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TRANSGRESSION – TRANSDISCIPLINARITY – TRANSLATION[1]

> *Limited as we are in every way,*
> *this state which holds the mean*
> *between two extremes is present*
> *in all our impotence*
>
> Blaise Pascal, *The Thoughts*, 355

TRANSGRESSION

The phenomenon of dynamic development and wide dissemination of scientific and technical knowledge focuses the attention of sociology. In particular it determines the state of its self-awareness, of course solely its own. By providing successive readings, especially intriguing ones, it inspires researchers and philosophers of science to verify them, as well as to conduct further research, thus influencing the course and formation of processes of developing specialist knowledge. Such intriguing impulses, which attract researchers' attention, include the issue raised by Wolf Lepenies in his essay *Fear and Science*. Lepenies looks at this modern phenomenon not only from the point of view of the successes of the industrial revolution and the processes characteristic of modernity,

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[1] Originally published: Rafał Włodarczyk, "Transgresja – transdyscyplinarność – translacja", [in:] *Interdyscyplinarność i transdycyplinarność pedagogiki – wymiary teoretyczny i praktyczny*, ed. R. Włodarczyk, W. Żłobicki, Impuls, Kraków 2011, p. 53–68.

which have contributed to the growth of the importance of both fields and to their ordering and institutionalization, or philosophical efforts to examine their legitimacy, as well as the internal logic determining the appropriate ways of producing knowledge, division of labour and determining the tasks they should undertake in relation to this. The German researcher focuses his attention on science and technology in which western societies vest hopes to reduce or exclude fear of the forces of nature.

> The view of science as a radical means of reducing fear, if not eradicating it altogether, develops in early modern Europe and is officially confirmed and promoted by seventeenth-century academies [...][2].

The cognitive enthusiasm forming the scientific mentality of modern researchers, which according to Lepenies culminated in the 19th century, seems to be not without significance for the promotion of scientific attitudes outside the narrow circle of scientists and constructors, as well as for the assignment of social functions to science and technology. In other words, the development of science and its social support should be perceived in their interplay:

> Such a scientific mentality is undeniably gaining in importance and is becoming a cultural given in western industrial societies, since science and technology are regarded here as the engines of the enlightenment and thus as the critical mechanisms which have liberated man from the forces of nature, which for centuries have been regarded as incomprehensible and which instill fear[3].

The progress of science and technology seen in this perspective, which gives hope and has a real impact on the remodelling of the organization of western societies, numerous conveniences and an increase in labour productivity, builds up widespread belief in their effectiveness as a universal panacea. The development is mainly supposed to foster the growth of the social sense of security. Therefore,

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[2] W. Lepenies, "Lęk a nauka", [in:] W. Lepenies, *Niebezpieczne powinowactwa z wyboru*, Warszawa 1996, p. 36.

[3] Ibidem, p. 35.

it can be assumed that research-oriented institutions designated in the social division of labour that enjoy trust and are strengthened by it have taken on the role of a kind of defensive mechanism of society, a buffer protecting its members against "direct" confrontation with fear, enabling, the delegation of fear of the forces of nature outside the framework of a typical social practice in the world of everyday life. And if, as Lepenies observes: "Our time, more than the earlier periods, might be an era when large disputes about worldviews and politics evolve around the subject of fear"[4]. Then it is so because "The revealed inability of science and the politics it directs to deal with even a distant catastrophe has its root cause in the inability of science to react appropriately to phenomena that cause anxiety"[5]. Currently, science and technology do not fulfil the function entrusted to them as institutions, which constitutes the social justification indicated here. Their development not only fails to reduce social anxiety, but also introduces numerous threats and problems, and thus intensifies it.

> Self-deception is not a problem as long as science and technology continue to make spectacular progress in understanding external nature and in combating exogenous fears. However, this progress has been halted: genetic technology and the splitting of the atom have consequences that no longer eliminate fears, but awaken fears of irreversible pollution of the environment and destruction of our world of life[6].

According to Urlich Beck, who studies the consequences of modernism like Lepenies, this new definition of the situation leads to a radical change in the way modern societies are organised: "we are eye-witnesses – as subjects and objects – of a break within modernity, which is freeing itself from the contours of the classical industrial society and forging a new form – the (industrial) 'risk society'"[7]. Beck places the re-evaluation of the relationship between science, technology and society in a broader perspective: the logic of the crisis of

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[4] Ibidem, p. 47.
[5] Ibidem, p. 49.
[6] Ibidem, p. 51.
[7] U. Beck, *The Risk Society. Towards a New Modernity*, London, New Bury Park, New Delhi 1992, p. 9.

modernity and the emergence of its variant which is reflexive modernity; the crisis of this modernity, for which one of the main determinants was considered the planned and organized transformation of the conditions regarding functioning of western societies. Therefore, despite its revolutionary effects, such as the establishment of a new quality in the form defined by Beck as a 'risk society', the change itself should be seen as relatively fluid:

> When modernization reaches a certain stage it radicalizes itself. It begins to transform, for a second time, not only the key institutions but also the very principles of society. But this time the principles and institutions being transformed are those of modern society[8].

In other words, the threats posed by the modernisation process, hitherto of a local nature, as a result of the research progress and technological development, their intensity and systematic increase, have both increased and intensified, which has fundamentally changed their nature and, in Beck's opinion, resulted in the establishment of a separate 'sphere', not controlled by modern institutions, which generates risks that are difficult to define and assess on a global scale[9], the sphere requiring radical changes in the way in which fundamental sources and methods of threat functioning are perceived and counteracted, and thus continue the process of modernisation on new principles:

> Modernity has not vanished, but it is becoming increasingly problematic. While crises, transformation and radical social change have always been part of modernity, the transition to a reflexive second modernity not only changes social structures but revolutionizes the very coordinates, categories and conceptions of change itself. This '*meta-change*' of modern society results from a critical mass of unintended side-effects[10].

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[8] U. Beck, W. Bonss, Ch. Lau, "The Theory of Reflexive Modernization. Problematic, Hypotheses and Research Programme", *Theory, Culture & Society* 2003, Vol. 20, p. 1. See also: U. Beck, "The Reinvention of Politics", [in:] U. Beck, A. Giddens, L. Scott, *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*, Stanford 1994, p. 5–13.

[9] See U. Beck, "On The Logic Of Wealth Distribution And Risk Distribution", [in:] U. Beck, *The Risk Society*, op. cit, p. 19–50.

[10] U. Beck, W. Bonss, Ch. Lau, "The Theory of Reflexive Modernization", op. cit., p. 2. "This

Modernization of modernism, therefore, presupposes a social division of labour in which the role of science and technology is no longer clear. On the one hand, science and technology are still modern tools for reducing fear of the forces of nature, but on the other hand, fear of the forces released in the process of modernization requires the development of new means and methods of social prevention of threats which "they also cannot be determined by science"[11]. Thus, the production of knowledge socially necessary to deal with new forms of threat exceeds the institutional order established as a result of modernisation and, as a social practice, ceases to be the domain of qualified researchers. As Beck writes, "In risk issues, no one is expert, or everyone is an expert, because the experts presume what they are supposed to make possible and produce: cultural acceptance"[12].

> In the risk socjety, the recognition of the unpredictability of the threars provoked by techno-industrial development necessitates self-reflection on the foundations of social cohesion and the examination of prevailing conversations and foundations of 'rationality'. In the self-concept of risk society, society becomes reflexive (in the narrower sense of the word), which is to say it becomes a theme and a problem for itself[13].

Reflexive modernisation therefore means the dissemination of research practices and the production of knowledge beyond the institutional framework sanctioned by certain procedures specific to academic, scientific and technical centres.

TRANSDISCIPLINARITY

It is disputable to what extent the model of science identified with the ideals of modernity was implemented in the times of the hegemony of

new stage, in which progress can turn into self-destruction, in which one kind of modernization undercuts and changes another, is what I call the stage of reflexive modernization" (U. Beck, "The Reinvention of Politics", op. cit., p. 2).

[11] U. Beck, "The Reinvention of Politics", op. cit., p. 6.

[12] Ibidem, p. 9.

[13] Ibidem, p. 8.

modernism, to what extent Western academies, research centres and institutions monitoring research and scientific careers absorbed it, thus incarnating a way of thinking about the production of knowledge taking into consideration such questions as: in which areas, at what modifications, social and moral costs, with what means, with what conviction or commitment, and with what resistance[14]. Nevertheless, from the point of view of the history of research institutions, it is possible to trace the processes of disciplinarization and institutionalization, emergence and location of new fields and specializations within the academic division of scientific work, in which it should be considered typical. As Krzysztof Michalski writes:

> Specific disciplines are governed by internal logic and have different patterns of rationality. They break down, or fragment the world into parts and layers, prepare their objects, adapt different methods to these preparations, define in their own way specific and non-specific terms that are to describe and explain them. The positive effect of this development is a rapid increase in knowledge and in the efficiency of science, while the negative effect is the problems of structuring, systematizing and integrating this knowledge and the resulting communication problems in the relations between science and science and science and society[15].

What cannot be underestimated is the fact that we are dealing with overlapping of two levels of functioning of the academia, i.e. the scientific and administrative ones, whose progressive rationalisations, in connection with different practices, tasks, objectives and procedures for the production of specialist knowledge and bureaucracy, are not easy to reconcile. Bureaucratisation, according to the

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[14] See e.g.: W. Lepenies, *Between Literature and Science. The Rise of Sociology*, Cambridge 1988; H. Schnädelbach, "Science", [in:] H. Schnädelbach, *Philosophy in Germany 1831–1933*, Cambridge 1984; J. Habermas, "Modernity. An Unfinished Project", [in:] *Habermas and the Unfinished Project of Modernity. Critical Essays on The Philosophical Discourse of Modernity*, ed. M. Passerin d'Entrèves, S. Benhabib, Cambridge 1997; J.-F. Lyotard, *The Postmodern Condition. A Report on Knowledge*, Minneapolis 1984.

[15] K. Michalski, "Interdyscyplinarność, transdyscyplinarność, multidyscyplinarność. Nowy paradygmat w nauce i badaniach", *Ekonomia i Nauki Humanistyczne. Zeszyty Naukowe Politechniki Rzeszowskiej* 2007, Issue 16, p. 85.

concept proposed by Max Weber[16], introduces work division in which posts and tasks are interconnected whereas the criteria of verification of the conducted activities are included in rules and regulations. However, the practices and objectives of research conducted within particular disciplines are not clear and definite. They depend on complex and changing research contexts, on the one hand, the growth of knowledge, which requires constant reinterpretation of assumptions and meanings of its components, and on the other hand, the current state of transformations of the world, the dynamics of which influences, among other things, the re-evaluation of tasks pursued by science, distinguishing among them the tasks oriented towards solving current social problems. The question arises, therefore, about the principle and significance of the cooperation of both planes. According to Jürgen Mittelstrass,

> certain problems cannot be captured by a single discipline. This is true, in particular, of those problems, as for instance rendered clear in the fields of environment, energy and health, which arise from issues not exclusively scientific. There is, and this not just in these fields, an asymmetry in the developments of problems and scientific disciplines, and this is aggravated as the developments of disciplines and science in general are characterised by an increasing specialisation[17].

It seems that at the level of functioning of an individual employed in a research institute, the asymmetry between the management of problems and disciplines overlaps with the tension with which the researcher is confronted, between the professional interest and the cognitive interest. Due to the clearly designated pulse to which the researcher is subject, and a strict division into bars containing components of a measurable value, the rhythm of professional duties (annual

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[16] See M. Weber, *Economy and Society. An Outline of Interpretative Sociology*, ed. G. Roth, C. Wittich, Berkeley, Los Angeles, London 1978, p. 217–226, 956–1005.

[17] J. Mittelstrass, "On Transdisciplinarity", *Trames* 2011, 15(65/60), p. 331. See J. Mittelstrass, "Transdisciplinarity – New Structures in Science" (the paper presented at the conference *Innovative Structures in Basic Research* in October 2000), http://xserve02.mpiwg-berlin.mpg.de/ringberg/Talks/mittels%20-%20CHECKOUT/Mittelstrasp.html (available: 1.05.2010).

plans, research, publications, promotions, reports, verification, criteria for evaluation of individual actions) may take the initiative, direct and give concrete dynamics to the practice of the researcher, who occupies the position, regulated by a score of rules, and located in the order of the amphitheatre of an institution.

Administrative links, due to their formal nature, are easier to maintain and sustain than communication and cooperation between disciplines and researchers, which, without individual initiative, effort and commitment to integration on the part of individuals, can ultimately cease, thereby fostering the separation of disciplines and the isolation of researchers. Therefore, interdisciplinarity, as Mittelstrass points out, which is the proper result of cooperation between disciplines and researchers defining their competences on the basis of an academic division of labour, is not a common practice accepted within traditional research institutions, but as such it constitutes a philosophically and theoretically justified project for revitalising the idea of scientific disciplines, justified by the need to counteract the knowledge disintegration;

> interdisciplinarity – German philosopher points out – is neither something normal, nor something really new, nor the true essence of the scientific order. Where it works, it rectifies misguided developments of science, but also renders apparent that (scientific) thinking in larger disciplinary units has manifestly declined. A whole should again arise out of particularities, both in a systematic as well as in an institutional sense [18].

While administration is related to institutional space and develops within a specific territory, the specialist knowledge generated cannot be unequivocally attributed to just one space. After all, even though it derives from research related to a specific place or body, it aims at theoretical generalizations. Its abstract character eludes administration. As Helga Nowotny notes, bearing in mind especially the character of the present development of science and research,

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[18] J. Mittelstrass, "On Transdisciplinarity", op. cit., p. 330. See also: S. Fuller, *Interdisciplinarity. The Loss of the Heroic Vision in the Marketplace of Ideas*, www.interdiscipline.org/interdisciplinarity/papers/3 (available: 1.11.2009); D. Sperber, "Why Rethink Interdisciplinarity?", www.dan.sperber.fr/?p=101 (available: 1.05.2010).

Knowledge seeps through institutions and structures like water through the pores of a membrane. Knowledge seeps in both directions, from science to society as well as from society to science. It seeps through institutions and from academia to and from the outside world[19].

The union of bureaucracy and science is not mandatory. Both Nowotny and Mittelstrass point out that the way in which dynamically developing research is practiced outside academic centres [20], also their dissemination does not lie within the boundaries of the structure of scientific disciplines, nor does it stick to methodological standards developed and adopted in traditionally practiced science. Therefore, as Nowotny claims,

We need another language to describe what is happening in research. We identified some attributes of the new mode of knowledge production, which we think are empirically evident, and argued that, all together, they are integral or coherent enough to constitute something of a new form of production of knowledge[21].

From the positions adopted by both researchers, it can be deduced that the transdisciplinarity characteristic of the new type of knowledge development, which breaks the monopoly of the academia, is the result of the absence of organisational forms typical for traditional scientific institutions in the numerous spaces where such research develops. Therefore, it can be assumed that both types of knowledge development, i.e. disciplinary and transdisciplinary, will develop in parallel, but not independently of each other.

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[19] H. Nowotny, "The Potential of Transdisciplinarity", p. 1, http://www.helga-nowotny.eu/downloads/helga_nowotny_b59.pdf (available: 1.05.2010).

[20] Mittelstrass gives examples of such research centres and organizations, see J. Mittelstrass, "Transdisciplinarity – New Structures in Science", op. cit. See also: S. Krimsky, *Science in the Private Interest. Has there Lure of Profits Corrupted Biomedical Research?*, New York 2003.

[21] H. Nowotny, "The Potential of Transdisciplinarity", op. cit, p. 1. Such new language seems to be proposed by John Urry in his work *Sociology beyond Societies* (see J. Urry, "Metaphors", [in:] J. Urry, *Sociology beyond Societies. Mobilities for the Twenty-first Century*, London, New York 2000, p. 21–48).

transdisciplinarity – Nowotny writes – does not respect institutional boundaries. There is a kind of convergence or co-evolution between what is happening in the sphere of knowledge production and how societal institutions are developing. [...] What we see today is a resurgence, for instance, of NGOs and other ways in which various kinds of stakeholders organise in shaping social reality. This is why the transgressiveness of knowledge is better captured by the term transdisciplinarity[22].

Writing about the modern form of rational mass administration as the domination of knowledge, Weber pointed out that the development of bureaucracy, resulting from the need for 'stable, flexible, intensive and calculable administration', is inevitable, although to a large extent dependent on technical means of communication for its precision[23]. However, he also pointed to two exceptions that are important in the context of the topic we are dealing with:

Only by reversion in every field – political, religious, economic, etc. – to small scale organization would it be possible to any considerable extent to escape its [bureaucracy –R. W.] influence. [...] Superior to bureaucracy in the knowledge of techniques and facts is only the capitalist entrepreneur, within his own sphere of interest. He is the only type who has been able to maintain at least relative immunity from subjection to the control of rational bureaucratic knowledge. In large scale organizations, all others are inevitably subject to bureaucratic control, just as they have fallen under the dominance of precision machinery in the mass production of goods[24].

22 H. Nowotny, *The Potential of Transdisciplinarity*, op cit., p. 2. It should be emphasized that such terms as inter-, trans- or multidisciplinarity are not consistently used in the literature pertaining to the subject matter, which is partly connected with defining them, see K. Michalski, "Interdyscyplinarność, transdyscyplinarność, multidyscyplinarność", op. cit., p. 87–90.

23 See M. Weber, *Economy and Society*, op. cit., p. 224. George Ritzer in the book *The McDonaldization of Society* (Los Angeles – Melbourne 2019) adopts Weber's thesis on the development of a rational bureaucracy as a starting point and then points to his new model of macdonaldisation, which, in his opinion, constitutes a contemporary radicalisation of the rationality of administration (see p. 19–66). See also the observations on macdonaldization of tertiary education and the whole education system: p. 74–75, 91–92, 126–127, 132–134, 150, 175–179.

24 M. Weber, *Economy and Society*, op. cit., p. 224–225. The development of bureaucracy is connected with. Last chapters (part four, chapters 2–7) of the second volume of 1840

Weber's analyses of the nature of bureaucracy shed some light both on the nature of the development of disciplinarity within traditional scientific institutions as mass associations and on the transdisciplinarity for which associations, private initiatives and businesses, and thus civil society actors, are the cornerstone[25]. However, if we also consider that the interdisciplinary projects, studies and publications, both collective and individual, arising within scientific institutions, have all the characteristics of voluntary associations, activities and initiatives specific to civil society[26], where personal involvement, going beyond the rules and principles adopted is essential, we should perhaps recognise that both inter- and transdisciplinarity, although stemming from different experiences and contexts, are an important component of modern reflexion, resulting according to Beck's thesis, from the achievement by modernity of a critical mass of unintended side-effects. This would mean that not only can transdisciplinary research reinforce the interdisciplinary tendencies of traditional scientific institutions, but that interdisciplinary research, conceived as an antidote to the disintegration of knowledge, should extend its scope to include knowledge produced outside the disciplinary order in the integration agenda and lay the foundations for a two-way transfer of knowledge and research practices. Weber's analyses point to the fundamental limitations that can be placed on transdisciplinary research, which seems to be evidenced by the characteristics of trnasdisciplinarity given by Mittelstrass:

Democracy in America (see A. de Tocqueville, *Democracy in America*, Chicago, London 2000) Alexis de Tocqueville devotes to insightful observations on the concentration of power in the institutions of democratic societies.

25 See E. A. Shils, "Was ist eine civil society?", [in:] *Europa und die Civil Society, Castelgandolfo-Gespräche 1989*, ed. K. Michalski, Stuttgart 1991; M. Walzer, "The Concept of Civil Society", [in:] *Toward a Global Civil Society*, ed. M. Walzer, Providence, Oxford 1995.

26 In this context, it is worth quoting the remarks made by Michalski: "Such a structuring [disciplinary - R. W.] is only a result of scientific fashion, which in addition is very difficult to revise methodologically. This is evidenced, among others, by the fact that the ongoing change in the European model of science towards the synthesis and integration of research defined as inter- or transdisciplinarity is not a reaction of science to internal scientific criticism, but a result of external social processes" (K. Michalski, "Interdyscyplinarność, transdyscyplinarność, multidyscyplinarność", op. cit., p. 86). "Contrary to popular definitions, the place of alternative, inter- and transdisciplinary research is not 'between' or 'over' disciplines, but 'beyond' the traditional disciplinary paradigm" (Ibidem, p. 94).

transdisciplinarity is first of all an integrating, although not a holistic, concept. It resolves isolation on a higer methodological plane, but it does not attempt to construct "unified" interpretative or explanatory matrix. Second, transdisciplinarity removes impasses within the historical constitution of fields and disciplines, when and where the latter have either forgotten their historical memory, or lost their problem-solving power because of excessive speculation. For just these reasons, transdisciplinarity cannot replace the fields and disciplines. Third, transdisciplinarity is a principle of scientific work and organization that reaches out beyond individual fields and disciplines for solutions, but it is no trans-scientific principle. [...] Last of all, transdisciplinarity is above all a *research principle*, when considered properly against the background I have outlined concerning the forms of research and representation in the sciences, and only secondarily, if at all, a *theoretical principle*, in the case that theories also follow transdisciplinary research forms [27].

According to Mittelstrass, transdisciplinarity being "a *scientific research principle* that is active wherever a definition of problems and their solutions is not possible within a given field or discipline", is not simultaneously "a *theoretical principle* that might change our textbooks" [28]. Practice-oriented transdisciplinary research, representing and prioritising public interest over scientific interest, does not place its projects in a broader theoretical plan and in the perspective of the ideal of unity of knowledge and thus does not go beyond the level of generalizations necessary for direct application and use of knowledge. Although they undermine the order of the structure of scientific knowledge by pursuing cognitive interests where necessary, they are neither an alternative nor an adequate level of general knowledge necessary to carry out the theoretical and practical integration that is autonomous of the existing scientific knowledge system and not

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[27] J. Mittelstrass, "On Transdisciplinarity", [in:] *Science and the Future of Mankind*, Vatican 2006, p. 498.

[28] J. Mittelstrass, "Transdisciplinarity – New Structures in Science", op. cit. Mittelstrass emphasizes that "This characterisation of transdisciplinarity points neither to a new (scientific and/or philosophical) holism, nor to a transcendence of the scientific system" (J. Mittelstrass, "On Transdisciplinarity", [in:] *Science and the Future of Mankind* op. cit., p. 497), as well as that „pure forms of transdisciplinarity are as rare as pure forms of disciplinarity" (Ibidem, p. 498).

mediated therein. Orientation towards such objectives would require the development of an organisational apparatus for research, which entails the difficulties signalled by Weber, and thus a loss of dynamism and independence characteristic of the activities carried out in small teams, which are not motivated by the development of bureaucratic rationality. However, the development of transdisciplinary research can have a significant impact on the scientific knowledge system, reinforcing the interdisciplinary trends potentially and practically present in its structure. As Mittelstrass notes:

> If research takes on increasingly transdisciplinary forms, then temporary research cooperatives are the appropriate organizational form, and not isolated component systems. [...] Transdisciplinarity would in this sense be the gadfly of the scientific order [29].

TRANSLATION

The phenomenon of knowledge disciplinarisation as a result of complex and uneven processes of specialisation, institutionalisation and division of labour is also worth looking at from a historical perspective. The book by Wolf Lepenies *Three Cultures* can serve as an example of such an approach. As Lepenies announces in the first three units of "Introduction", he discusses in the book "connection between two groups of intellectuals: on one hand the men of letters, i.e. the writers and critics, on the other the social scientists, above all the sociologists".

> For the middle of the nineteenth century – Lepenies observes – onwards literature and sociology contested with one another the claim to offer the key orientation for modern civilization and to constitute the guide to living appropriate to industrial society. [...] This competing discloses a dilemma which determined not only how sociology originated but also how it then went on to develop: it has oscillated between scientific orientation which has led it to ape the natural sciences and a hermeneutic attitude

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[29] J. Mittelstrass, "Transdisciplinarity – New Structures in Science", op. cit. See also: L. Witkowski, "Problem 'radykalnej zmiany' w nauce", [in:] L. Witkowski, *Tożsamość i zmiana. Epistemologia i rozwojowe profile w edukacji*, Wrocław 2010.

which has shifted the discipline towards the realm literature. The connection between a literary inteligentsia and a inteligentsia devoted to the social sciences was thus an aspect of a complex process in the course of which scientific modes of procedure became differentiated from literary modes [...][30].

According to Lepenies, still at the end of the 18th century, the way in which knowledge on social research is practiced was not diversified. In the mid-19th century Karl Marx or later Hippolyte Taine point to Balzac's *Human Comedy*, which was originally intended to be called *Social Studies*, seeing it as an unprecedented document of human nature, and Henry James speaks of the French writer's opus magnum as a counterpart of what August Comte's sociology aspires to[31]. Gustave Flaubert and Emil Zola saw their achievements in a similar way. However, not only in France, academic sociology, for which natural science is a model, tries to prove its scientific excellence by, among other things, dissociating itself from literature.

Thus there was soon set in train an inner-disciplinary process of purification: disciplines such as sociology, which at first locked recognition within the system of knowledge and had to acquire it, sought to do so by dis tancing themeselves from the early literary forms of their own discipline, whose purpose was rather to describe and classify than to analyse and reduce to a system. [...] The problem of sociology is that, although it may imitate the natural sciences, it can never become a true natural science of society: but if it abandons its scientific orientation it draws perilously close to literature[32].

Sociology is, of course, just an example. This fragment of Lepenies' analysis allows us to make some additional comments on the relationship between disciplinary, inter- and transdisciplinary research. We can assume that the consolidation of the academic system of sciences has

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[30] W. Lepenies, "Introduction", [in:] W. Lepenies, *Between Literature and Science*, op. cit., p. 1. In the book, the author follows the fate of sociology and its being 'in-between' three areas, discussing in turn the situation in France, England and Germany.

[31] See Ibidem, p. 4–5.

[32] Ibidem, p. 7.

been accompanied by transdisciplinary research since its inception, but as sociology shows, the growing distance between academia and non-academic forms of knowledge production and the institutionalization-related identity policies within individual disciplines have led to a gap between the two forms of research. The problem of relations, interdependencies and the flow of knowledge between disciplinary and inter- and transdisciplinary research is not so much something new as it is now returning on the wave of reflexive modernisation, the necessity to counteract the isolation of disciplines in the structure of the scientific system and the socially perceptible risk generated by the development of scientific research and modern technology.

The subject matter taken up by Lepenies, and especially the example of tensions between science and literature, allows us to see and distinguish the specific problem of translation, which is specific to the flow of knowledge. Two ways of producing knowledge not only create separate structures, but also languages characteristic of each other, between which the transfer of knowledge and practices requires translation-related competence. According to the assumptions of one of the hermeneutical theories, we can assume that all understanding equals translation, and the increase in hermeneutical competence is related to translation practice[33].

> translation is – George Steiner observes – formally and pragmatically implicit in *every* act of communication, in the emission and reception of each and every mode of meaning, be it in the widest semiotic sense or in more specifically verbal exchanges. To understand is to decipher. To hear significance is to translate. Thus the essential structural and executive means and problems of the act of translation are fully present in acts of speech, of writing, of pictorial encoding inside any given language. Translation between different languages is a particular application of a configuration and model fundamental to human speech even where it is monoglot[34].

[33] See H.-G. Gadamer, "Lesen ist wie Übersetzen", [in:] *Gessamelte Werke*, Vol. 8, Tübinge 1993; G. Steiner, "Understanding as Translation", [in:] G. Steiner, *After Babel. Aspects of Language and Translation*, Oxford 1992.

[34] G. Steiner, *After Babel*, op. cit., p. xii. "Any model of communication is at the same time a model of trans-lation, of a vertical or horizontal transfer of significance" (Ibidem, p. 47). See also R. Włodarczyk "Hermeneutics Of Translation – The Fundamental

Both the differences between numerous idiomatic languages in which we operate and which we use on a daily basis, as well as the differences between the order of thinking and the order of action require us to master and constantly develop our translation skills. The more often we use a language and its individual components, the easier, more efficient and, consequently, automatically and invisibly for ourselves, the process of translation takes place. Practicing the research within a given discipline develops our translational proficiency in this discipline, and thus deepens our understanding of related issues. At the same time, however, this specialist orientation does not increase or even decrease our chances of communicating with experts practicing in another field and of transferring knowledge on both sides. Translation problems can also arise between practitioners in the same field, but in different environments that are not isolated from local influences and shape the language of the researcher or their group. In other words, knowledge of the dialect developed in a given centre of cultural anthropology does not translate into proficiency in understanding political science texts, just as a good knowledge of French is not enough to understand medieval Latin texts, even though learning a foreign language of one's own may help to master another, especially a similar one, and also broaden the understanding of the language we speak every day. We are multilingual and need to understand, so we need to be able to translate.

In this context, the situation and the status of disciplines such as pedagogy, cultural studies and environmental protection should be highlighted. In pedagogy the auxiliary sciences such as psychology, sociology, anthropology, etc. should be taken into account. As they play the role of an essential component of the perspective adopted in the research on education, the conduct of which requires prior integration of knowledge from these disciplines and only with its participation the relevant pedagogical research problems can be identified[35].

Aspect Of Dialogue. Around The Concept Of George Steiner" in this book.

[35] See K. Rubacha, "Związek pedagogiki z innymi naukami", [in:] *Pedagogika. Podręcznik akademicki*, ed. Z. Kwieciński, B. Śliwerski, Warszawa 2003; T. Hejnicka-Bezwińska, *Pedagogika ogólna*, Warszawa 2008, p. 215–221, 241–246. It does not mean that we can talk about something as self-sufficiency of other disciplines, see L. Witkowski, *Problem 'radykalnej zmiany' w nauce*, op. cit.; L. Witkowski, "Uwagi o interdyscyplinarności

In other words, the field of pedagogy has a lot in common with many disciplines, however, it does not overlap with any of them, nor does it function outside them. The same can be said of social psychology, cultural studies or environmental protection, taking into account their respective auxiliary sciences. The status of pedagogy can be described as interdisciplinary due to the fact that its self-determination requires the integration of knowledge from the scope of other scientific disciplines. Moreover, pedagogy, more closely than other disciplines, which are mainly cognitively oriented, is connected with social practice, and specifically with educational practice. The pedagogical studies that are to prepare for educational research and practice presuppose the development of competence in translation from the languages of auxiliary disciplines into the languages specific to pedagogy and its sub-disciplines and in mutual directions between educational theories and educational practice. Educational science studying pedagogies which are transdisciplinary, such as socially created knowledge and educational strategies [36], develops its integrative potential embracing with it the phenomena which are characteristic for non-academic social practice, i.e. development of knowledge in the area of functioning of civil society. Due to our potential and specific conditions, we can see in pedagogy the model of an institution of translation [37], a discipline located on the borderline of humanities and social sciences, integrating and studying the conditions for the transfer of disciplinary, inter- and transdisciplinary knowledge, and capable of producing the knowledge necessary to educate in the field of inter- and transdisciplinary translation.

w pedagogice (z perspektywy epistemologii krytycznej)", [in:] L. Witkowski, *Ku integralności edukacji i humanistyki II*, Toruń 2009.

[36] Z. Kwieciński, "Pedagogika przejścia i pogranicza", [in:] Z. Kwieciński, *Tropy – ślady – próby. Studia i szkice z pedagogii pogranicza*, Poznań – Olsztyn 2000.

[37] In the context of the concept of pedagogy of asylum (see R. Włodarczyk, *Lévinas. W stronę pedagogiki azylu*, Warszawa 2009) we can talk about a particular area of research into education which have asylum – like qualities of an institution, organisation or translation practices.

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Abstract:

Successive parts of the article deal with the development of disciplinary, inter- and transdicyplinary research and its mutual relations and conditions in a new scientific and social context connected with reflexive modernization. The author points to pedagogy as a discipline that can be a model of an institution of translation, a discipline located on the borderline of humanities and social sciences, integrating and studying the conditions for the transfer of disciplinary, inter- and transdisciplinary knowledge, and which can develop the knowledge necessary to educate in the field of inter- and transdisciplinary translation.