

Annales Universitatis Paedagogicae Cracoviensis

Studia ad Didacticam Biologiae Pertinentia IV (2014)

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The Role of Academic Integration in Education on Environmental Protection and the Concept of the Entrepreneurial University

Introduction

The problem of activation and integration of the academic world around the “environmental protection studies” (European equivalent: “environmental science education”) was particularly important in the early 1990s, due to the then initiated socio-political changes and the associated higher education reform. In those days the changes were determined by the *Law on Higher Education of September 12, 1990* (Journal of Laws No. 65, item. 385), the main provisions of which were academic freedom, institutional autonomy, possibility to create non-public higher education institutions and charge fees for selected types of studies, and establishment of the Council for Higher Education. The Council was an advisory body to the Minister. It was elected by the academic community, and it determined curriculum standards for courses of study. Since 2005, the Council for Higher Education (RGSzW¹) was in force and the State Accreditation Committee (PKA)² as well as the Rectors’ Conferences were established under the new *Higher Education Law* (Journal of Laws 2012, item 572 as amended). The new *Higher Education Law* also introduced the possibility to establish the so called “adjective universities” – legal consortia of different universities, convents and social councils, and interdisciplinary education. This new approach, so important in the case of environmental protection studies which were placed on the list of majors in 1991, received the legal basis for its fully interdisciplinary character only under the Regulation of the Minister of 2011 on the learning area outcomes³. The earlier educational standards, effective for the “rigid

¹ Since 2009 Rada Główna Nauki i Szkolnictwa Wyższego [Main Council for Science and Higher Education].

² Since 2011 Polska Komisja Akredytacyjna [Polish Accreditation Commission].

³ Regulation of the Minister of Science and Higher Education of November 2nd, 2011 on the National Qualifications Framework for Higher Education (Journal of Laws no. 253, item 1520).

list of ministerial study programs”, did not, in fact, inspire development of original inter-area study programs.

According to Leja (2011), both the national legislation (after 1989) and the previous periods before as well as after the Second World War, reflect a distinct influence of the German liberal university concept. Humboldt’s idea of the liberal university (the University of the Liberal Nation-State) means a commitment to the academic tradition, as well as research financed and controlled by the state, while preserving the academic freedom and the *de facto* weak relationships with economic needs of the society. It is reflected in the university of research, commonly known as the metaphorical “ivory tower”, its main mission of it being research combined with education. The current *Law on Higher Education* implies solutions which, on the one hand, are consistent with the concept of the university respecting the liberal tradition, and on the other with the implementation of the innovative concept, the so-called entrepreneurial university (Clark 1998). Its activity, which emerged in the 1990s, is market-oriented (van Vught 1999). These changes were somehow enforced by the new processes which started on the boundary of the twentieth and twenty-first century, such as globalization, mass education, mobility and emergence of extra-university interdisciplinary research centres of network structure (Jabłeczka 2002). The idea of entrepreneurial university comes from a more general theory of management. Drucker’s (1992) view that public utility institutions, including universities, should be enterprising and innovative, and just like any company they should have a clear mission, a strategy and see change as an opportunity and not a threat, is significant in this context.

Environmental protection as a new study program fits the idea of entrepreneurial rather than liberal university. This is because, in essence, the basic characteristic of interdisciplinarity is breaking down barriers between the sciences and disciplines, and thus it requires an intensive and regular teaching staff cooperation, both within and between universities and between the university and the socio-economic environment. Although the importance of interdisciplinary education and collaboration is considered at the level of university mission and strategy, in practice the traditional organizational structures inhibit the growth and promote atomization of science and education. In this context, academic integration becomes particularly important in education within environmental protection.

The purpose of this article is to present the forms and effects of academic integration from the perspective of the entrepreneurial university idea and of the twenty years of functioning of environmental protection education. The main questions to be answered are: what is interdisciplinarity in relation to “environmental protection” and how to manage it? What is the simplest way to grasp the difference between multi- and interdisciplinarity? Where are we after 20 years, considering the goals of education, the structure of degree programs and the academic units?

Forms of integration

Academic integration around the environmental protection education took the form of annual national methodological conferences called "Protecting the environment for university science studies" (Wrocław, 1993, 2003, 2013; Cracow, 1994, 2004; Opole 1995, 2007; Warsaw, 1996, 2006, 2011; Poznań 1997, 2005; Gdańsk, 1998, Lublin, 1999, Toruń, 2000, Łódź, 2001, Olsztyn, 2002; Białystok, 2008; Zielona Góra, 2009, Katowice, 2010, Kielce 2012, Rzeszów 2014). The meetings gathered teaching and managing staff of many universities (Kantowicz and Lonc 2012). It is noteworthy that in 2002-2007 the study program was carried out in as many as 16 universities, 10 polytechnics, seven agricultural and two pedagogical schools, several state schools of higher vocational education and nine private schools (Olaczek and Babska, 2005).

In response to the question posed after twenty years of experience: what have we achieved regarding education programs and formal conditions of "environmental protection" as a field/discipline, first of all it is worth emphasizing the modern interdisciplinary training programs and the development of education of the teaching staff (PhD programs) as a result of the inclusion of "environmental protection" in the list of disciplines.

Education programs and integration

The positive role of integration of academic staff was most pronouncedly marked by the development of the curriculum and culture of education quality (Lonc and Kantowicz 2013) in a variety of study programs of "environmental protection". A major role was played by the international co-operation and integration of the Polish universities in the European network of ESSENCE⁴ and Audes (Association of University Departments of Environmental Sciences in Europe) and the participation of staff involved in the organization and development of programs of the university environmental protection study (including the authors of the article) in the discussions at the European level. The participation in national and international meetings ensured the comparability of education programs with those of other European universities (Kantowicz, Lonc 2012).

Undoubtedly, the development of the so-called core curricula was a success; the curricula defined the methods and contents of environmental education: the requirements for the duration of the study, the total number and allocated time per course and teaching/learning method, for example lecture, supervised internship, group assignments such as workshops, projects, field work, individual assignments including thesis, self study, unsupervised internships and field work, etc. The

⁴ ESSENCE (Thematic Network for Environmental Sciences): Network coordinator – Peter Maarleveld. Association of Dutch Universities – VSNU; Warsaw University coordinator – Ewelina Kantowicz – Inter-faculty Study of Environmental Protection, Warsaw University; Wrocław University coordinator – Elżbieta Lonc.

number of classes and thematic requirements (list of items) included not more than half of the total number of hours (including vocational training outside the university). In the first phase of the methodological discussions a multidisciplinary program of study was developed and it became the prototype of the ministerial standards. It is worth noting that these standards were developed during the annual national methodological conferences and then approved by the University Accreditation Commission (UKA)⁵, along with the evaluation teams proposed by the environment. In the second phase the members of these teams, as experts, took an active part in the development of ministerial educational standards which had been introduced by the Regulation of the Minister of National Education and Sport of April 18th 2002⁶, and then educational standards for two-stage studies within environmental protection, introduced by the *Regulation of the Minister of Science and Higher Education in 2007*⁷. These standards became the basis for the activity of the Polish Accreditation Commission⁸ established in 2002. Its facilities in the field of environmental protection were still the annual national methodological conferences, which in recent years became engaged in the development of a subject area learning outcomes in terms of knowledge, skills and social skills which should be acquired by the students of environmental protection, as well as verification tools and procedures at all stages and forms of education.

Representatives of the Conference took an active part in the work of the National Qualifications Framework for Higher Education (KRK)⁹, participating in the

⁵ University Accreditation Commission (UKA) was established on January 31st 1998 under the earlier agreement of several Polish universities (www.uka.amu.pl). The participants of the first work on the standards of environmental protection were: J. Bolałek, E. Kantowicz, E. Lonc, J. Rayss, J. Siepak. Submission to the assessment of the study program by the UKA is voluntary but a fee is charged.

⁶ Regulation of the Minister of National Education and Sport of April 18th 2002 on the educational standards for particular study programs and levels of education (Journal of Laws, no. 116, item 1004: annex 43: Educational standards for environmental protection, masters' studies).

⁷ Regulation of the Minister of Science and Higher Education of July 12th 2007 on the educational standards for particular study programs and levels of education, the procedure of their establishing and the conditions to be met by universities in order to run interdisciplinary study programs and macro-programs. Annex 74: Educational standards for environmental protection, A. First degree studies, B. Second degree studies (www.bip.gov.pl).

⁸ Polish Accreditation Commission (www.pka.edu.pl) was established under the name State Accreditation Commission on January 1st 2002, by the decision no. 54 of the Minister of National Education and Sport of December 28th 2001 on the establishment of the State Accreditation Commission. The Commission gained its present name under the Law of March 18th 2011 on the change of the Law of higher education, Law of scientific degrees and scientific titles and on the degrees and titles within arts, and on the changes in some other laws. Obtaining the PKA's accreditation is a prerequisite of running a study program.

⁹ Regulation of the Minister of Science and Higher Education of November 2nd 2011 on the national qualifications framework for higher education (Journal of Laws, no. 253, item 1520).

project, co-funded by the EU under the European Social Fund. The results included the proposals of the learning outcomes for the natural history and agricultural areas of study, prepared at the Ministry of Science and Higher Education (Chmielecka ed. 2010). They have become the *de facto* new method of shaping curricula of environmental protection, indicating the possibilities and tasks of universities and increasing their autonomy (Kraśniewski 2011).

Interdisciplinarity and integration

The leading theme of the post-conference titles and monographic publications, which to this day is still the subject of much debate and controversy, appearing also during all the subsequent conferences, both foreign and domestic, was the problem of multi- and interdisciplinary environmental protection education - a comprehensive, general program of studies surpassing the boundaries of one faculty (Kantowicz 1994, 1996; Olaczek 2003).

The ultimately adopted meaning of multidisciplinary was a summation of fragments of different disciplines, and of interdisciplinarity – a synthesis of the knowledge, methods and skills of different disciplines around practical solutions for environmental problems (De Grott 1992; Lonc 1993). Therefore, environmental protection is understood as a field of knowledge which requires a wide academic and research foundation, allowing understanding of both natural mechanisms and processes, and the place and role of man interfering in this system. Practical actions taken within environment protection, namely solving complex environmental problems to ensure sustainable development of societies, create the demand for such education (Lonc and Kantowicz 2004). The status and prospects of environmental protection education at different Polish and European universities were also presented at the conferences. As a result, the interdisciplinary environmental protection was defined in the context of integration of research and education, as well as in the form of practical activities taking place in the field, such as field courses or internships in business and administration enterprises.

Now, in the second decade of the twenty-first century, the learning outcomes formulated on the basis of the National Qualifications Frameworks are usually defined in two educational areas – natural sciences and agriculture. The associated questions are still similar to those posed during the discussions in the first and second half of the 1990s. At that time the urgent need to create a formal scientific field called “Environmental Sciences (Environmental Science)” was repeatedly stressed. The culmination of the lively discussion was a letter written during the Fifth National Methodological Conference organized in 1997 at the Adam Mickiewicz University in Poznań. It was part of the Application to the Central Committee for Scientific Titles and Degrees (letter dated 17th July 1997, prof. dr. hab. Jerzy Siepak, president of the University Coordinators for Environmental Protection Studies; members: professors Adam Juskiewicz, Ewelina Kantowicz, Elżbieta Lonc and Romuald Olaczek) on the inclusion of environmental protection in the *Schedule*

fields of science and art and scientific and artistic disciplines, within which scientific degrees can be conferred (Polish Monitor No. 16, item 123 of 25 February 1992). Our attempts at giving environmental sciences status of a separate field, despite obtaining full support of the main universities (Kantowicz, Lonc, Wojnowska-Baryła 2005), failed. At that time the bureau of the Central Committee was against introducing provisional changes, recognizing the need for a wider-ranging reconstruction.

These debates were later conducted in the context of education of the teaching staff (PhD studies) and the related right to confer a doctor's degree in an interdisciplinary field, rather than within the disciplines (Kantowicz, Roge-Wiśniewska, eds. 2006). In 2007, the Centre for Environmental Studies, University of Warsaw (UCBS), organized the conference entitled "Environmental Protection – time for emancipation – a study program, a discipline, or a field of science?". It was attended by representatives of nine academic centres, the Ministry of Science and Higher Education, consulting organizations and students (Kalinowska and Lenart 2007). As a result of the increasing academic and social pressure, efforts of the Chairman of the University Coordinators for Environmental Protection Studies (prof. dr. hab. Jerzy Bolałek) which started once again during the National Methodological Conference organized in 2010, concluded in partial success. In 2011, "environmental protection" was entered as yet another discipline within the field of biological sciences and chemical sciences; agricultural sciences added "protection" to "shaping the environment", and technical sciences to "environmental engineering"¹⁰. During the last, twentieth, Conference in Wrocław, a proposal for the inclusion of environmental disciplines, this time within the field of earth sciences, was adopted. It can be expected that in the next few years similar attempts will be made by representatives of other disciplines.

The above story highlights the paradox of confronting theory with practice. The commonly accepted meaning of the interdisciplinary nature of environmental protection, developed in the course of the twenty years of collaboration of the academic community, proved to be counterproductive. As a result of placing it in several scientific fields, the discipline "environmental protection" shows persistent "atomization of science", appropriate for the traditional concept of a liberal university. There is also a manifestation of constantly insufficient propagation of the innovative concept of entrepreneurial university, whose attribute is to create new structures, both within the university and in formal schemes of division of science. According to Clark (1998), there are five fundamental characteristics of the entrepreneurial university: strengthening of the management centre, development of peripheral segments, diversification of funding sources, stimulation of the academic core and the integrated culture of enterprise. Expanded developmental periphery requires, among others, overcoming of the tendency to maintain the

¹⁰ Regulation of the Minister of Science and Higher Education of November 2nd 2011 on the areas of knowledge, branches of science and scientific and artistic disciplines (Journal of Laws, no. 179, item 1065).

subject area coverage as rigid departmental structures which exists in Humboldt's liberal university tradition.

Managing interdisciplinarity

Note that the above findings underline the validity of opinions expressed at the onset: about the environmental protection objectives and characteristics fitting within the entrepreneurial rather than liberal university. Among them, both the assessment of strengths and weaknesses of the functioning of environmental protection study programs carried out by the PKA members (Bielecki and Lonc 2007), and the experience of the authors in the past twenty years, indicate a great importance of the way of managing the interdisciplinary studies program. Let us take a closer look at the mentioned cases of founding separate units which run the environmental protection study programs.

The University of Warsaw was probably the first example of the "expanded developmental periphery" in the form of founding of a number of such units, among them the Centre for Environmental Studies, University of Warsaw (now Centre for Environmental Studies and Sustainable Development – UCBS, UW) and the Inter-Faculty Studies in Environmental Protection (MSOS, UW). This required changes in the articles of the *University of Warsaw Statute*, and then in the Rules and Regulations of the newly created organizational units. The changes in the formal and legal regulations were followed by changes in the allocation of ministerial subsidy between these units on a par with the faculties. The relative financial independence of both units and their direct subordination to the Rector of the University of Warsaw, as well as the close cooperation with the UCBS – MSOS Scientific Council, ensured the balance of various disciplines in the decisions taken regarding the organization of interdisciplinary studies (Kantowicz 1997). It should be noted, however, that this form of management is an exception rather than a rule. In most universities "environmental protection" remained part of faculties, usually chemical or biological. Hence, in the opinion of the PKA (Górniak 2012), the curriculum of environmental protection, depending on the leading organizational unit, reflects adverse effects of "overestimation of chemistry or underestimation of biology", that is unbalanced proportion of the basic disciplines in the structure and contents of education. This is due to the inadequate selection of the minimum staff composition, whose representatives usually focus on the field (discipline) which is appropriate for their organizational unit.

The so-called inter-faculty teaching boards are, to some extent, warrants of interdisciplinary education. These opinion-forming bodies provide a forum for the integration of environmental protection study program with the socio-economic environment, which manifests itself in consecutive years as an increasing number of contacts with companies and local governments. Such boards, each with about a dozen members, with the participation of external stakeholders, function at the faculty environmental studies at the Jagiellonian University, the John Casimir

University in Kielce, or the University of Wrocław. At the University of Wrocław, for example, the training within environmental protection is formally run by two units, the Faculty of Biological Sciences and the Faculty of Earth and Environmental Sciences. Because of the exclusively advisory character of the Program Board and the Director of the "Studium Ochrony Środowiska" [Environmental Protection Study] academic unit (example of expanded developmental periphery), all the program decisions are necessarily subject to approval by the councils of the two faculties, which certainly does not help the interdisciplinarity management.

Conclusions

The new legal situation in the second decade of the twenty-first century, which ceased to impose fields of study and training standards, and granted environmental protection the status of discipline in different areas, poses another challenge for the education in environmental protection, in particular its interdisciplinary character. Returning to the question which appeared in the early stages of the discussion – is unification of the curriculum the purpose of inter-university cooperation within environmental protection? – it can be stated that the standards in fact imposed some unification. Compulsory education contents standards in many fields and disciplines (natural sciences, social and medical) had a positive impact on strengthening of the interdisciplinary training programs. The standards, as we know, imposing only half-hourly size and number of credit points (ECTS), left room for the decision-making bodies to adjust the programs to the scientific and teaching potential of particular universities within environmental protection. According to the current KRK regulations, the autonomy of programs is far greater, which is a positive thing. At the same time, in a situation of granting environmental sciences the status of a discipline (and not a broad area) distributed among several areas provides an impulse to develop programs which are limited to a single field, such as chemical or biological sciences. Formed for over twenty years and aimed at training specialists competent in solving practical environmental problems, the interdisciplinary concept of environmental protection education may face barriers of development. The risk is even greater, since the traditional structure of university management is based on the organizational structure, in which departments frequently correspond to areas of the field, not disciplines. We see the opportunity for further development of environmental education in the propagation of the idea of entrepreneurial university and loosening of the rigid structures of university management.

References

- Bielecki J., Lonc E., 2007, *Raport podsumowujący ocenę kształcenia na kierunku studiów ochrona środowiska (studia licencjackie i magisterskie)*, [in:] *Działalność Państwowej Komisji Akredytacyjnej. Ocena kierunków studiów – podsumowanie, część I*, Oficyna Wydawnicza ASPRA-JR, Warszawa, 139–144.

- Clark B.R., 1998, *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*, Pergamon, For IAU Press Oxford.
- Chmielecka E. (ed.), 2010, *Autonomia programowa uczelni. Ramy kwalifikacji dla szkolnictwa wyższego*, Wydawnictwo MNIŚW, Warszawa, 160.
- De Groot M.T., 1992, *Environmental Science Theory*, University of Leiden, 414.
- Górniak A.S., 2012, *Działalność Zespołu Kierunków Studiów Przyrodniczych*, [in:] B. Wojciechowska (ed.), *Działalność Państwowej Komisji Akredytacyjnej w latach 2008–2011. III Kadencja*, Wydawnictwo Oficyna Wydawnicza ASPRA-JR, Warszawa, 52–56.
- Drucker P., 1992, *Innowacja i przedsiębiorczość*, Polskie Wydawnictwo Ekonomiczne, Warszawa, 36–37.
- Leja K., 2011, *Koncepcje zarządzania współczesnym uniwersytetem*, Wydawnictwo Politechniki Gdańskiej, Gdańsk, 282.
- Jabłocka J., 2002, *Zmiany społecznych i kulturowych uwarunkowań życia akademickiego i uprawiania nauki w uniwersytetach. Przykład Europy Zachodniej i USA*, [in:] *Kreowanie Nowego. Wyższa Szkoła Przedsiębiorczości i Zarządzania*, Warszawa, 178.
- Kalinowska A., Lenart W., 2007, *Ochrona środowiska – czas na emancypację naukową – kierunek, dziedzina, czy dyscyplina? Refleksje po konferencji na Uniwersytecie Warszawskim (25 czerwca 2007)*, [in:] C. Rosik-Dulewska, M. Głowacki (ed.), *XV Ogólnopolska Konferencja Metodyczna. Ochrona środowiska na uniwersyteckich studiach przyrodniczych*, Wydawnictwo Uniwersytetu Opolskiego, Opole, 115–121.
- Kantowicz E., 1995, *Interdyscyplinarność ochrony środowiska a problemy integracji nauk przyrodniczych i humanistycznych*, [in:] K. Borecka (ed.), *III Ogólnopolska Konferencja Metodyczna. Ochrona środowiska na uniwersyteckich studiach przyrodniczych, Opole–Niwki 4–6 września 1995*, Agencja Rozwoju Opolszczyzny S.A, Opole, 34–44.
- Kantowicz E., 1996, *Interdisciplinarity of natural environmental protection and the integration problem of natural science and the humanities. Proceedings of the TEMPUS workshop on environmental physics*, eds. J. Kalinowski, A. Kopystyńska, Warsaw University, A. Wörman, Uppsala University.
- Kantowicz E., 1997, *Problemy organizacyjne Międzywydziałowych Studiów Ochrony Środowiska w świetle reformy kształcenia uniwersyteckiego*, [in:] E. Kantowicz (ed.), *Ochrona środowiska na uniwersyteckich studiach przyrodniczych. IV Ogólnopolska konferencja metodyczna, Warszawa–Jachranka, 2–4 października 1996*, Międzywydziałowe Studia Ochrony Środowiska UW, Warszawa, 21–31.
- Kantowicz E., Lonc E., Wojnowska-Baryła I., 2005, *Absolwenci ochrony środowiska a studia doktoranckie*, [in:] J. Siepak, L. Boszke (eds.), *XIII Ogólnopolska Konferencja Metodyczna: Ochrona środowiska na uniwersyteckich studiach przyrodniczych, 4–6 września 2005, Słubice*, Uniwersytet im. Adama Mickiewicza, Collegium Polonicum w Słubicach, Słubice, 37–53.
- Kantowicz E., Roge-Wiśniewska M. (eds.), 2007, *Współczesne tendencje kształcenia w zakresie ochrony środowiska. XIV Ogólnopolska Konferencja Metodyczna: Ochrona środowiska na uniwersyteckich studiach przyrodniczych, 4–6 września 2006, Międzywydziałowe Studia Ochrony Środowiska*, Uniwersytet Warszawski, Szkoła Główna Gospodarstwa Wiejskiego w Warszawie, Warszawa.
- Kantowicz E., Lonc E., 2012, *Studia na kierunku ochrona środowiska w perspektywie 20 lat (1992–2012)*, *Monitoring Środowiska Przyrodniczego*, 13, 105–122.

- Kraśniewski A., 2011, Jak przygotować programy kształcenia zgodnie z wymogami wynikającymi z Krajowych Ram Kwalifikacji dla Szkolnictwa Wyższego (20111228 MNiSW poz. 4. pdf).
- Leja K., 2011, *Koncepcje zarządzania współczesnym uniwersytetem*, Wydawnictwo Politechniki Gdańskiej, Gdańsk.
- Lonc E., 1993, *Teoria i praktyka w programach ochrony środowiska*, [in:] *Rola kształcenia proekologicznego w rozwoju regionalnym*, *Eko-Książ '93*, Wałbrzych, 147–152.
- Lonc E., Kantowicz E., 2004, *Ekologia i ochrona środowiska*, Wydawnictwo Państwowej Wyższej Szkoły Zawodowej im. Angeusa Silesiusa, Wałbrzych.
- Lonc E., Kantowicz E., 2013, *Wszechstronna 20-latka. O kierunku ochrona środowiska*, *Forum Akademickie*, 10, 42–43.
- Olaczek R., 2003, *Uwagi o uniwersyteckim nauczaniu ochrony środowiska – nauczanie dyscyplinarne a nauczanie środowiskowe, czyli interdyscyplinarne*, [in:] E. Lonc (ed.), *Współczesne trendy w edukacji środowiskowej*, Oficyna Wydawnicza Arboretum, Wrocław, 67–76.
- Olaczek R., Babska D., 2005, *Geneza i rozwój studiów ochrony środowiska*, [in:] J. Siepak, L. Boszke (eds.), *Materiały XII Ogólnopolskiej Konferencji Metodycznej. Ochrona środowiska na uniwersyteckich studiach przyrodniczych. 4–7 września 2005*, Wydawnictwo BETAGROUP P.U.H., Poznań, 18–36.
- Vught F. van, 1999, *Innovative Universities*, *Tertiary Education and Management*, 5, 347–354.

The Role of Academic Integration in Education on Environmental Protection and the Concept of the Entrepreneurial University

Abstract

The problem of activation and integration among university professors around the field of study named “environment protection” was particularly important in the early 90s of the last century due to the initiated socio-political changes and related higher education reform. The integration took on the nature of cyclical, annual national methodology conferences entitled “Protection of environment studies at the universities” (Wrocław, 1993, 2003, 2013, Cracow, 1994, 2004, Opole, 1995, 2007, Warsaw, 1996, 2006, 2011, Poznań, 1997, 2005, Gdańsk, 1998, Lublin, 1999, Toruń, 2000, Johannesburg, 2001, Olsztyn, 2002, Białystok, 2008, Zielona Góra, 2009, Katowice, 2010, Kielce, 2012). The new interdisciplinary field of study, entered on the ministerial list of courses in 1992, did not have a corresponding research discipline or relation to the tradition of education. The conference has become an important forum for the exchange of experiences and common understanding. The leading theme, which to this day is the subject of much debate and controversy, both at home and abroad, was the problem of multi- and interdisciplinary environment study, the course which is at the crossroads of many scientific areas. After twenty years of experiences, we ask the question, what we have achieved in the formulated goals of education, the structure of degree programs, developed teaching material, method and learning outcomes. The most important effects of the integration of domestic and international comparability of education programs are a relatively short period of implementation of ECTS, developing criteria and standards for the accreditation of UKA and PKA, the active participation of experts in accreditation procedures and the development of the area of learning outcomes. In practice, for those who manage it meant the ease of learning and the implementation of good academic practice. The challenge of interdisciplinarity in environmental education is the creation of a new legal situation of “environmental protection” discipline in two areas: life sciences and

chemical sciences. This challenge can be summarized in the question: will the logic of further development be the loss of awareness of the need of interdisciplinary environmental protection? New challenges should act as an incentive to continue the tradition of regular meetings of the younger generation, who is responsible for the future of education in this increasingly important social field.

Key words: academic integration, education, environmental protection

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