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POLISH AND UKRAINIAN PERCEPTION OF SECURITY SCIENCES (PART II)

Abstract

The purpose of this article is to familiarise the reader with a cognitive perspective and subject of interest of security sciences in Polish and Ukrainian terms. Security as a social phenomenon is perceived in a similar way all over the world, however its scientific interpretation depends on the formal structure of science in a given country and the classification of the research subject into a specific discipline. In the Polish terms, the scientific discipline of security sciences is specified, however in other countries the scope of security cognition is classified differently due to different conditions for the development and classification of science. In the Ukrainian terms, the discipline of security sciences is not specified and security problems are considered interdisciplinary in several fields of science, specialty groups and numerous scientific specialties.

In the process of developing the article, an assumption was made to explain the problem: how are the scientific disciplines in Poland and Ukraine that conduct research on security interpreted? As a result of applying the method of researching the content of the subject literature and the continuous comparison of the perception of security from the point of classification of scientific fields in the Polish and Ukrainian terms, the similarities and differences were specified, which constitute the essence of the cognitive scope of security. This article has a review character relating to the comparison of the cognitive foundations of security in Polish and Ukrainian terms, and was written as a result of the authors' scientific cooperation during a reflected research internship at the Lviv State University of Life Safety in 2021. The article is divided into two parts. Part one includes: "Abstract", "Introduction", "Research assumptions", "Comparison of conditions of science evolution in Poland and Ukraine", "Security science in the Polish perspective". The second part includes: "Security science in the Ukrainian perspective", "Comparison", "Conclusion" and "Bibliography".

Keywords

Science, scientific discipline, security sciences

Security sciences in Ukrainian terms

Science is a systematised body of knowledge in a specific field, which is obtained through the scientific methods¹. The purpose of science is to create scientific knowledge. Scientific knowledge is seen as a set of laws and theories explaining a phenomenon or process, which are the subject of research and are obtained by means of research methods. Laws are certain fixed and repeatable relationships between events, phenomena or processes. Theories, on the other hand, can be defined as systematic explanations of the studied phenomena or processes².

The division of science in Ukraine is classified into fields of science, specialties groups and specialties, and degrees and academic titles are awarded in fields of science³. Since 2011, there have been changes in the structure of the science specialties, but these have not been changes that relate to the subject of cognitive interest of security sciences, which, from a formal point of view, are not specified in the science classification system. The structure of Ukrainian science distinguishes scientific disciplines, scientific specialties groups and specialties (Table 2). The structure of science in Ukraine is complex and very extensive.

Table 2: Structure of science in Ukraine

Specialty	Number of specialties and scientific specialties
Igroups	in a given field of science and specialty group
Field	d of study (code): Physical and mathematical sciences (01)
Mathematics	(10) Mathematical analysis; differential equations; mathematical physics; geometry and topology; probability theory and mathematical statistics; algebra and number theory; computational mathematics; mathematical logic, theory of algorithms and discrete mathematics; calculus of variations and optimal control theory; operations research and game theory
Mechanics	(3) Theoretical mechanics; mechanics of deformable solids; mechanics of liquids, of gas and plasma
Astronomy	(3) Astrometry and celestial mechanics; astrophysics, radio astronomy; heliophysics and Solar System physics

¹ А. Бхаттачерджи, Н. Ситник, Дослідження в соціальних науках. Теорія і практика..., с. 9.

² Ibid., p. 11.

³ Наказ Міністерства освіти і науки, молоді та спорту України 14.09.2011 № 1057 Зареєстровано в Міністерстві юстиції України 30 вересня 2011 р. за № 1133/19871 Про затвердження Переліку наукових спеціальностей.

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
Physics	(22) Physics of devices, components and systems; theoretical physics; radiophysics; physical electronics; optics, laser physics; acoustics; low temperature physics; semiconductor and dielectric physics; magnetism; metal physics; thermophysics and molecular physics; molecular and liquid crystal physics; Polymer physics; radiation physics and nuclear safety; superconductivity; physics of colloidal systems; chemical, combustion and explosion physics; surface physics and chemistry; solid state physics; plasma physics; nuclear, particle and high energy physics; charged particle beam physics
Computer science and cybernetics	(4) Mathematical modelling and computational methods; mathematical software of computers and systems; systems analysis and optimal solution theory; theoretical foundations of computer science and cybernetics
	Field of science (code): Chemical sciences (02)
Not specified groups of specialty	(14) Inorganic chemistry; analytical chemistry; organic chemistry; physical chemistry; electrochemistry; chemistry of multiparticulate compounds; chemistry of elemental compounds; high-energy chemistry; colloidal chemistry; petrochemistry and carbon chemistry; chemical kinetics and catalysis; chemistry of high-purity substances; solid state chemistry; bioorganic chemistry
	Field of science (code): Biological sciences (03)
Not specified groups of specialty	(24) Radiobiology; virology; developmental biology; mycology; bio-physics; molecular biology; botany; zoology; immunology; ichthyology; cytology, cell biology, histology; hydrobiology; pedology; cryobiology; molecular genetics; entomology; parasitology, helminthology; biochemistry; microbiology; genetics; ecology; plant physiology; human and animal physiology; biotechnology

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
	Field of science (code): Geological sciences (04)
Not specified groups of specialty	(16) General and regional geology; geotectonics; hydrogeology; engineering geology; petrology; palaeontology and stratigraphy; ocean and marine geology; geology of solid combustible minerals; oil and gas geology; mineralogy, crystallography; lithology; geochemistry; geological computing; geophysics; metallic and non-metallic minerals; economic geology
	Field of science (code): Technical sciences (05)
Applied geometry, engineering graphics and ergonomics	(4) Applied geometry, engineering graphics; standardisation, certification and metrology support; technical aesthetics; ergonomics
Mechanical engineering	(6) Materials engineering; mechanical engineering; friction and wear in machinery; mechanical engineering technology; dynamics and resistance of machinery; diagnosis of materials and structures
Materials process- ing in mechanical engineering	(4) Machining processes, machines and tools; pressure treatment processes and machines; welding and related processes and technologies; physical and technical treatment processes
Industrial engineering	(15) Printing machinery and processes; machinery for the manufacture of building materials and structures; engines and power plants; earthmoving, road and forestry machinery; lifting and transport machinery; mining machinery; machinery for metallurgical production; light industry machinery; machinery and means of mechanising agricultural production; machinery for the oil and gas industry; machinery and equipment for chemical production; refrigeration, vacuum and compressor equipment, air-conditioning systems; turbomachinery and turbines; hydraulic machinery and hydropneumatic power units; industrial fishing machinery and equipment
Aerospace and missile technology	(5) Aircraft aerodynamics and gas dynamics; aircraft design, manufacture and testing; ground complexes, launch equipment; aircraft simulators; remote flight testing
Shipbuilding	(2) Ship theory; ship design and construction

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
Electrical engineer- ing	(7) Electrical machinery and equipment; electrical complexes and systems; theoretical electrical engineering; lighting and light sources; applied acoustics and sound engineering; semiconductor power converters; strong electric and magnetic field technology
Devices	(8) Devices and methods for measuring mechanical quantities; gyroscopes and navigation systems; devices and methods for measuring thermal quantities; devices and methods for measuring electrical and magnetic quantities; optical devices and systems; radio measuring devices; devices and methods for the control and determination of the composition of substances; biological and medical devices and systems
Radio engineering and telecommunication	(5) Telecommunication systems and networks; antennas and microwave technology equipment; radio and telecommunication equipment; radio and television systems; optoelectronic systems
Computer science, computer engineer- ing and automation	(9) Management systems and processes; computer systems and components; information technology; automation of control processes; medical and biological informatics and cybernetics; project automation systems; information protection systems; project and programme management; artificial intelligence systems and means
Energy	(5) Energy systems and complexes; power plants, networks and systems; technical thermophysics and industrial thermal energy; renewable energy conversion; thermal and nuclear power plants
Minerals develop- ment	(10) Geodesy; underground mineral development; open pit mining of mineral deposits; mine and underground construction; oil and gas resources; mineral enrichment; geotechnical and mining mechanics; well drilling; offshore mineral development; pipeline transportation, oil and gas storage facilities
Metallurgy	(4) Metallurgy and heat treatment of metals; metallurgy of ferrous and non-ferrous metals and special alloys; foundry production; powder metallurgy and composite materials

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
Chemical technol- ogies	(11) Technology of inorganic substances; technical electrochemistry; technology of organic synthesis products; polymer and composite materials technology; chemical technology of fuels and fuels and lubricants; chemical technology processes and equipment; technology of refractory non-metallic materials; chemical resistance of materials and corrosion protection; chemical fibre technology; membranes and membrane technology; water treatment technology
Food and light indus- try technology	(12) Technology of bakery products, confectionery and food concentrates; technology of grain legumes, cereals and animal feeds, oilseeds and bast plants; technology of meat, milk and water products; technology of sugar substances and fermentation products; technology of fats, essential oils and perfumes and cosmetics; Commodity science of non-food products; processes and equipment of the food, microbiological and pharmaceutical industry; preserved and refrigerated food technology; commodity science of food products; food technology; technology of footwear, leather goods and furs; technology of textiles, clothing and knitwear.
Transport	(9) Transport systems; cars and tractors; railways; rolling stock and train traction; electric transport; motorways and airports; industrial transport; navigation and traffic control; vehicle operation and repair
Construction	(10) Building construction, buildings and structures; bases and foundations; ventilation, lighting and heat and gas supply; water supply, sewerage; building materials and products; woodworking technology, furniture and wood products manufacturing; industrial and civil construction technology and organisation; engineering hydraulics and hydrology; construction mechanics; urban and spatial planning
Geodesy	(2) Geodesy, photogrammetry and cartography; land cadastre and monitoring
Life safety	(1) <u>Health and safety at work</u>
Electronics	(3) Semiconductor electronics; vacuum, plasma and quantum electronics; technology, equipment and production of electronic equipment

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
	Field of science (code): Agricultural sciences (06)
Agronomy	(14) General agriculture; soil science and agrophysics; agrochemistry; breeding and seed production; vegetable growing; fruit growing; viticulture; plant breeding; subtropical plant breeding; forage production and onion growing; herbalism; primary processing of plant products; agricultural rehabilitation; phytopathology
Zootechnics	(4) Animal breeding and selection; animal feed technology and fodder; fish farming; animal product technology
Forestry	(3) Forest management and assessment; silviculture and phytomelioration; forestry and silviculture
	Field of science (code): Historical sciences (07)
Not specified groups of specialty	(7) History of Ukraine; world history; archaeology; ethnology; history, sources and special historical disciplines; history of science and technology; anthropology
	Field of science (code): Economic sciences (08)
Not specified groups of specialty	(11) Economic theory and economic thought; world economy and international economic relations; economics and management of the national economy; economics and management of enterprises (by type of economic activity); development of productive forces and regional economies; economics of nature management and environmental protection; demography, labour economics, social economics and politics; money, finance and credit; accounting, analysis and auditing (by type of economic activity); statistics; mathematical methods, models and information technology in economics
Field of science (code): Philosophical sciences (09)	
Not specified groups of specialty	(13) Ontology, epistemology, phenomenology; dialectics and methodology of cognition; philosophical anthropology, philosophy of culture; logic; philosophy of science; philosophy of education; theology; social philosophy and philosophy of history; history of philosophy; Ukrainian studies; ethics; aesthetics; religious studies

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
	Field of science (code): Philological sciences (10)
Literary studies	(9) Ukrainian literature; Russian literature; literature of Slavic peoples; literature of foreign countries; comparative literary studies; literary theory; literary sources and textology; Crimean Tatar literature; folklore
Linguistics	(18) Ukrainian language; Russian language; Slavic languages; German language; Italian language; Baltic languages; Indo-Iranian languages; Turkish language; Finno-Ugric and Amphic languages; Iberian-Caucasian languages; Mongolian languages; Semitic languages; languages of peoples of Asia, Africa, indigenous peoples of America and Australia; classical languages, some Indo-European languages; general linguistics; translation studies; comparative-historical and typological linguistics; structural, applied and mathematical linguistics
	Field of science (code): Geographical sciences (11)
Not specified groups of specialty	(9) Physical geography, geophysics and landscape geochemistry; economic and social geography; geomorphology and palaeogeography; biogeography and soil geography; land hydrology, water resources, hydrochemistry; oceanology; meteorology, climatology, agrometeorology; constructive geography and rational use of resources; geographical cartography
	Field of science (code): Legal sciences (12)
Not specified groups of specialty	(12) Theory and history of state and law, history of political and legal doctrines; constitutional law, municipal law; civil law and civil procedure, family law, private international law; commercial law, procedural business law; labour law, social security law; land law, agricultural law, environmental law, natural resources law; administrative law and process, financial law, information law; criminal law and criminology, criminal law enforcement; criminal procedure and criminology, forensic investigation, operational and investigative activities; judicial system, prosecution and advocacy; international law; philosophy of law.

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
	Field of science (code): Pedagogical sciences (13)
Not specified groups of specialty	(10) General pedagogy and history of pedagogy; theory and methods of teaching (within the scope of knowledge); corrective pedagogy; theory and methods of vocational training; social pedagogy; theory and methods of educational management; educational theory and methods; pre-school pedagogy; learning theory; information and communication technology in education
	Field of science (code): Medical sciences (14)
Clinical medicine	(39) Obstetrics and gynaecology; internal medicine; surgery; cardiovascular surgery; neurosurgery; urology; paediatric surgery; paediatrics; cardiology; rheumatology; infectious diseases; nervous diseases; psychiatry; addictions; ophthalmology; otorhinolaryngology; skin and venereal diseases; traumatology and orthopaedics; dentistry; diagnostic radiology and radiotherapy; therapeutic physical education and sports medicine; Forensic medicine; tuberculosis; pulmonology; clinical pharmacology; clinical allergology; anaesthesiology and intensive care; medical rehabilitation, physical therapy and balneology; space medicine; cryomedicine; gastroenterology; nephrology; general practice – family medicine; oncology; endocrinology; haematology and transfusion medicine; medical biochemistry; clinical laboratory diagnostics; transplantology and artificial organs
Preventive medicine	(3) Occupational hygiene and pathology; epidemiology; community medicine
Theoretical medicine	(11) Normal anatomy; pathological physiology; toxicology; physiologically active compounds; medical and biological informatics and cybernetics; pathological anatomy; normal physiology; immunology and allergology; histology, cytology, embryology; pharmacology; biomechanics
Field of science (code): Pharmaceutical sciences (15)	
Not specified groups of specialty	(3) Drug technology, pharmaceutical business organisation and forensic pharmacy; pharmaceutical chemistry and pharmacognosy; standardisation and organisation of drug production

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group	
	Field of science (code): Veterinary sciences (16)	
Not specified groups of specialty	(10) Animal diagnosis and therapy; animal pathology, oncology and morphology; veterinary microbiology, epizootology, infectious diseases and immunology; veterinary pharmacology and toxicology; veterinary surgery; veterinary obstetrics; veterinary sanitary examination; animal hygiene and veterinary hygiene; entomology; parasitology	
Field of science (code): Art studies (17)		
Not specified groups of specialty	(6) Theatrical art; musical art; cinematography, television; art; decorative and applied arts; design	
Field of science (code): Architecture (18)		
Not specified groups of specialty	(3) Architectural theory, restoration of architectural monuments; architecture of buildings and structures; urban planning and landscape architecture	
	Field of science (code): Psychological sciences (19)	
Not specified groups of specialty	(11) General psychology, history of psychology; psychophysiology; social psychology, social work psychology; educational and age psychology; special psychology; psychology of action under special conditions; organisational psychology, economic psychology; political psychology; work psychology, engineering psychology; medical psychology; legal psychology	
	Field of science (code): Military sciences (20)	
Military-theoretical sciences	(6) <u>Martial arts</u> ; <u>intelligence and foreign armies</u> ; <u>construction of armed forces</u> ; <u>defence economy</u> ; <u>rear of armed forces</u> ; <u>electronic warfare</u> , <u>methods</u> , <u>tools</u>	
Military special sci- ences	(9) Military geography; engineering equipment in the theatre of war; military weapons and equipment; means and methods of military navigation; military cybernetics, control and communications systems; hydroaerodynamics, dynamics of weapon movement and manoeuvring; theory of shooting; military history; means of protection against weapons of mass destruction	

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group		
	Field of science (code): <u>National security</u> (21)		
Fundamentals of national security	(1) <u>Fundamentals of national security</u>		
Military security	(3) <u>Military security of the state; protection of the state border; civil</u> <u>defence</u>		
Humanitarian and political security	(3) <u>Humanitarian and political state security; regional state security;</u> geopolitics		
Economic security	(2) Economic security of the state; economic security of business entities		
Information security	(1) <u>State information security</u>		
Man-made security	(2) <u>Ecological safety</u> ; <u>fire protection</u>		
State security of Ukraine	(5) Provision of state security of Ukraine; intelligence activities of state security organs; personnel of state security organs and troops; operational and search activities; service and combat activities of law enforcement forces		
International se-	(1) Foreign countries and their potential		
	Field of science (code): Sociological sciences (22)		
Not specified groups of specialty	(4) Theory and history of sociology; sociological research methodology and methods; social structures and social relations; special and sectoral sociologies		
	Field of science (code): Political sciences (23)		
Not specified groups of specialty	(5) Theory and history of political science; political institutions and processes; political culture and ideology; political problems of international systems and global development; ethno-politics and ethno-state research		
Field of science (code): Physical Education and sport (24)			
Not specified groups of specialty	(3) Olympic and professional sports; physical culture, physical education of different population groups; physical rehabilitation		

Specialty Igroups	Number of specialties and scientific specialties in a given field of science and specialty group
Field of science (code): Management (25)	
Not specified groups of specialty	(1) Theory and history of public administration; mechanisms of public administration; public service; self-government; <u>public administration</u> of state security and law enforcement
Field of science (code): Culturology (26)	
Not specified groups of specialty	(5) Theory of history of culture; world culture and international cultural relations; applied culturology, cultural practices; Ukrainian culture; museum studies, monuments
Field of science (code): Social communication (27)	
Not specified groups of specialty	(7) Social communication theory and history; theory and history of journalism; publishing and editorial theory and history; applied social and communication technologies; social computing; documentation, archival science; bibliography, library science

A total of 27 fields of science including 2 fields directly related to security, 43 groups of specialties including 11 groups of specialties directly related to security, 486 specialties including 37 specialties directly related to security. **Fields, specialty groups and specialties directly or indirectly related to security have been highlighted.**

Source, elaborated on the basis of: *Міністерства освіти і науки, молоді та спорту України,* Наказ 14.09.2011 № 1057, Зареєстровано в Міністерстві юстиції України 30 вересня 2011 р. за № 1133/19871, Про затвердження Переліку наукових спеціальностей; *Міністерство освіти і науки, молоді та спорту України*, Наказ 21.12.2012 № 1462, Зареєстровано в Міністерстві юстиції України 10 січня 2013 р. за № 89/22621, Про внесення змін до Переліку наукових спеціальностей; *Міністерство освіти і науки, молоді та спорту України*, Наказ 06.04.2015 № 394, Зареєстровано в Міністерстві юстиції України 10 квітня 2015 р. за № 409/26854, Про внесення змін до Переліку наукових спеціальностей.

The structure of science in Ukraine is very complex and it is not possible to unequivocally assign to a particular field, group of specialties or specialty that their cognitive interest is only security, but these are areas that have a strong connection with security.

Defining and perceiving scientific research in Ukraine is interpreted as:

the process of studying a specific subject (facts, processes, social phenomena) in order to identify its genesis and evolution and draw conclusions about the possibility of its change in terms of justified social needs⁴;

⁴ В.О. Василенко, В.Г. Шматько, *Інноваційний менеджмент*, ЦУЛ, Фенікс 2003, с. 440.

- the deliberate cognition of a specific subject in order to produce up-to-date knowledge about it⁵;
- refinement of the scientific method as a process of cognition in order to develop objectified assumptions of cognition and to bring about changes in the surrounding reality⁶;
- the process of producing new knowledge that reveals new phenomena in society and nature in order to improve human's social life⁷;
- a particular type of human activity whose purpose is to acquire more accurate, new knowledge that serves practical purposes to create new or improve the existing knowledge that a human has used so far8;
- a set of principles, methods, techniques and tools that researchers use to learn about natural and social facts, phenomena and processes⁹.

Summary

Generalizing security in the aspect of scientific cognition in Ukraine is situated in 37 scientific specialties, the scope of cognition of which is very diverse. It should be emphasised that academic degrees relating to specialties in the field of national security can be awarded according to the subject of research in the following sciences: sociological, political, military, technical, chemical, biological, medical, veterinary, philosophical, historical, economic, geological, legal, physical and

mathematical, psychological, pedagogical, public administration, geographical. Such a distribution of doctoral degree conferral possibilities in a number of specialties testifies to the very complex subject of research, which is comparable to security sciences in Poland.

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⁵ Академічний словник української мови. URL: http://sum.in.ua/s/ghlosarij [access: 20.12.2021].

⁶ Є.К. Шишкіна, О.О. Носирєв, Методологія наукових досліджень. Підручник, Діса плюс, Харків 2014, с. 200.

⁷ В.С. Марцин, Н.Г. Міценко, О.А. Даниленко та ін, *Основи наукових досліджень...*, с. 128.

⁸ А.Є. Конверський, Основи методології та організації наукових досліджень, Підручник, Центр учбової літератури 2010, с. 352.

⁹ В.Г. Андрійчук, Сутнісний аспект методології наукових досліджень..., с. 87-94.

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