutes' shows as single followed by 46; 18.1 % and 49; 19.3 % as two and three institutes out of 895 institutes under the share of 253 articles.

Table 3

Years-wise distribution and collaboration of Institutes in production of articles with each-other

S. No	Publications	2018	2017	2016	2015	2014	Total %
1	Single Institute	7	18	16	16	15	72 (28.4)
2	Two Institutes	7	13	8	7	11	46 (18.1)
3	Three Institutes	9	11	15	7	7	49 (19.3)
4	Four Institutes	7	9	10	4	5	35 (13.8)
5	Five Institutes	2	2	5	4	4	17 (6.7)
6	Six Institutes	3	2	1	2	4	12 (4.7)
7	Seven Institutes	2	2	1			5 (1.9)
8	Eight Institutes					1	1 (0.4)
9	Nine Institutes		1				1 (0.4)
10	Ten to 15 Institutes	2	1	1	2	2	8 (3.1)
11	16 to 20 Institutes	2	1	1			4 (1.5)
12	21 to 25 Institutes	1	1				2 (0.7)
13	26 to 30 Institutes		1				1 (0.4)
	Total Articles	42	62	58	42	49	253

Fig. 1 and **Table 4** reveals the participation of the institutes countrywide and globally in research productivity. With their cooperation in presenting and sharing ideas, total 522; 58.3 % institutes functioning in Kingdom of Saudi Arabia and 373; 41.6 % workings internationally published 253 articles between 2014 and 2018.

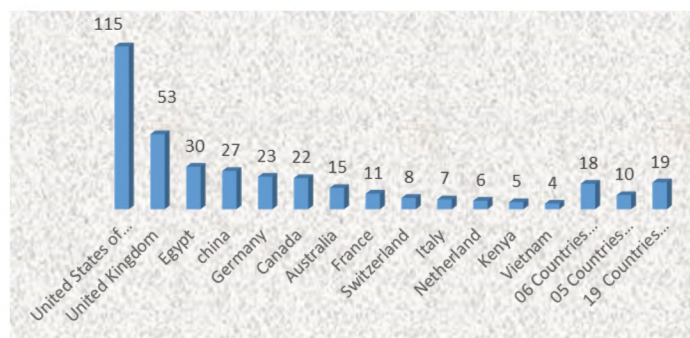


Fig. 1. The collaboration of international institutes in the participation of 373, 41.6 % with researchers functioning in Saudi Arabia out of 895 articles

Table 4

Participations of institutes functioning in KSA

S. No	The hierarchical positions of participatory institutes with 50 other institutes of KSA	Totals (% out of total)	
1	Johns Hopkins Aramco Healthcare, Dhahran, Kingdom of Saudi Arabia.	57	6.3 %
2	Ministry of Health, Riyadh, Saudi Arabia (All Regions)	49	5.4 %
3	King Saud bin Abdulaziz University for Health Sciences, Jeddah & Riyadh, Saudi Arabia.	47	5.2 %
4	Al-Faisal University, Riyadh, Kingdom of Saudi Arabia.	42	4.6 %
5	King Saud University, Riyadh, Kingdom of Saudi Arabia.	42	4.6 %
6	King Abdullah International Medical Research Center (KAIMRC) Riyadh, Saudi Arabia.	38	4.2 %
7	King Faisal Specialist Hospital and Research Center, Jeddah & Riyadh Saudi Arabia.	30	3.3 %
8	King Abdulaziz Medical City, Riyadh, Saudi Arabia.	29	3.2 %
9	King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia.	28	3.1 %
10	King Fahad General Hospital – Jeddah, Jeddah, Saudi Arabia.	15	1.6 %
11	Prince Mohamed Bin Abdulaziz Hospital, Ministry of Health, Riyadh, Saudi Arabia.	14	1.5 %
12	02 Institutes Published Ten Articles	20	2.2 %
13	02 Institutes Published Seven Articles	14	1.5 %
14	01 Institute Published Six Articles	6	0.6 %
15	04 Institutes Published Five Articles	20	2.2 %
16	07 Institutes Published Four Articles	16	1.7 %
17	03 Institute Published Three Articles	21	2.3 %
18	03 Institutes Published Two Articles	6	0.6 %
19	28 Institutes Published One Articles	28	3.1 %
1	Institutes functioning in Kingdome of Saudi Arabia	522	58.3 %
2	Institutes Functioning Internationally	373	41.6 %
Total		895	

Table 5 present 14 main specialties and sub-specialties of health and medical sciences, researchers pay their focused to deal this significant danger from experimental sides to informative side with a description of preventive and cure measures thru collaboration of every sector of society.

Table 6, displays that, total of 121 journals were published 253 articles from 2014 to 2018. Only 63 articles (25 % out of total number) published in five journals and the remaining 190 articles published in 116 journals out of 121 journals.

Table 5
Subject-wise distribution of publications (Largest to smallest)

S. No	Subjects	Total articles (% out of total)	
1	Pathology and Laboratory Medicine	55	21.7 %
2	Community & General Medicine	53	20.9 %
3	Hospital Administration & Health Informatics	39	15.4 %
4	Epidemiology	27	10.6 %
5	Respiratory Diseases	25	9.8 %
6	Pharmacology	19	7.5 %
7	Medical Education	14	5.5 %
8	Dentistry	4	1.5 %
9	Pediatric	4	1.5 %
10	Radiology	4	1.5 %
11	Cardiology	3	1.1 %
12	Obstetrics	3	1.1 %
13	Neurology	2	0.7 %
14	Urology	1	0.4 %
		253	

Table-6
Journal-wise distribution of publications (Largest to smallest)

S. No	Journals	Total articles (% out of total)	
1	Journal of Infectious and Public Health.	21	8.3 %
2	International Journal of Infectious Diseases.	16	6.3 %
3	American Journal of Infection Control.	11	4.3 %
4	Travel Medicine and Infection Diseases.	8	3.1 %
5	Lancet Infectious Diseases.	7	2.7 %
6	02 Journals published 6 article in each	6	2.3 %
7	02 Journals published 5 article in each	5	1.9 %
8	09 Journals published 4 article in each	36	1.5 %
9	07 Journals published 3 article in each	21	1.1 %
10	15 Journals published 2 article in each	30	0.7 %
11	81 Journals published 1 article in each	81	0.4 %
Total Articles		253	

4. Discussion

Total of 121 journals supported to published 253 case reports, original and review articles in journals associated with PubMed databases. The huge participation 895; 3.5 % of institutes with corroboration of 1878 authors to write down their observations, analysis, findings and suggestions to handle this MERS-CoV, a significant threat to personals of healthcare, government officials and of course society.

The spectrum of this hazards involve every-one in health science sector from diagnostic to drug therapy, provision of information to community, taking efforts in the management of primary healthcare unit, to evaluate the policies, modification and redesigning of measures according to WHO guidelines and standards to deal sensitivity of present and clear danger. The research period reveals the deep efforts of public and private health sector, the calmness of society and missionary

movements of healthcare community to coop-up this endangerment. The interaction of 150; 59.2 % institutes among nationally 3.8 and internationally institutes is a vibrant example for teamwork and sharing of ideas, meanwhile 21; 8.3 % articles were written by solo or single-author affiliated with single institute out of 253; 91.6 % articles, 1.1 from total 1878 authors and 874; 97.6 % institutes.

5. Conclusion

Even though much literature on this topic written and published by researchers inside and outside of Kingdom of Saudi Arabia in many other scientific and multidisciplinary databases, but journals connected with PubMed have worth to read and refer by basic health science, clinical sciences and radiological science community. It strongly seems that from 2014 to 2018, Saudi institutes passionately involve in research in MERS CoV, they produced one article on every fifth day of calendar with the contribution of 7.4 authors and backing by 3.5 institutes for each out of 253 articles.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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THE USE OF CORRECTIVE TECHNOLOGIES IN THE PROCESS OF PREPARING SENIOR PRESCHOOLERS WITH AUTISM SPECTRUM DISORDER FOR LEARNING ACTIVITIES

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Abstract

The authors of the article have analyzed scientific research on the problem of the formation of cognitive readiness for educational activity in children with autism spectrum disorders of senior preschool age. It is noted that for children with autism spectrum disorders, a special approach should be applied with a focus on world standards and effective methods of correction and training should be developed. It is revealed that today the psychological and pedagogical correction of the development of autism does not have unambiguity and consistency regarding technologies and methods that would help to effectively overcome autism spectrum disorders and contribute to the effective preparation of autistic children for educational activities. The content of the concept of "cognitive readiness" is revealed as a prerequisite for the development of psychological characteristics and preparation of a child with autism spectrum disorders of senior preschool age for learning activities. The features of the use of correctional technologies to increase the level of cognitive readiness for educational activity of children with autism spectrum disorders of senior preschool age have been determined. It was revealed that the main condition for the formation of cognitive readiness for educational activity in children with autism spectrum disorders of senior preschool age is the use of ABA therapy technology, the TEACCH program, (PRT), PECS, sensory integration. It is revealed that the program (TEACCH, PECS) reflects a clear algorithm of actions, encourages mental operations; method (ABA-therapy) improves the stability of concentration, memory development, forms learning behavior; (PRT) promotes the development of motivation in a child with autism spectrum disorder of senior preschool age, self-management. The formation of imagination and perception of the surrounding world is carried out in the process of conducting classes with sensory integration. It is proved that the formation of cognitive readiness for educational activity in senior preschoolers with autism spectrum disorders is an important factor in the realization of personal potential and social adaptation.

Keywords: autism, autism spectrum disorders, senior preschool age, cognitive readiness, correctional technologies.

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1. Introduction

Autism is an extremely complex problem in both theoretical and practical aspects. The current stage of development of the theory and practice of special pedagogy and psychology is characterized by increased attention to in-depth study of the peculiarities of mental development of children with autism spectrum disorders of senior preschool age, cognitive abilities, to identifying the features of the formation of cognitive readiness for educational activities, mental functions, development of the emotional-volitional sphere, social relations, communicative behavior, which is of great scientific and practical importance. The problem of education, upbringing and development of this category of children is rooted in the symptoms of autism. Identifying the early symptoms of autism spectrum disorder allows you to understand the problem and, therefore, provide effective corrective assistance.

The main condition for teaching children with autism spectrum disorders of senior preschool age is student-centered learning, the introduction of innovative educational technologies that provide for a corresponding shift in emphasis in educational activities, and its focus on the

development of cognitive readiness for educational activities. The educational process today must be oriented towards the personality of a child with autism spectrum disorders and take into account his individual characteristics.

An analysis of modern theoretical and empirical studies and hypotheses on the study of the signs of autism determines the interest in individual deficits in mental activity, that is, cognitive dysfunction, sensory-perceptual characteristics, problematic establishment of social connections, inability to play, the formation of complex emotions in contacts, limitations of working memory, ability to switching attention, auditory perception, abstract thinking, empathy, etc. The concept of studying problems and identifying the signs of autism has been significantly enriched in recent years. This contributes to the development of innovative organizational forms, content, and the use of correction technologies for teaching and upbringing of children with autism spectrum disorders. The problem of the formation of cognitive readiness for educational activities in senior preschool children with autism spectrum disorders by means of correctional technologies in the modern educational space requires a detailed study of the question of how educational technologies can influence the development of cognitive components of children with autism spectrum disorders.

In the Ukrainian correctional psychopedagogy, the problem of the development of children with autism spectrum disorders is actively studied. In particular, Ya. Bagrii, A. Bohdashina studied the essence of autism, but did not determine the methods of early diagnosis of children with autism spectrum disorders [1]. Researcher K. Ostrovska described the problems of psychological assistance to children with autism, but did not reveal the issue of further socialization of children with autism spectrum disorder in the context of modern education [2]. Scientist L. Rybchenko investigated the pedagogical conditions of teaching children with autism spectrum disorders, but theoretically substantiated the pedagogical conditions for organizing correctional work, the practical integration of didactic and correctional means of influencing the development of students with autism spectrum disorders [3]. T. Skrypnyk developed a comprehensive program for the development of children with autism, but did not define the stages of using correction technologies in working with children with autism spectrum disorders of senior preschool age [4]. Researcher V. Tarasun described the concepts of development, learning and socialization of children with autism, but she did not pay enough attention to the integration of prevention and correction of development as a means of solving the problem of preparing a child with autism spectrum disorders to enter society [1]. In her scientific works on autism, G. Khvorova described how to provide psychological and pedagogical assistance to children with autism spectrum disorders, but the study does not sufficiently highlight the issues of organizing the psychological and pedagogical preparation of parents for teaching and upbringing of children with autism spectrum disorders of senior preschool age [5]. D. Shulzhenko investigated the psychological correction of autistic disorders and the formation of the readiness of children with autism spectrum disorders to study at school, however, the issues of the formation of cognitive readiness for school children with autism spectrum disorders of senior preschool age in the pedagogical aspect have not been sufficiently covered [6].

The effectiveness of the application of applied behavior analysis (ABA therapy) was investigated [7, 8], however, the issues of organizing the use of ABA therapy at home by parents raising children with autism spectrum disorders of senior preschool age are not covered. The features of the TEACCH program for children with autism spectrum disorders were considered [9], which did not determine the stages of using the TEACCH program for senior preschool children with autism spectrum disorders. Scientists [10] determined the effectiveness of using the alternative communication system PECS, but did not indicate the peculiarities of using PECS computer applications for children with autism spectrum disorders and intellectual disabilities. A systematic review of sensory integration therapy was undertaken [11], which did not consider the use of aggravated vests in the teaching and education of children with autism spectrum disorders in senior preschool age. The study of the readiness of a child with autism spectrum disorders to study at school was carried out [12], but methods of determining the level of cognitive readiness for educational activity of children with autism spectrum disorders of senior preschool age were not investigated.

The problem of cognitive readiness for educational activity of children with autism spectrum disorders remains relevant and is determined by many factors, the main one of which is “low

level of functional readiness” (“school immaturity”), i. e. inconsistency of the degree of maturation of certain brain structures, neuropsychic functions with the task of school education. Taking into account the peculiarities of the psychophysical development of children with autism spectrum disorders of senior preschool age, in order to form cognitive readiness for educational activities, it is advisable to use modern correction technologies.

The aim of research is to substantiate the effectiveness of the use of correctional technologies as a condition for the formation of cognitive readiness for educational activity in children with autism spectrum disorders of senior preschool age.

2. Materials and methods

To ensure the reliability of the provisions and conclusions, *theoretical methods* were used: comparison and systematization of research material to determine the effectiveness of the use of correction technologies in the process of forming cognitive readiness for educational activities in children with autism spectrum disorders; deductive – for a systematic description of the investigated phenomenon; inductive – to establish patterns, systematize the results of empirical research.

3. Research results

Readiness to learn at school is an integrative characteristic of a child’s mental development, which encompasses components that ensure its successful adaptation to the conditions and requirements of the school. This phenomenon arises as a general (psychological) and special readiness for learning at school, which reveals the levels of development of those psychological qualities that most contribute to the normal entry into school life, the formation of educational activities [13, 14].

Researcher V. Tarasun argues that the functional inadequacy of the educational abilities of a child with autism spectrum disorders is the root cause of difficulties in schooling and, therefore, work to prevent the occurrence of academic failure should begin with the identification and development of those psychophysiological mechanisms that ensure the formation and development of the learning abilities themselves. “The teacher should go from the task of developing in the student general groups of operations, or the so-called general components of mental activity, do not depend on the specific features of the subject” [1].

Taking into account the results of the analysis of scientific literature, the developmental features of children with autism spectrum disorders of senior preschool age, it is possible to state that cognitive readiness is such a readiness that is formed i develops on the basis of the cognitive need in various types of activity, provides the level of development of those psychological qualities that most contribute to normal entry into school life, the formation of educational activity i is characterized by the existing cognitive orientation of the preschooler. The components of cognitive readiness are mental processes: memory, attention, perception, thinking, imagination.

For the effective formation of cognitive readiness for educational activities in children with an early spectrum of autism in senior preschool age, the following rules must be observed:

- 1) constancy – continuity of learning, depends on adults (teachers and parents of children with autism), on their responsibility, perseverance, will and desire to help the child;
- 2) sequence – construction from simple to complex in everything: from commands – requests aimed at performing small purposeful movements, indicating complex actions;
- 3) gradualness, requiring patience and understanding that there are periods of progress and regression in a child’s development. In order to clearly know that the child is moving forward in learning, one must see these successes, mark them, write them down, not count on very rapid progress;
- 4) order as certain patterns regarding the organizational components of the classes: time, place, symbols-markers of the beginning/end of the class, and the like;
- 5) step by step. The child must be told exactly what he/she has to do; show how to do it; perform together the action that he/she is taught, do it with the child. Step by step also means that every action, skill that needs to be taught, is also broken down into steps;
- 6) encouragement, which can be a smile, hugs, stroking the back, verbal praise, a treat, favorite activities. In this case, the child should experience not demonstrative, but sincere feelings of the teacher.

It is proven worldwide that ABA therapy technologies, TEACCH program, (PRT), PECS, sensory integration contribute to the effective teaching and upbringing of children with autism spectrum disorders. Let's consider the effectiveness of the use of correctional technologies as one of the conditions for the formation of cognitive readiness for educational activities in children with autism spectrum disorders.

Applied Behavior Analysis (ABA-therapy) improves communication skills and achieves learning behavior. At the same time, the manifestations of behavioral deviations are significantly reduced. The earlier a therapeutic course begins (preschool age), the better its results. ABA-therapy methods contribute to the formation of cognitive readiness for educational activity in children with autism spectrum disorders of senior preschool age in the following areas:

- formation of skills that replace problem behavior. Desirable behavior increases and unwanted behavior decreases;
- increasing the ability to focus on completing tasks and increasing motivation to learn;
- increasing concentration of attention, eye contact;
- improving cognitive skills;
- non-verbal and verbal imitation;
- development of general and fine motor skills;
- understanding of speech;
- naming of objects and actions;
- ability to classify objects (decomposition of cards with a dog and a cat in one pile, and cards with a spoon and fork in another, look for a pair; symbolic actions, such as: “show how you are ...” (the child pretends that puts on a hat/combs hair/extinguishes the fire/turns the steering wheel, etc.); correctly use the pronouns “I am standing” – “you are standing”, etc.).

The main task of ABA is the maximum possible social adaptation of children with autism spectrum disorders, which is achieved by teaching as many individual skills as possible using the methods of operant conditioning (reaction – stimulus – reinforcement). The focus is on the external appearance rather than the internal characteristics of senior preschool children with autism spectrum disorders.

TEASSN program provides a broad corrective approach that includes careful individual assessment of the strengths of children with autism spectrum disorder. TEACCH proposes, given the tendency of children with autism spectrum disorders to become routine, always place prepared tasks in the same sequence: more often from left to right: there are always unfulfilled tasks on the left, and completed ones on the right. It is recommended to select the number of tasks to be performed so that they can be completed in one step. Thus, by the number of unfulfilled tasks the child can understand how much remains to be done. When all the tasks are on the right, the lesson ends. An senior preschool child with autism spectrum disorders can determine what to do next by their daily routine. This approach can be used for any kind of activity. TEASSN program promotes:

- development of maximum independence. The development of individual lesson programs is carried out with an emphasis on the independent activity of the student (for this, the system of visual “prompts” is used), and the tasks themselves are selected taking into account the level of the child's development;
- establishing effective contact with other people. Much attention in TEACCH programs is paid to the development of communication skills (communication, games) of a socially acceptable level. Children are in contact not only directly with the teacher, but also among themselves, for which special group tasks have been developed;
- development of intelligence, school skills and individual talents of the child. Within the TEACCH-program, there are tasks for the formation of the ability to read, write, count, navigate in time and space, etc.

TEASSN approach focuses on intrinsic factors and the individual characteristics of each individual child with autism spectrum disorders in senior preschool age. TEASSN method is based on fundamental theoretical and empirical research devoted to the problem of autism, its manifestations, characteristics, causes of occurrence and possible result.

Pivotal Response Treatment (PRT) – preparation of basic/key skills/reactions aimed at developing motivation for learning, social initiative, the ability to respond to multiple signals, self-manage-

ment. This further facilitates the perception of educational information. The main goal of PRT is to develop the motivation of a child with autism spectrum disorder to respond to cues and social interactions that can replace inappropriate or atypical behavior. PRT differs from other methods because the focus is on improving developmental deficits rather than focusing on specific behaviors.

PECS (Picture Exchange Communication System) alternative communication system allows children with autism spectrum disorders to communicate with other people, namely, to convey their request, answer questions, make comments, describe the environment, and the like. PECS is alternative communication systems aimed at helping children with limited communication skills acquire communication skills. In this system, children for communicative purposes use the symbols depicted on the cards. Mastering the PECS system involves teaching a child with autism spectrum disorder to use a symbol (picture on a card with the appropriate caption) to ask for a desired item. The PECS Alternative Communication System improves:

- eye contact;
- concentration of attention;
- flexibility of thinking;
- strength of memorizing the names of objects;
- readiness to receive information;
- ability to communicate.

The concept of “sensory integration” reproduces the result of the process of receiving signals from the internal and external environment to the brain. The immediate task of this training system is to teach the brain to respond correctly to external stimuli. At the same time, equipment of different types is used: swings, platforms for training balance, large balls and rollers, skateboards, and the like.

Sensory games, train visual perception, develop observation, attention, memory, form an idea of color, shape, size, spatial arrangement of objects, increase the vocabulary of children with autism spectrum disorders of senior preschool age. The development of visual and auditory perception, understanding of addressed speech is carried out in the process of cognition by a child with autism spectrum disorders of objects and phenomena of the surrounding reality, that is, the development of speech and the development of cognitive processes are carried out simultaneously. Sensory integration helps to develop such skills and psychological education as the ability to concentrate, organize impressions, abstract reasoning, self-control, that is, everything that can function normally in everyday life, in childhood, family, and over time in adult life. Thus, the sensory integration techniques used in correctional work help to meet the needs of a child with autism spectrum disorders in awareness of themselves, the surrounding objective world, provide the development of motor, speech, communicative, cognitive, sensory skills.

4. Discussion

The results of studies by many scientists show that the mental, emotional and social development of children with autism spectrum disorders depends on a positive attitude towards them, understanding and acceptance of their needs by teachers, parents and other children. Therefore, correctional and educational work should be systematic, and the primary task of an adult is to create an atmosphere of trust, encourage a child to communicate, and activate non-verbal communication methods. For the formation of cognitive readiness for educational activity in children with an early spectrum of autism in senior preschool age, it is necessary to use ABA therapy technologies, the TEACCH program, (PRT), PECS, sensory integration, which improve the formation of components of cognitive readiness: memory, attention, perception, thinking, imagination. A child with autism spectrum disorders needs systemic assistance, extended over time, and when planning educational activities, it is necessary to take into account the age, gender, developmental characteristics of an senior preschool child with autism spectrum disorders and the recommendations of specialists. It is important to remember that all educational material for a child with autism spectrum disorders should be supported by visual evidence (TEACCH, PECS), which reflects a clear algorithm of actions, as well as the implementation of practical tasks. So, visual tools provide information, have a positive effect on the memorization process, contribute to the organization of thinking, the development of communication skills. The method (ABA-therapy) improves the

stability of concentration, forms learning behavior, and the method (PRT) contributes to the development of child's motivation and self-management. The formation of imagination and perception of the surrounding world is carried out in the process of conducting classes with sensory integration. Thus, the use of ABA therapy technology, the TEACCH program, (PRT), PECS, sensory integration, is one of the main conditions for the formation of cognitive readiness for educational activity in children with autism spectrum disorders in senior preschool age.

5. Conclusions

According to the results of an empirical study, it is revealed that the use of correction technologies is one of the conditions for the formation of cognitive readiness for educational activities in children with autism spectrum disorders of senior preschool age. It has been proven that ABA-therapy technologies, TEACCH, (PRT), PECS, sensory integration programs affect the formation of components of cognitive readiness: memory, imagination, perception, thinking, attention of children with autism spectrum disorders in senior preschool age. We see the prospect of further research in examining the level of cognitive readiness for learning activity in children with autism spectrum disorder and the formation of components of cognitive readiness, which is a prerequisite for learning activity in children with autism spectrum disorders in senior preschool age.

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