



Transversal Competencies for the Challenges of the Anthropocene *Model kompetencji transwersalnych wobec wyzwań antropocenu*

ABSTRACT

RESEARCH OBJECTIVE: This article examines the potential of transversal competences, interpreted from a pro-planetary perspective, as a universal framework for transformative education in the Anthropocene. It introduces this concept into pedagogical discourse by emphasising interdependence, sustainability, and the need to redefine the human-world relationship. This perspective broadens the educational meaning of competence beyond employability, adaptation, and individual performance in changing social conditions.

THE RESEARCH PROBLEM AND METHODS: The main problem concerns how transversal competences, extended by a pro-planetary dimension, can overcome the adaptive and anthropocentric paradigm of education and support learning grounded in relationality, shared responsibility, and reflexivity. The study uses literature analysis, critical interpretation, and comparative analysis of European and Polish competence-related policy documents, including Key Competences for Lifelong Learning, LifeComp, GreenComp, and the Education Law Act.

THE PROCESS OF ARGUMENTATION: The article is theoretical and analytical. The first section reinterprets competence from a critical perspective and links it to transformative education. The second compares European and Polish competence frameworks, identifying axiological, conceptual, and operational differences. The third presents an original five-dimensional model of pro-planetary transversal competences.

RESEARCH RESULTS: European documents place transversal competences within the sustainable development paradigm by integrating cognitive, ethical, and social dimensions. In Polish documents, this approach remains emergent and weakly operationalised, indicating the need to strengthen it through environmental values and responsibility. The findings also show how transversal competences may be operationalised in accordance with EU frameworks and current sustainability strategies.

CONCLUSIONS, RECOMMENDATIONS AND APPLICABLE VALUE OF RESEARCH: Adding a pro-planetary dimension to transversal competences shifts education from individual advancement

toward creating a shared world. National curricula should be updated in light of LifeComp and GreenComp, competence descriptors should be developed for teacher education, and a pedagogy of interdependence should be cultivated through reflexivity, shared responsibility, and an ethics of moderation.

→ **KEYWORDS:** **ANTHROPOCENE, TRANSVERSAL COMPETENCES, TRANSFORMATIVE EDUCATION, PRO-PLANETARY, CAREER GUIDANCE**

STRESZCZENIE

CEL NAUKOWY: Celem artykułu jest ukazanie możliwości zastosowania kompetencji transwersalnych – interpretowanych w perspektywie proplanetarnej – jako uniwersalnej ramy teoretycznej edukacji transformacyjnej w antropocenie. Artykuł zmierza do włączenia pojęcia kompetencji transwersalnych do dyskursu pedagogicznego, akcentując współzależność, zrównoważony rozwój i konieczność redefinicji relacji człowieka ze światem.

PROBLEM I METODY BADAWCZE: Główny problem badawczy ujmuje pytanie o to, w jaki sposób kompetencje transwersalne – rozszerzone o wymiar proplanetarny – mogą zastąpić adaptacyjny i antropocentryczny paradygmat edukacji, stając się podstawą uczenia opartego na relacyjności, współodpowiedzialności i refleksyjności. Zastosowano metodę analizy i krytycznej interpretacji literatury przedmiotu oraz analizę porównawczą dokumentów dotyczących ram kompetencji: europejskich (Key Competences for Lifelong Learning, LifeComp, GreenComp) i krajowych (m.in. Ustawa Prawo oświatowe).

PROCES WYWODU: Artykuł ma charakter teoretyczno-analityczny. W pierwszej części podjęto reinterpretację pojęcia kompetencji w nurcie krytycznym, ukazując ich związki z edukacją transformacyjną. W części drugiej przeanalizowano europejskie i polskie dokumenty dotyczące kompetencji, identyfikując różnice aksjologiczne, pojęciowe i operacyjne. W części trzeciej zaprezentowano autorski pięciowymiarowy model kompetencji transwersalnych ujmowanych proplanetarnie.

WYNIKI ANALIZY NAUKOWEJ: Analiza wskazuje, że europejskie dokumenty ujmują kompetencje transwersalne w paradygmacie zrównoważonego rozwoju, integrując perspektywy poznawcze, etyczne i społeczne. W polskich dokumentach podejście to dopiero się kształtuje, a jego operacjonalizacja jest ograniczona, co potwierdza potrzebę wzmocnienia tej kategorii poprzez odniesienie do wartości i odpowiedzialności środowiskowej. Wyniki mają znaczenie na poziomie europejskim, ponieważ wskazują możliwości operacjonalizacji kompetencji transwersalnych w zgodzie z unijnymi ramami kompetencji i strategiami zrównoważonego rozwoju.

WNIOSKI, REKOMENDACJE I APLIKACYJNE ZNACZENIE WPŁYWU BADAŃ: Włączenie wymiaru proplanetarnego do klasyfikacji kompetencji transwersalnych przesuwaa akcent edukacji z rozwoju indywidualnego ku tworzeniu świata wspólnego. Rekomenduje się aktualizację podstaw programowych w świetle LifeComp i GreenComp, opracowanie deskryptorów kompetencji

transwersalnych w kształceniu nauczycieli oraz rozwijanie pedagogiki współzależności opartej na refleksyjności i etyce umiaru.

→ **SŁOWA KLUCZOWE: ANTROPOCEN, KOMPETENCJE TRANSWERSALNE, EDUKACJA TRANSFORMACYJNA, PROPLANETARNOŚĆ, DORADZTWO ZAWODOWE**

Introduction

The Anthropocene, understood as an epoch of profound human interference in Earth's systems, prompts a redefinition of the aims of education. In the face of the climate and ecological crisis, pedagogy must address the question of which competencies are needed today. The Intergovernmental Panel on Climate Change (IPCC) indicates that human activity, primarily through greenhouse gas emissions, has unequivocally caused global warming, leading to "widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere," as well as to "pervasive ecosystem degradation and loss of biodiversity, largely driven by human influence on the climate system" (IPCC, 2023, pp. 4, 6).

The literature emphasises that contemporary schooling continues to operate within an anthropocentric narrative, in which nature and other forms of life serve as a backdrop to human activity. As noted by Beata Gola (2023), Polish school textbooks position humans as superior to the environment, reinforcing an axiological distance from nature and hindering the development of attitudes of co-responsibility and environmental empathy. Education thus becomes a space for transforming ways of thinking about the human–world relationship. Education thus becomes a space for transforming ways of thinking about the human–world relationship. Such a reconceptualisation of education requires a shift from adaptive to transformative education (Mezirow, 1991), which forms the foundation of a learning paradigm grounded in responsibility and coexistence. In this context, education needs to reformulate both its aims and its language.

This article presents a model of transversal competencies in a pro-planetary perspective as a foundation for transformative education. These competencies integrate cognitive, axiological, and practical dimensions, offering an alternative to anthropocentric models of education and a point of departure for a pedagogy of interdependence. In the subsequent part of the article, the concept of competence is reinterpreted.

Competencies Between Adaptation and Change – Toward a Reflective Approach

The concept of competence has become a key element of late twentieth-century educational discourse. While this is difficult to dispute, its widespread use has led to semantic

ambiguity and flattening. In a technocratic perspective, competencies are equated with a catalogue of skills and abilities that can be verified, and education is thereby embedded within a logic of utility and adaptation. Such reduction results in the loss of axiological and emancipatory dimensions, as the human being is reduced to an instrumental function rather than a reflective participant in culture and community.

Analysing the concept in its context, Maria Czerepaniak-Walczak emphasises its dynamic and processual nature. Competencies are not a state of possession but a continuously updated process, adjusted to context, in which stability is combined with dynamism and the capacity to integrate new experiences into existing knowledge structures. The author describes them through the metaphor of a river current (encompassing past experiences, the present, and anticipation), stressing that the essence of competence lies in change, expressed through the individual undertaking new behaviours.

Examining Czerepaniak-Walczak's typology, one can observe that its fundamental criterion is the role of competencies in generating individual behaviour. She distinguishes four types: initial (adaptive), mature (reconstructive), change-oriented (transgressive), and core (emancipatory) (Czerepaniak-Walczak, 1999, pp. 60–65). Each type reflects a different mode of participation in reality – from adaptation to conscious co-creation.

Thus, the use of the category of competence in this text is not incidental. The concept reveals the processual, relational, and reflective dimension of human action – one in which knowledge, values, and experience converge in life practice. Understood in this way, competencies transcend the instrumental dimension of education: they become a space of subjectivity, responsibility, and change. They also function as an integrative concept, capable of linking theory with practice, cognition with valuation, and individual development with concern for the common good. For this reason, they constitute an appropriate analytical category in the context of transformative education – understood as learning oriented toward change and coexistence.

Research procedure. The article is theoretical and analytical. The adopted research procedure consisted of three stages: (1) a review of scholarly literature in pedagogy, philosophy of education, and environmental humanities (including Mezirow, 1991; Latour, 2018; Guichard, 2018; Czerepaniak-Walczak, 1999; Gola, 2023); (2) an analysis of competence frameworks included in European sources such as Key Competences for Lifelong Learning (Council of the European Union, 2018), LifeComp (Sala et al., 2020), GreenComp (Bianchi et al., 2022), and TRANSVAL-EU (TRANSVAL-EU Consortium, 2022).

These documents form the basis of the analyses conducted in this text; for clarity of argument, their commonly used names (as in the original, e.g., GreenComp) will be used in the following sections, with full references provided in the bibliography. The procedure also included an analysis of differences in the conceptualisation of competencies between European and national documents (based on current educational regulations and strategies in Poland).

The procedure aimed to identify axiological and semantic differences in understanding transversal competencies and to assess their potential for building a transformative education paradigm. The analysis revealed a shift in the status of competencies in

educational discourse – from an instrumental, utilitarian understanding to a reflective, relational approach linked to the idea of lifelong learning.

This shift is particularly visible in the context of transversal competencies, which are regaining importance in Polish pedagogical reflection. The literature emphasises their role in shaping the capacity for lifelong learning, prospective thinking, and the integration of knowledge and values in action (Kwiatkowski, 2018; Dębowski & Stęchły, 2019; Szpilko et al, 2024). In this context, the proposed model of transversal competencies aligns with a broader search for new educational paradigms that integrate cognitive, axiological, and existential dimensions. In this approach, transversal competencies are situated within the domain of core competencies, determining an individual's capacity to transcend existing patterns of action reflectively.

A Model of Transversal Competencies – Toward Education Based on Interdependence

Transversal competencies are relational and integrative, permeating various domains of life: personal, social, professional, and environmental. Their essence lies in the ability to transfer and synthesise knowledge, values, and actions across contexts. In this sense, they connect learning, reflexivity, and agency.

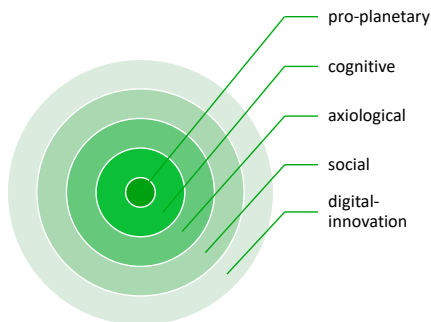
In European competence frameworks – GreenComp, LifeComp, and Key Competences for Lifelong Learning – transversal competencies are meta-competencies that support lifelong learning, cooperation, empathy, and critical thinking. However, in the conditions of the Anthropocene, their significance extends beyond the psychosocial dimension – they become competencies for survival and coexistence, not merely for employability.

In European frameworks, transversal competencies occupy a distinctive position, serving as an axis integrating personal, social, and civic development with concern for the common good and the future of the planet. Unlike sector-specific competencies, they are not confined to a single domain of knowledge or professional activity but enable the transfer of experiences and meanings across educational, social, and environmental contexts.

From a pedagogical perspective, transversal competencies enable the crossing of boundaries between school subjects, educational sectors, and spheres of life. By their nature, they constitute a condition for subject-oriented, reflective, and responsible agency – that is, the capacity to act in a complex, uncertain, and interdependent world. In the context of the challenges of the Anthropocene, they take on particular significance, enabling individuals to participate in processes of socio-ecological transformation actively.

Based on an analysis of European frameworks (GreenComp and LifeComp) and pedagogical reflection on the role of education in the Anthropocene, a five-dimensional model of transversal competencies is proposed, incorporating a pro-planetary dimension – focused on care for life in its diverse forms and for maintaining the conditions of continuity of existence in the future.

Figure 1. Model of Dimensions of Transversal Competencies



Source: author's own elaboration based on: GreenComp (Bianchi et al., 2022), LifeComp (Sala et al., 2020), Key Competences for Lifelong Learning (Council of the European Union, 2018), TRANSVAL-EU (TRANSVAL-EU Consortium, 2022).

The model comprises five interrelated dimensions of competencies which – according to EU-level documents (Key Competences for Lifelong Learning, LifeComp, GreenComp, TRANSVAL-EU) – constitute a metastructure for lifelong learning. Within this framework, each dimension is considered in the context of the interdependence of the individual, society, and the environment.

The pro-planetary (eco-humanistic) dimension forms the transformative core of the entire model. It integrates an awareness of human coexistence with the planet with a readiness to undertake regenerative actions that support life in its diverse forms. Competencies within this dimension translate ethical reflection into ecological practice (GreenComp), including interspecies empathy, care for resources, moderation, climate responsibility, and ecological agency.

The cognitive dimension refers to the capacity to understand complex interdependencies among social, natural, and cultural phenomena. It emphasises systems thinking, critical reflection, and the ability to learn in changing contexts (LifeComp). Example competencies include critical and systems thinking, awareness of the consequences of actions, and learning from nature.

The axiological (ethical) dimension concerns the ability to recognise values and act in accordance with them. Competencies within this dimension foster moral reflection, integrity, and decision-making oriented toward the common good (Key Competences for Lifelong Learning), including axiological reflexivity, moral responsibility, a sense of purpose, and social justice.

The social (relational) dimension encompasses competencies that enable cooperation, dialogue, and empathy – both in interpersonal relations and in human–environment relations. It supports the building of communities grounded in reciprocity, trust, and shared responsibility (LifeComp, TRANSVAL-EU). Example competencies include cooperation, conflict resolution, empathy, participation, and solidarity.

The digital-innovative dimension refers to the capacity to use digital technologies creatively and ethically to support collaboration, communication, and learning. From a pro-planetary perspective, it emphasises the need for sustainable use of technology and innovations that contribute to environmental regeneration (LifeComp, TRANSVAL-EU). Example competencies include creativity, entrepreneurship, responsible use of technology, social innovation, and digital self-awareness.

The inclusion of the pro-planetary dimension extends the understanding of transversal competencies from a psychosocial to an ecosocial perspective. Pro-planetary competencies constitute a meta-attitude permeating all dimensions, emphasising that human being's function within interconnected social and natural systems. From the perspective of labour pedagogy and career guidance, they open new possibilities for interpreting categories such as work, development, and career. In this approach, development is not defined by individual success but by the capacity to co-create sustainable conditions for life and work. Transversal competencies with a pro-planetary dimension thus form the foundation of education based on interdependence and provide a conceptual basis for thinking about education in the Anthropocene.

Systemic Gap: Competencies in European and National Documents

In European educational discourse, transversal competencies are gaining prominence, whereas in Poland they remain largely absent from educational law and policy. Despite numerous declarations about the development of so-called “future competencies” (however defined), the Polish education system continues to reinforce an adaptive paradigm that aligns individuals with the demands of the current labour market. Analysis of European and national documents indicates that the differences between them stem from divergent axiological and conceptual foundations.

At the European level, recent years have seen a clear shift in the understanding of competencies – from traditional, utilitarian definitions (linked to employability) toward transformational competencies that integrate cognitive, social, and ethical dimensions. An important step in this direction was the revision of the Key Competences for Lifelong Learning, which strengthened the role of civic, social, digital, and learning competencies, although without explicitly distinguishing their ecological dimension. It is only within LifeComp and GreenComp that competencies are defined as the capacity to function in an interdependent, complex, and uncertain world.

Of particular importance are the European Sustainability Competence Frameworks, which identify four key areas: systems thinking, envisioning futures, acting for sustainability, and learning from nature. These areas include components corresponding to pro-planetary competencies, understood as the capacity for reflective participation in ecological transformation processes. At the European level, these competencies form the foundation of education grounded in planetary responsibility – an orientation still absent in Polish policy documents.

In national legal acts, the concept of competence operates primarily in a functional sense, as a set of skills related to professional work and social activity. Analysis of key regulations indicates that transversal competencies have neither been clearly defined nor operationalized – both in the Education Law Act and in the 2019 regulation on career guidance – which omit dimensions such as reflexivity, cooperation, and pro-environmental agency. The absence of pro-planetary competencies is therefore not only systemic but also reinforced at the level of didactic and symbolic discourse.

As noted by Beata Gola (2023), Polish school textbooks continue to be dominated by an anthropocentric narrative in which humans are presented as superior to nature, while the natural environment is treated as a backdrop to human activity and a source of resources. Such a vision of reality hinders the development of ecological sensitivity, interspecies empathy, and interdependence – foundations of pro-planetary competencies.

The model of transversal competencies proposed in this text, incorporating a pro-planetary dimension, therefore constitutes not only a methodological proposal but also a response to the anthropocentrism of Polish education. This shift in perspective enables a move from adaptive education toward education for coexistence – one that understands the world as a shared ecosystem of interdependencies rather than a hierarchy.

Conclusions From the Analysis

The analysis indicates that, at the European level, transversal competencies are already embedded within the paradigm of sustainable development, whereas in Poland their status remains marginal. This gap is not merely terminological – it reflects a bigger difference in the understanding of educational aims: from reactive education toward transformative education.

The absence of transversal and pro-planetary competencies in national strategic documents results in systemic neglect of ecological responsibility, environmental empathy, and interdependence – elements crucial to education in the Anthropocene. As a result, formal education in Poland, instead of preparing young people to live in a world of uncertainty, change, and shared responsibility, continues to reinforce a model oriented toward adaptation to the labour market.

Addressing this deficit requires not only revising curricula but also developing new theoretical and methodological frameworks that support the reflective, axiological, and prosocial development of individuals. In this perspective, transformative education is not merely an expanded form of environmental education. However, it represents a paradigm shift in which the human being is understood as part of a complex network of biospheric, social, and economic interdependencies. It aims to develop the capacity to understand, co-create, and regenerate the shared world.

In this sense, the classification of transversal competencies proposed in this article aligns with the idea of education based on interdependence – an approach that recognises the interconnectedness of humans, society, and the environment; integrates

knowledge, values, and action in the process of learning meaning and responsibility; and introduces an ethics of care and moderation into educational practice.

Conclusion. Education in the Anthropocene requires a shift in perspective: from viewing the human being as a subject dominating the world to understanding the human as part of a multidimensional network of relationships. This turn toward a pedagogy of interdependence entails moving away from the vision of education as an instrument of adaptation and economic growth, toward education understood as a practice of care, reflexivity, and co-creation of life. In this context, transversal competencies – especially in their pro-planetary dimension – become not so much tools for individual development as forms of learning shared responsibility for the world.

Environmental humanities, which provide the theoretical foundation for contemporary research on education in the Anthropocene, emphasise that the climate and ecological crisis is simultaneously a crisis of relationships and meanings. As Bruno Latour (2018) observes, we have never been as connected to the Earth as we are today. We are discovering that we inhabit a territory that must be shared with other beings, and that this territory is no longer a backdrop to human activity but an active participant in what unfolds. Education should therefore develop the capacity for coexistent thinking – recognising oneself in relation to other people, species, and ecosystems.

In Jean Guichard's (2018) perspective, a similar role is played by the life design dialogue, in which individuals, as they shape their career paths, simultaneously redefine their relationship with the world.

The model of transversal competencies proposed in this article has a universal character – it constitutes a theoretical framework applicable across various domains of education and social practice. It aims to present the human being as an interdependent entity – knowing, acting, and valuing in relation to both the social and natural world. The model aligns with the transformative education paradigm, which seeks to change how relationships among knowledge, values, and action are understood. From the perspective of career guidance, the model corresponds with the concept of eco-career (Nawój-Połoczańska, 2023), in which professional development is understood as a process of co-creating the meaning of life and work in harmony with the planet. Both approaches share the conviction that education and guidance can become spaces not only for individual development but also for the regeneration of the social and natural world.

The model of transversal competencies thus provides a theoretical foundation for a new generation of career guidance – one oriented toward interdependence, responsibility, and pro-planetary agency. It may serve as a tool for designing guidance interventions that support young people and adults in seeking meaning in work, aligning with values, and developing attitudes of care for the shared life on Earth.

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