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PEDAGOGICAL CRITERIA FOR THE ADAPTATION OF ARTIFICIAL INTELLIGENCE TO THE EDUCATIONAL PROCESS*

Introduction: The research presented in this article is located in the field of general pedagogy. They constitute a reflection not only on the effective, but also on the legitimate use of artificial intelligence (AI) in the educational process.
Research Aim: The aim of the research is to formulate pedagogical criteria and the resulting conclusions with a view to enabling educators to optimally integrate AI into the educational process.
Evidence-based Facts: It is assumed that the subject of pedagogical research is characterised by an anthropocentric dimension and concerns the following areas: descriptive, normative and optative-praxiological.
Summary: The criteria presented are the result of correspondences with the accepted areas of pedagogical research and do not constitute a closed canon.

Keywords: *specificum paedagogicum*, artificial intelligence, pedagogical anthropology, teleology, praxeology

INTRODUCTION

The development of artificial intelligence (AI) and its implementation into many areas of social and cultural life is not sparing the areas of education. Therefore, on the one hand, great hopes are formulated among educators about the use of AI in education, while on the other hand, the dangers and threats generated by the uncritical inclusion of AI in the educational process are pointed out. The issue of this article does not come down to taking sides on one of the positions outlined above

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in a rather general and simplistic way. Instead, it is more about presenting dilemmas and problems rather than opportunities and limitations in the use of AI in the educational process from the position of a general educator. Taking another look at the very title of the article, one gets the impression that pedagogy wants to put some conditions on the usefulness of AI. Therefore, it is worth facing the question of whether pedagogy can put such "threshold conditions" at all? The answer is yes. This is related to the scientific status of pedagogy and research integrity. Speaking of "pedagogical criteria" for the inclusion of a phenomenon or knowledge in educational activity is scientific integrity in the sense that from the very beginning the educator marks how he or she will look at, study, capture, operationalize the phenomenon (knowledge) that comes "from outside". Thus, it is not a matter of evaluating extra-pedagogical knowledge, but of formulating a clear message on how this reality will be seen from a pedagogical perspective. Already Herbart (1776–1841) made such a move when he wondered whether pedagogy should deal with all anthropological concepts. At the time, the father of scientific pedagogy stated that "philosophical systems which accept fatalism or transcendental freedom exclude themselves from pedagogy. For they cannot, without falling into inconsistency, adopt the concept of formability (*die Bilsamkeit*), the characteristic of which is the transition from indeterminacy to fixity" (Herbart, 1967, p. 24). After which, he presented his position in detail, which is no longer relevant to the topic taken up here. However, it is worth noting that a preliminary verification of philosophical currents from the position of what Herbart understood as the essence of pedagogy was undertaken.

RESEARCH AIM AND QUESTION

According to the formulated title, the main problem of the article is the question of what are the pedagogical criteria for adapting AI to the educational process. The search for an answer to this question is the purpose of the research undertaken and the text presented. In other words, the purpose of the article is to present pedagogical criteria for the adaptation of AI to the educational process. This issue is important in that it helps to see the changing social (educational) reality – bearing in mind here the increasing presence of AI therein – from the perspective of basic pedagogical assumptions (expectations, demands).

By formulating the problem and aim of the article in this way, I want to point out at the outset that the research presented here is located in the field of general pedagogy, i.e. the reflection on education as a social phenomenon undertaken from a pedagogical perspective. The main method in such a research procedure is deduction, where the understanding of "pedagogical perspective" given below and the educational potential of AI are taken as axioms. The proposed criteria will be

a proposal of exemplary "indicators" that enable educators to optimally integrate AI into the educational process. However, they will not constitute a closed set, so the way for further research in this regard will be open, especially since they will be formulated at a high level of generality, which, on the one hand, protects against the omission of some areas and, on the other hand, demands, however, to be detailed when using them in a specific case. I treat the formulation of the proposed criteria as a proposal to undertake further reflection and discussion on the presence of AI in educational activities, its possibilities and limitations, taking into account not only its value of effectiveness, but also pedagogical validity.

EVIDENCE-BASED REVIEW

As noted in the introduction, the title "pedagogical criteria" is due to the specificity of scientific pedagogy as a field of knowledge, which can be called the pedagogical perspective. The literature now uses the term *specificum paedagogicum* to describe this approach, but one can also point to such terms as pedagogical profile (Nowak, 2012, pp. 25–81), specificity of pedagogy (Kubinowski, 2010, pp. 42–44) or pedagogical *proprium* (Benner, 2015, p. 13). Briefly defining and operationalizing this issue will help describe the pedagogical perspective of looking at the issue of the presence of AI in the educational process and – consequently – will give a basis for indicating the title criteria.

Leaving aside the individual specifications of theoretical proposals in this regard – because this is not the essence of the article – I will only focus on presenting the main questions that define the pedagogical perspective, which are present in all these approaches. Zirfas' position is that pedagogy is interested in answers (research) to four fundamental questions 1) who a person is; 2) why he is who he is; 3) who he can become; 4) who he should become (cf. Zirfas, 2021, p. 13). On this basis, he points to four main dimensions of *specificum paedagogicum*: 1) the descriptive dimension; 2) the exploratory dimension; 3) the optative dimension; 4) the normative dimension. In the literature of Polish researchers, there are often only three areas that substantively contain the entirety of the issues identified by Zirfas. Thus, for example, Kotłowski (1910–1988) lists in pedagogical research the area of: 1) facts, which corresponds to the descriptive and explanatory dimension; 2) duty (normative dimension) and 3) praxeology (optative dimension) (Śliwerski, 2010, p. 55). Gnitecki (1945–2008), on the other hand, points to the following spheres in pedagogical research: 1) the sphere of facts – who is man? – empirical pedagogy; 2) the sphere of values – who is man to be – hermeneutic pedagogy; and 3) the sphere of pedagogical action – who is man to become – praxeological pedagogy (Gnitecki, 1999, p. 75). These are only illustrative exemplifications of the issue being addressed. A certain consensus emerges regarding what constitutes

a pedagogical research perspective. It can be reduced to two conclusions, to which I propose the following names:

- pedagogical anthropocentrism – all the above-mentioned areas focus on the human being. This is an important pedagogical determinant. Thus, it can be said that pedagogy, whatever it studies, studies the human being in selected contexts,
- research complementarity – the above-mentioned areas should be considered together, holistically. That is, only one in these areas exposes the pedagogical perspective to shakiness. Of course, it may be that one of these areas will be prominently featured in specific pedagogical research and others will be marginalized, but pedagogy as such cannot exclude any of these areas on principle. Thus, even when a particular pedagogical study will focus on a selected specific area (and this is most often the case, after all, because it is impossible to deal with everything in a single study), it should always bear in mind its alignment with the other areas that are overlooked in a given situation.

Concluding this section, it should be said that the question of pedagogical criteria for the adaptation of AI to the educational process is operationalized into the areas of issues determined by the above analysis of the pedagogical perspective. For the purposes of the research presented in this article, I pose the following specific questions: 1. What are the criteria for adapting AI to the descriptive-explanatory area in pedagogy? 2. What are the criteria for adapting AI to the normative area in pedagogy? 3. What are the criteria for adapting AI to the optative-praxiological area in pedagogy? I would also like to point out that the first area of the detailed research indicated above is of particular importance. The search for answers to the question of who man is, how he is understood, and why one adopts such and not other understandings of man determines in pedagogy means the impact on the other signaled areas. Gara writes that "the problem of the concept of man already includes the problem of both values and educational goals" and "the adoption of a given anthropological model implies a specific axiological model, the function of which are such and not other moral-ethical standards" (Gara, 2008, pp. 44–45), which succinctly demonstrates the internal relationship of the dimensions indicated above.

Criteria for adapting AI to the descriptive-explanatory field

The descriptive-explanatory area refers to the question of what a given educational phenomenon is and why it is the way it is. An important part of this question – as noted above – is the question of how a person (an alumni) is understood in the context of the educational activity carried out, and why such and not another understanding of a person is adopted. Thus, in this area, research is conducted on the phenomenon of the alumni as such. Efforts are made here to describe and clarify the so-called initial state in the process of upbringing.

In this area, it is worth noting the dynamically developing research on an increasingly precise and scientifically certain explanation of the phenomenon of man. Pedagogy has never been closed to this research. Already Key has advocated greater openness to this type of research (cf. Key, 2005, p. 11). The following researchers and their theories can be mentioned, such as Gehlen's (1904–1976) "lack of innate specialization" (Kron, 2012, pp. 170–173), Portmann's (1897–1982) "too early birthday" (Burkard and Weiß, 2008, p. 149; Kron, 2012, pp. 173–176), Tinbergen's (1907–1988) "poverty of instincts" (Nowak, 2008, p. 266) or Perry's contemporary "environmental stimulation" (Perry and Szalavitz, 2011). In all these studies and theories, a human being is recognized as a natural being, and on this plane comparative studies are carried out that show the developmental peculiarities of humans in relation to the developmental conditions of other beings. Nowadays, with dynamically developing neuroscience, the use of AI in this area cannot be underestimated. In all such studies, it is argued in various ways that what is a developmental deficiency of humans relative to other mammals is at the same time a developmental opportunity for them. In other words, man's weaknesses in the face of the problems he encounters on his developmental path are an opportunity for him to make a developmental leap, despite the fact that in superficial, biological terms man appears as an "inferior" being. Thus, a difficulty arises in evaluating the knowledge acquired in this research. It turns out that it is impossible to interpret it properly while remaining on a purely naturalistic plane. This cognitive dualism is extremely aptly summarized by Scheler when he writes: "man can always be [only something] *more* or something *less* than an animal, but never – an animal" (Scheler, 1987, p. 73).

For this reason, the voice calling for the inclusion of the *res humanae* dimension in the research on explaining the human phenomenon is becoming more and more prominent in the scientific debate. Thus, for example, Gabriel points out that even the most thorough studies of neuroscience "touch" only on indicators of what is typically human and not on the phenomena themselves as such. He writes, among other things, that "in a certain sense, one can visualize brain processes, but not thinking" (Gabriel, 2015, p. 20). For this reason, he stresses that "one of the challenges of our time is the scientization of the concept of human beings. We want to eventually gain objective knowledge of who or what human beings actually are. However, the obstacle is the human mind (*der menschliche Geist*), which has so far eluded scientific study" (Gabriel, 2015, p. 13).

Gara, on the other hand, reflects on the emerging dangers of one-sided (often empirically determined) anthropological descriptions. Referring to Buber's term "eclipse of God", Gara transposes it to pedagogical reality in the form of "eclipse of man". He explains at the same time that:

> "eclipse of man" I will fundamentally consider in terms of the "invasion" of technological civilization and its associated forms of mediation of human self-presentation

> (human way of being and lifestyle) in relation to the other. "Technological society" in its dehumanizing processes and tendencies is changing the very way in which human experience is perceived and understood, so that it is captured through the prism of exclusively quantitative categories. (Gara, 2021, p. 144)

He goes on to add that civilization, understood in this way, makes a person "*de facto* someone »disembodied«, »invisible«, »unknown«, »unreal«; someone with a disembodied and staged image and identity – a creation of imitation and make-believe (someone artificial)" (Gara, 2021, p. 144). For this reason, with intensive research explaining the phenomenon of man on the plane of his natural conditions, within which an extremely promising *instrumentality* is the use of AI, the space of the human spirit should not be lost from the field of pedagogical research. Combining the strand of natural and humanistic research, pedagogical anthropology increasingly proposes to capture the human being in the category of *homo absconditus* (*hidden man*, *man not exhausting himself*). The term comes from Plessner (1892–1985), who explains that "this concept, originally attributed to the unfathomable nature of God, is true of the nature of man" (Zirfas, 2021, p. 177). Wulf, on the other hand, adds that "with the concept of *homo absconditus* [...] from a new amazement (*thaumazein*) begins the fascination with the mysteriousness of the world and curiosity about the limits of the human person" (Wulf, 2016, p. 12). This anthropological perspective rejects all those anthropologies that have described and explained man *to the end*, leaving no area puzzling and unknowable. The anthropology of *homo absconditus* admits that "man in this perspective becomes an unsolvable question" (Zirfas, 2021, p. 172).

The above contemporary proposal of pedagogical anthropology is present in earlier sources. At this point it is worth recalling Nawroczyński (1882–1974), who in 1964, in the *Pedagogical Quarterly*, postulated:

> Let's learn to look at man through the eyes of a zoologist, anthropologist, hygienist, naturally trained psychologist, sociologist, economist, statistician, lawyer – but let's not lose sight of man in the sense that the humanist understands him, because such a man determines the results of education and upbringing, what's more – he is the drive of these processes. Let us look for such a man both around us and further in space and time! Let us build such a man in ourselves and in others! (Nawroczyński, 1968, p. 186)

Similarly, the recognition of man "in his totality" (*in seiner Ganzheit*), is advocated by März. According to this German pedagogue, an integral research approach in pedagogy forces the use of two anthropological categories: a "problem" and a "mystery," which he borrowed from Marcel (1889–1973). That part of human reality that can be problematized and (attempted to) be solved scientifically März proposes to call "problem". He writes that "science meets existence in the aspect of

a problem, that is, the whole of reality is fragmented into problems" (März, 1965, p. 22). However, there are areas of human reality that cannot be problematized or verified by the methods available in science. They should not be eliminated from the field of educational interest just because science cannot "master" them. This range of reality is what März calls "mystery". Particularly in a pedagogical approach, which by definition deals with man "in his totality," one must treat man holistically, as both a "problem" and a "mystery". Relating both categories to educational activity, März adds that a problem must be "re-cognized" (*er-kennen*), which corresponds to scientific investigation, and a mystery must be "ac-knowledged" (*an-erkennen*), which escapes explicit scientific investigation (März, 1965, p. 23). Recognition, thus, amounts to accepting the existence of something beyond what science can recognise here and now. Only by taking both aspects into account, however, does it provide the basis for generating a complete anthropology.

On the basis of the above arguments, I propose to formulate the first criterion, relating to the study of human understanding in the process of education. This is **the criterion of humanistic irreducibility**: what is essentially human cannot be fully reduced to an empirical, measurable, quantitative dimension.

Criteria for adapting AI to the normative field in pedagogy

The teleological area is related to the formulation and adoption of the goals of education, which are significantly inscribed in the educational activity. Suchodolski (1903–1992) argues that "for the educator, man is not what he is, but he is always what he becomes under the influence of education, and even he is not what he is, but what he could be if the conditions of his growth and transformation were completed" (Suchodolski, 1996, p. 539). Liessmann, on the other hand, notes that "education (*die Bildung*) is unthinkable without the image (*das Bild*) of a good and successful life to strive for" (Liessmann, 2019, p. 69). In contrast, the achievement of the goal of education by the pupil (in other words: identification with the ideal) ends the entire process of education, because, as Zirfas notes, such a person "lacks something essentially pedagogical: such a person can never develop again" (Zirfas, 2021, p. 18; cf. Górniewicz, 2008, p. 78). This shows the important place of the teleological area in pedagogical thought. It legitimizes educational activity. Today, however, largely due to "postmodernity and the »death of man« proclaimed by postmodernity, pedagogy is losing its culturally grounded *telos*" (Tomaszewska, 2021, p. 30).

Referring to the category of "image" invoked by Liessmann, one can – for example – organize the diverse and rich area of the goals of upbringing by presenting them in three succinct teleological postulates:

1. Become who you are
2. Become who you were
3. Become who you are not

Ad. 1. "Become who you are" recalls one of the original traditions of thought in pedagogy. It is associated with the belief that the educator has an inner content, which should be read, realized and externalized in the educational process. This approach corresponds, among other things, to the German nomenclature: *die Bildung* (upbringing) from: *das Bild* (image). In terms of the content of this teleological postulate, we can distinguish:

a) the traditional, primary approach; it points to the intrinsic desirability of upbringing determined (often) by membership in the social system and the roles played in it. In this approach, the adaptive dimension of education is emphasized (cf. Nowak, 1999, p. 285; Maliszewska, 2019, p. 185).

b) the modern approach; as Meyer-Drawe points out, the category of the "inner image" indicates the critical distance of the enlightened human being from the hetoronomy of metaphysics, theology and the ruling social class, and establishes its autonomy in its own reason. Through this "inner image", man frees himself from the prevailing conditions and becomes an end in himself, rather than a means to external objectives (Böhm and Seichter, 2018, p. 74). Thus, it can be inserted into emancipatory contexts in education.

Ad. 2. "Become who you were" refers to naturalistic approaches in education. It draws attention to the return to the "perfect" childhood state of life. Contemporary Stern takes up these ideas anew in his publication *Become Who You Were* [*Werde, was du warst*]. It is a passionate manifesto for rethinking the education system, based on his own experiences of learning without school and solid insights from art and science. Stern is the embodiment of natural learning; as a renowned artist, educator and loving father, he shows that children can develop best when we understand how and why they learn, and then provide them with the best opportunities to grow and develop (Stern, 2016). A similar manifesto is formulated by Louv in his book *Last Child of the Forest* (2016).

Ad. 3. "Become who you are not" or in the formula: "stop being who you are" is part of the existential approach, which assumes that man does not have one specific form of himself to strive for or fight for, but is in a state of constant self-building and at the same time self-destruction. He is constantly creating himself and contradicting himself. Sartre's words are emblematic of this, to be in a constant process of being what one is not and not being what one is (cf. Sartre, 2007, p. 96).

Undoubtedly, other statements can be added to the group of these succinct claims. However, it should be noted that none of them can be proven strictly scientifically. This is the area of choice of axionormative systems. Śliwerski points out that "the goals of education are norms, it is impossible – as in the case of descriptive judgments – to demonstrate their truth or falsity in comparison with empirical facts. A purely logical proof of the goals of education is not possible" (Śliwerski, 2012, p. 75). Wojtyła (1920–2005) puts it similarly when he writes that "truthfulness or falseness cannot be adjudicated in relation to sentences whose sentence-forming functor is expressed

by the word »should«, it can only be adjudicated in relation to sentences whose sentence-forming functor is expressed by the word »is«" (Wojtyła, 2011, p. 205).

From the above sample statements, it is clear that a sharp distinction must be made between descriptive (description) and value (normative) sentences. It should also be noted that although the choice of the goal of education may be dictated by certain descriptive data, there is no simple transition between descriptive and normative statements (here: goals of education). The aspect of human decision is always important in this sequence of events, as Śliwerski explains extremely vividly: "the goals of education are the products of human thinking, fantasy exceeding reality" (Śliwerski, 2012, p. 75).

Accordingly, the area of teleological issues is mainly embedded in the decision-making of the human being (educator) and his responsibility for the decision made. Relating these issues to the phenomenon of AI, it should be stated that it cannot replace the human being here, since it lacks the moment of decision, which, as shown earlier, is not a logical consequence of the assumptions made. The decision is related to the dimension of values and norms not scientifically proven, but related to human thinking and even fantasy.

An example of the failure to observe this principle is the problem described by Hessen (1887–1950) about a century ago. It does not, of course, nominally concern AI, but Hessen points out the negative effects on education that arise when descriptive sentences are indiscriminately transferred to the area of normativity, which, in turn, is a real possibility for the modern use of AI in this area of education. Hessen considered this problem as follows: "the attempt to liberate pedagogy from its traditional dependence on philosophy and »elevate« it to a real empirical science, even an experimental one, involves the postulate that the starting point in education should be »the child himself« and not the »goals« set by adults. This is how pedagogy falls into dependence on physiology" (Hessen, 1997, p. 88). This statement by Hessen can be briefly summarized by saying that pedagogy that – in the name of freedom from ideological dependencies and high scientific value – abandons the area of human decision-making exposes itself to other limitations resulting this time from the reduction of education to a technical dimension. In the situation described by Hessen, this "disillusionment" should be summarized as follows: pedagogy seeking freedom from philosophy has fallen into the bondage of physiology.

With regard to the above content, I propose the formulation of another criterion, referring this time to the area of teleology of education. This is the **criterion of teleological distinctiveness**, i.e. the goals of education are not directly derived from scientific data, but from the choice of axiological, worldview or ideological orientation. The goals of education cannot be scientifically proven, although, of course, their choice can be scientifically argued.

Criteria for adapting AI to the optative-praxeolological field in pedagogy

The last signaled issue that falls complementarily into the field of pedagogical research is the question of who a man becomes (can become) (cf. Gnitecki, 1999, p. 75; Zirfas, 2021, p. 13). Thus, this is an area in which as many human development perspectives as possible are envisaged without any preliminary verification of them made, for example, due to axionormative assumptions. The reflection on the methodology of education, that is, the search for answers to the question of how to achieve the intended educational goal, is also present in this area of research. For this reason, issues related to the possibilities of AI fit most closely into this field of educational activity.

With regard to the methodology of education, the methods, techniques and tools applied, it should be stated that – according to the *specificum paedagogicum* approach demonstrated – it is the person who educates, not the tool he uses. In pedagogy, this position has been taken very often. Among the many statements present in the literature on the subject, it is worth recalling here at least a few. Twardowski (1866–1938), during the convention of members of the Pedagogical Society in Lviv on July 5, 1909, considered the issue of education in its broad and narrow (proper) sense. Concluding, he stated that "in the proper sense, only man educates man" (Twardowski, 1992, p. 413). Buber (1878–1965), on the other hand, took the position that "man's choice of the working world means granting decisive influence to the choice of the world centered and revealed in the educator" (Buber, 1968, p. 448). März, on the other hand, calls the whole complex of educational methodology "co-educators" (*Miterzieher*) or "hidden co-educators" (*geheime Miterziehern*) or "pedagogical influences" (*pädagogische Kraftströmen*) (März, 1965, p. 162) and adds that all these influences lack an essential educational characteristic, namely: leading upward. For how is it possible, asks März, for "some non-personal reality – nature, culture or life – to morally lead upward (*höherzuführen*), and thus to act educationally, since it is not part of its capacity to orient itself in the criteria of good and evil" (März, 1965, p. 165). On this basis, März also clearly takes the position that only humans can be educators in the strict sense.

On the basis of the above sources, it should be concluded that AI can also be seen as a "co-educator" or "hidden educator" and thus acquire an educative meaning. Thus, AI can play important functions in the process of human development, but each time this will be possible thanks to a human being (an educator in the proper sense) who will include it in this activity. AI will not replace humans in this process. Thus, another criterion can be formulated as follows: **the criterion of the irreplaceability of the person in educational activities**. "Technicalities" alone are not enough. Gara notes that "the belief in the intrinsic causality of instrumental means and techniques of designing interactions usually remains something secondary" (Gara, 2021, p. 153).

One more condition to be proposed in this thematic section is the **criterion of educational problematization.** Through a very complex mathematical-algorithmic

apparatus, AI is able to propose in a very short time several (many) possible scenarios for solving the problem undertaken by the educator/alumni. Through the use of AI, the educator can provoke the alumni to face non-obvious ways of finding solutions. It is also possible to more precisely individualize the scope of the tasks posed to a particular pupil. This is a great opportunity that is worth taking advantage of, because, as Gara writes, "by making choices, a person is at the same time making a confirmation of himself in his own existence" (Gara, 2021, p. 173). What is important, however, is that AI should not be used to solve problems, as this limits the choices of the alumni, but that, for example, through visualization, it should generate other, non-standard solution possibilities that will require reflection, put the alumni in cognitive discomfort and make them face the "pros" and "cons" that arise in this new situation. The point is that this existential "leap" related to making decisions, choices or settlements should be made by the alumni and not outside of them, as it is characterized by significant developmental potential (cf. Gara, 2021, p. 52).

SUMMARY AND CONCLUSIONS

The conducted research shows that from the perspective of *specificum paedagogicum* it is possible to formulate pedagogical criteria showing how to incorporate natural, social, cultural, civilizational, technical reality, etc. into the field of pedagogical research and activity. Addressing in this article the problem concerning the question of pedagogical criteria for the adaptation of AI to the educational process, it is possible to identify four main criteria based on the primary areas of interest in pedagogy and the conclusions derived from their formulation:

1. Humanist irreducibility criterion; conclusions:
   - the description and explanation of the phenomenon of man in pedagogy should not be limited only to empirical data,
   - the image of man generated only on empirical data – according to Popper's assumptions – should be treated as "irrevocably hypothetical" and of only temporary value (cf. Kamiński, 1998, p. 168).
2. Criterion of teleological distinctiveness; conclusions:
   - the educator may use AI in choosing the goals of education, but the decision is ultimately made by the educator himself,
   - the choice of the goals of upbringing is related to value judgments, specific resolutions and socially confirmed ideals (cf. Brezinka, 2007, pp. 25–31).
3. Criterion of irreplaceability of the person in educational activities; conclusions:
   - education in the strict sense is an interpersonal activity,
   - responsibility for the selection of means of education rests with the educator.

4. Criterion of educational problematization; conclusions:
   - confronting the pupil with problematic situations is educationally desirable,
   - individualization of problem situations.

The indicated catalog of criteria and conclusions should not be considered closed, but open to further exploration.

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PEDAGOGICZNE KRYTERIA ADAPTACJI SZTUCZNEJ INTELIGENCJI DO PROCESU WYCHOWAWCZEGO

Wprowadzenie: Przedstawione w artykule badania lokuje się w obszarze pedagogiki ogólnej. Stanowią one namysł nie tylko nad skutecznym, ale i słusznym wykorzystaniem sztucznej inteligencji (SI) w procesie wychowawczym.
Cel badań: Jest nim sformułowanie kryteriów pedagogicznych oraz wynikających z nich wniosków, które mają na względzie umożliwienie pedagogom / wychowawcom optymalne włączenie SI do procesu wychowawczego.
Stan wiedzy: Przyjmuje się, że przedmiot badań pedagogicznych charakteryzuje się wymiarem antropocentrycznym oraz dotyczy następujących obszarów: opisowego, normatywnego i optatywno-prakseologicznego.
Podsumowanie: Przedstawione kryteria korespondują z przyjmowanymi obszarami badań pedagogicznych i nie stanowią zamkniętego kanonu.

Słowa kluczowe: *specificum paedagogicum*, sztuczna inteligencja, antropologia pedagogiczna, teleologia, prakseologia