Contents

Introduction	3
DEVELOPMENT OF SCIENCE KNOWLEDGE VS. TEACHER TRAINING	
Bożena Witek, Agnieszka Kamińska	
Neuroprotective role of some microelements in the course of neurodegenerative diseases	5
Jolanta Klusek, Justyna Klusek, Elżbieta Tomasik, Bartosz Witczak, Adam Kołątaj	
Concentration of triacylglycerols and cholesterol in liver, kidneys and muscles of mice following exposure to ethyl alcohol	13
Jan Rajmund Paśko, Ingrid Paśko	
Definitions and nature education	22
EDUCATION FOR SUSTAINABLE DEVELOPMENT – CHALLENGE AND LIMITATION PROSPECTS FOS IMPLEMENTING THE THIRD MISSION OF THE UNIVERSITY	S.
Tetyana Borova, Tetyana Pohorielova	
Leadership for sustainability as a reflection of students' professional responsibility	30
Ariadna Ciążela, Ligia Tuszyńska	
Knowledge of social campaigns regarding environmental protection among pedagogy students	34
Ligia Tuszyńska, Katarzyna Potyrała, Agnieszka Pawlak	
Barriers and limits in activities for sustainable development based on the example of the Polish public pedagogical university – current status, perspectives and good models of intersectoral partnership	49
Wioleta Duda	
The implementation of the third mission of academic tertiary education institutions by means of the social-occupational activisation of a local milie Good practices originating from activity	u. 62
EDUCATIONAL CHALLENGES IN THE FACE OF CULTURAL AND SOCIAL CHANGES	
Jolanta Szempruch, Beata Cieśleńska	
Educational practice in the context of democratic and cultural changes	71
Joanna Smyła	
How contemporary women and men combine family and work	80

Contents	[215]
Katarzyna Lipińska	
"CoinCoin et les Z'inhumains": creative thought of Bruno Dumont	89
Albert Wołkiewicz	
Soroban – a road sign for future education	104
Małgorzata Nodzyńska	
Comparison of different forms of informal education in terms of teacher's work input and achieved results	112
Kovalchuk Vasyl Ivanovych, Sheludko Inna Vitaliyivna	
Implementation of digital technologies in training the vocational education pedagogues as a modern strategy for modernization of professional education	122
STRATEGIES, METHODS AND DIGITAL ENVIRONMENT OF TEACHING AND LEAR	NING
Anna Michniewska	
Khan Academy in biological education	139
Róża Laskowska	
Multimedia information flow among students	144
Elżbieta Buchcic	
The use of constructivist pedagogy in science education	156
Nataliia Demeshkant	
Development and evaluation of methodological measures related to teachers' digital competence	164
CONTEMPORARY APPROACH IN PEDAGOGICAL RESEARCH	
Beata Gola	
Ecological pedagogy vs. ecological approach in pedagogical research – selected aspects	172
Sławomir Trusz	
Do qualitative researchers know what they see and the respondents know what they say? On the quality of qualitative data	183
Anna Stawiarska	
Eye fixation and computer mouse cursor movement	199