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Minds for the Future as a Challenge for Contemporary Education. Maria Montessori's and Howard Gardner's Suggestions for Reform

Umysły przyszłości wyzwaniem dla współczesnej edukacji. Propozycje reformatorskie Marii Montessori i Howarda Gardnera

Introduction

Philosophers and educators have shown a sustained interest in an education which helps young people to achieve a sense of fulfilment, develop their talents, satisfy their needs, happily coexist with their social and natural environment and act productively for their own benefit and that of others. The suggestions on how to meet these aims change as new trends emerge in education. The alternative approaches to education, such as those prevalent in Steiner or Montessori schools, have been on the global educational agenda since the first half of the 20th century and are now gaining new adherents throughout the world.[1]

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[1] I. Sikorska, *Rozwój dziecka w przedszkolu. Stymulujące wartości wybranych systemów edukacyjnych*, Kraków 2010; B. Surma, *Pedagogika Montessori – podstawy teoretyczne i twórcze inspiracje w praktyce*, Łódź 2008; B. Śliwerski, *Edukacja alternatywna w Polsce na przykładzie recepcji pedagogiki montessoriańskiej*, „Wszystko dla Szkoły", 2(2000).

The experimental approaches to education which are inspired by the psychological theories promoted by the Summerhill School in the UK (based on the psychodynamic approach[2]) or Los Horcones in Mexico (based on the behaviourist approach), have continued for years and are developing well.[3]

The ideas on how to improve education are often propounded by rebels or school reformers. These include both Maria Montessori (1870–1952), an Italian doctor with degrees in anthropology and education, and Howard Gardner, a contemporary American psychologist and education theorist. Their suggestions on how to foster individual development are based on the interdisciplinary approach combining anthropology, psychology and pedagogy in the reflection on human development.

The purpose of these considerations is to present ideas shared by alternative pedagogy and educational psychology with the aim of reshaping contemporary education. The attempts to study human development and identify dynamic cultural and civilizational change furnish educators with the following question concerning the structure and nature of schooling: Are we still in a bygone era or are we trying to address the needs of the future? Over the last few months, Poland has seen philosophers, psychologists, educators, politicians and cultural elites engage in a heated media debate sparked off by Professor Jan Hartman and his provocative question whether the school in its existing form is necessary at all.[4] The issue of 21st century education and its form proves to be of substantial importance due to the inevitable process of globalisation (common standards, such as ECTS points at universities), young people's educational mobility (student exchange programmes such as MOST, Erasmus and Comenius) and the tendency to lower schooling age. The necessities presented above demonstrate that Montessori's tested ideas – the Montessori pedagogy being successful in educating young people for more than a century now – which are based on intuition and observation, prove to be prophetic and of utility to contemporary educators. Montessori's suggestions will be tested by juxtaposing it with Gardner's contemporary scientific approach. Since this article focuses on the human mind and thinking as a manifestation of the mind at work, the summary will offer the conclusions on modern education formulated by developmental psychologist Jerome Bruner.[5]

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[2] A.S. Neill, *Summerhill School. A New View of Childhood*, New York 1996.
[3] P. Bąbel, M. Suchowiejska, P. Ostaszewski, *Analiza zachowania*, Gdańsk 2010.
[4] J. Hartman, *Umarła klasa*, „Gazeta Świąteczna" 2013, May 11.
[5] J. Bruner, *The Culture of Education*, London 1996.

The multi-faceted human mind

Howard Gardner, a developmental psychologist and Harvard Professor, is primarily known as the author of the multiple intelligence theory which describes the totality of human abilities.[6] Since they refuse to measure intelligence with standardised tests, multiple intelligence theory, together with the social and the practical intelligence theories, focus on the human abilities which go beyond mere intelligence quotient. Those studies which adhere to statistical norms usually provide an average and distorted image of an individual, and their numerical results can often be regarded as a reduction and simplification. The traditional understanding of intellectual potential can be found in the following definition: "intelligence is the ability to adapt to the existing conditions by observing abstract relations, relating to former experiences and taking control of one's cognitive processes".[7]

By contrast, Gardner focuses on the following types of intelligence: musical-rhythmic, visual-spatial, verbal-linguistic, logical-mathematical, bodily-kinaesthetic, interpersonal, intrapersonal, naturalistic and existential. They develop through multisensory stimulation (visual, auditory, kinaesthetic) as well as practical and theoretical contact with the cognised object or phenomenon. Gardner's insights into individual intelligence derive from the practical analysis of educational practices which hitherto neglected other areas of the mind and were focused solely on their logical-mathematical and linguistic counterparts. Gardner offered a different angle in that he assumed that each human being possesses all these intelligences which create one's individual profile and are developed to a different degree. While all these intelligences are equally important and they all interact with one another, their profiles are dynamic and prone to change at various stages of human development. One of Gardner's important conclusions for education is his observation that each intelligence can be developed through practice by organising a setting conducive to human development.[8] For Gardner, the multiple intelligence theory was a starting point in his reflection on the condition of contemporary education and the need for change in educational practices: "I discern two legitimate reasons for undertaking new educational practices. The first reason is that current practices are not actually working (...). The second reason is that conditions in the world are changing significantly. (...) These changes call for new educational forms and processes. The minds of learners must

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[6] H. Gardner, *Five Minds for the Future*, Boston 2006.
[7] E. Nęcka, *Inteligencja. Geneza, struktura, funkcje*, Gdańsk 2003, p. 26; (translated by the author).
[8] H. Gardner, *Multiple Intelligences. The Theory in Practice*, New York 1993; M. Suświłło, *Inteligencje wielorakie w nowoczesnym kształceniu*, Olsztyn 2004.

be fashioned and stretched in five ways that have not been crucial – or not as crucial – until now".[9]

The next step, according to Gardner, is to define five types of these new intellectual competencies which are important for coping with the challenges of the past and the future. The task for new education is to shape and fashion the minds for the future.

Fig. 1. Five minds for the future
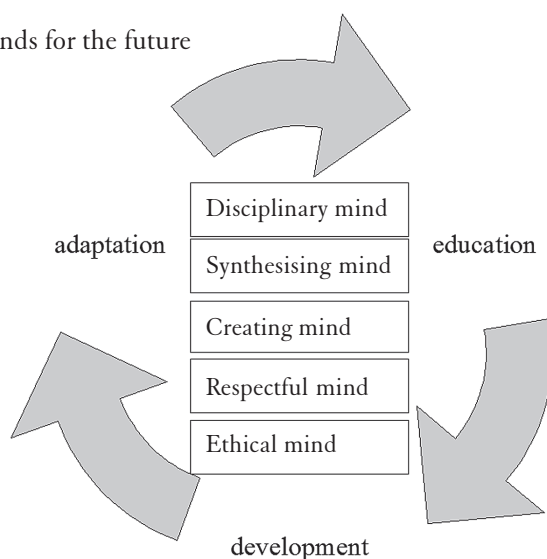
(figure by the author, based on Gardner 2006)

A short overview of the types presented above will allow for a better understanding of Gardner's intentions. The disciplinary mind emerges as individuals accumulate knowledge in a particular area. It marks the ability to think in categories inherent in a given discipline (e.g. life sciences, law) and encompasses topical knowledge, specialist language and particular methodologies. The disciplinary mind develops as individuals obtain an education in a particular field and develop their professional skills. However, as they commit themselves to one discipline, their outlook on the world narrows, which is a major limitation to their minds. Thus, specialists in one area may like to consider exploring another area either as a field of study or as a hobby. "I believe it is essential for individuals in the future to be able to think in the ways that characterize the major disciplines. At the precollegiate level, my own shortlist includes science, mathematics, history, and at least one art form (...). Should they lack such

[9] H. Gardner, *Five Minds for the Future*, op. cit., p. 11.

disciplinary acumen, students will be completely dependent on others as they attempt to formulate views on the political scene, new works of art, economic prospects, child rearing, possible scenarios of the future and many other issues".[10]

The synthesising mind allows individuals to combine information from a variety of sources into a coherent whole. Since individuals double their knowledge every two or three years, it is necessary that they integrate and organise their resources. Gardner quotes the following examples from culture: narrative synthesis (Bible), taxonomic synthesis (Linnaean naming scheme) or synthesis through art (Picasso's *Guernica*). The synthesising mind knows how to follow the multiple perspective rule in its cognitive processes, i.e. to use a variety of angles to look at the world, which in turn allows for a better understanding, empathy and an approach devoid of any fanaticism towards the emerging problems or phenomena. The synthesising cognitive approach stands in contrast with approaches which dissect and shred knowledge into pieces or highlight only contrasts and differences. Those who adopt the former find it easier to discover coherent and systematic relationships between phenomena.

The creating mind allows individuals to go beyond mere expertise and discover their creative capabilities. Various ways to shape reality, heuristic approaches in thinking or streamlining ideas have always been present in humanity. Be that as it may, the growing complexity of the contemporary world calls for creativity on a daily basis. Gardner quotes examples from the history of civilisation, such as Athens, Florence or Silicon Valley, where the social and political atmosphere proved favourable to fostering creative minds, who in turn could open up their potential for the benefit of the community. The creating mind can often transform into a collective mind whereby a group of innovative individuals yield a creative product.[11] One of the effects of the creative process is that it should yield a product that specialists in a given field can accept as new, genuine and useful for society and not merely unusual.[12] Gardner also argues that the creating and the synthesising minds show striking similarities. They most of all require basic knowledge and discipline and they both rely on a variety of examples which provide guidance and help them present diverse approaches to one subject.[13]

Gardner's insights on the respectful mind are in turn based on the assumption that bonding with other people is possible already at the ear-

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[10] Ibid., p. 31.
[11] E. Nęcka, *Trening twórczości*, Gdańsk 2008.
[12] M. Csikszentmihalayi, *Creativity. Flow and the Psychology of Discovery and Invention*, New York 1996; E. Nęcka, *Trening twórczości*, op. cit.
[13] H. Gardner, *Five Minds for the Future*, op. cit.

liest stages of human development. Those social environments which foster respect to others produce individuals who treat the surrounding world with respect, both socially and environmentally. Tolerance, which directly stems from this approach, may serve as a guarantee for the peaceful co-existence of all living beings, without any national or racial prejudice or separatisms. Thus, Gardner argues that instead of ignoring differences or being indignant or trying to obliterate them by love or hatred, one should accept them, learn to live with them and value people who do not belong to their own group.[14]

The ethical mind defines the way in which individuals think about their work ethics and their role as citizens in a particular community (local or national). Diligent, ethical and meaningful work contributes to a world which a lot of sensible people would like to inhabit. Good work is in turn described as perfectly executed, useful and pleasurable. A large number of philosophers and sociologists have touched upon this particular dimension of human life, including Max Weber and Tadeusz Kotarbiński with his *A Treatise on Good Work*. Being sincere and honest while performing a task, respecting an agreement or interacting with other people creates an important space for individuals to function in society.

In its broadest sense, the education system is responsible for developing all the five minds mentioned above. Gardner's suggestions are founded upon the values which are absolutely necessary to consider by the modern system of education. It is down to the school and other social and political systems which educate and rear children and young people to help them develop the five minds presented above. Gardner follows Erikson's theory of human psychosocial development[15] in that he suggests the sequence whereby each of his five minds should be stimulated to develop:

● Since respect to others is a necessary condition for individuals to peacefully co-exist within a group and achieve their learning goals, it is respect that should be developed first in children.

● Education begins with learning new disciplines in detail, which prompts the disciplinary mind to emerge.

● Once they have expanded their knowledge in a variety of fields, individuals are able to reflect and synthesise it, and they develop the synthesising mind as they enter adolescence.

● It is only through abstract thinking and reflection that adolescents can learn how to think and act ethically to adopt new and responsible social roles.

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[14] Ibid.
[15] E. Erikson, *Identity and the Life Cycle*, London 1980.

According to Gardner, those who can develop all five minds are more likely to succeed. Ideally, these minds should be tended to by teachers, instructors and managers.[16] The above theory of human development seems to offer a path to wisdom, which allows for a peaceful co-existence with others and a productive and happy life.

Independent and productive thinking

The basic tenets of Montessori pedagogy lay particular emphasis on stimulating children's minds. The Montessori pedagogy finds it crucial to form young people both as individuals and as members of a given community. All educational practices undertaken by adults towards children respect children's individuality and recognise the fact that they are members of a community. Thus, on the one hand, they answer the call to "help me do this on my own", that is, to stimulate children's motor, cognitive and emotional independence, and on the other, they open children's eyes to the presence and needs of other people. Consequently, education should be a process whereby children realise the double nature of their functioning. This includes two aspects: intrapsychic, which involves self-awareness, self-esteem and self-control, and interpsychic, which involves relationships with others. Montessori's approach seems to set two important tasks for education: raising for freedom and raising for respect and for the benefit of others.[17]

This particular understanding of human freedom finds reflection in Montessori's insights on the subject: "an adult teacher treats the freedom of a child with respect and helps children learn to use their freedom responsibly. This approach to education can be easily traced in Montessori's system of pedagogy and in her theory of cosmic education, which aims to foster children's sense of dignity and their respect for others and to initiate children into culture and help them learn to perform their roles and tasks in the contemporary world, as well as in the method and the rules that the teacher and the children have to follow in their learning environment".[18]

In her description of peer tutoring in the Montessori class, Nowak underlines the importance of freedom in a learning environment which helps to increase and maintain motivation levels in children, who in turn find it easier to expand their knowledge and learn new skills.[19] For Mon-

[16] H. Gardner, *Five Minds for the Future*, op. cit.
[17] B. Śliwerski, *Edukacja alternatywna w Polsce na przykładzie recepcji pedagogiki montessoriań-skiej*, op. cit., p. 2.
[18] B. Surma, *Pedagogika Montessori – podstawy teoretyczne i twórcze inspiracje w praktyce*, op. cit., p. 61 (translated by the author).
[19] J. Nowak, *Tutoring rówieśniczy jako wsparcie rozwoju poznawczego dziecka*, [in:] *Dziecko i doro-sły w koncepcji pedagogicznej Marii Montessori*, B. Surma (ed.). Łódź–Kraków 2009.

tessori, learning in an atmosphere of freedom is a necessary prerequisite for instilling children with a love for knowledge and discovering their talents or needs. This daily aspect of freedom at school may find expression in children's right to choose the following: materials for self-study, a particular classmate to sit with, a place to perform a particular activity or the time or pace in which it should be completed.

Constructing knowledge

Montessori shared a number of insights on children's own initiative in the process of child rearing and education. She believed that children can attain real and profound knowledge if they are granted the right to ask questions, experiment or verify their naive hypotheses. "Genuine learning can be achieved when the mind goes beyond mere information it obtains. The facts presented are like iron filings strewn disorderly on a sheet of paper. The mind works like an invisible magnet whose drawing power transforms and integrates chaotic raw experience into an organised system of thought".[20]

Children's cognitive activity helps them understand the facts presented by the teacher and to construct knowledge on their own. In her description of how children demonstrate their cognitive activity while engaging with the world and gaining individual experience, Beata Bednarczuk points to an important role that the heterogeneous age group plays in the process.[21] Those children who have to adopt a perspective different than their own in order to explain how to work with a particular material to their younger classmates begin to discern their social environment in its diversity. This also improves their ability to synthesise both different points of view and different learning styles. These experiences have an impact on how children develop their "theories of mind", i.e. how they think about others thinking, but also how they create a complex image of the world in their minds.

Taking care of oneself and others

"Montessori also believes that individuals are obliged to perform two tasks. The former is to satisfy the needs (...) necessary to take care of oneself, one's own family and the country. The latter is to accomplish a uni-

[20] E.M. Standing, *The Montessori Revolution in Education,* New York 1962; as cited in: B. Bednarczuk, *Aktywne uczenie się. Metoda Montessori urzeczywistnieniem założeń reformy systemu oświaty?* [in:] *Dziecko i dorosły w koncepcji pedagogicznej Marii Montessori*, B. Surma (ed.), Łódź–Kraków 2009, p. 75 (translated by the author).
[21] B. Bednarczuk, *Aktywne uczenie się. Metoda Montessori urzeczywistnieniem założeń reformy systemu oświaty?*, op.cit., pp. 71–80.

versal task and take responsibility for other people, the natural environment and the external world".[22]

Already from the cradle, children are initiated into the external world through practice. Thus, they learn materials which the objects in their immediate environment are made of and they also learn how to proceed with daily activities. This also involves gaining a gradual understanding of how to take care of appearance and hygiene. Already in preschool, children begin to notice the value of their social environment and to realise it is useful and worthy of respect.

Montessori attached immense weight to the idea of universal brotherhood and human solidarity which, she believed, should be embraced in the learning process.

The idea of a productive life in a peaceful community: Montessori's and Gardner's analogical approaches

Even though they are divided by a century and come from two different sides of the Atlantic and two different social and political realities, the two theories discussed in the paper have a quite a lot to share.

1. Respect

Both Montessori and Gardner believe that the key task of education is to promote the rule whereby individuals respect other people's comfort zones, needs and identities. They identify this particular aspect of human functioning as fundamental for a peaceful human co-existence both in a small preschool class and in the global context. The anthropological insights which can be traced in Montessori's *oeuvre* emphasise the human right from individuality. This involves differences not only in children's resources, talents and deficiencies, but also in the pace and course of their development.[23] Gardner formulated his thoughts on cognitive individual differences by creating the multiple intelligence theory. The theory elucidates on a number of the mysteries which teachers who work with gifted yet difficult children were unable to resolve.[24]

The individual nine intelligences profile helps teachers to adjust the way they use or convey information to the needs and preferences of particular students. Both Montessori and Gardner argue that diversity and difference are immanent to social reality and that they should be duly embraced and respected.

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[22] B. Surma, *Pedagogika Montessori – podstawy teoretyczne i twórcze inspiracje w praktyce*, op. cit., p. 37 (translated by the author).
[23] M. Montessori, *Die Entdeckung des Kindes*, Freiburg 1991; M. Montessori, *Erziehung zum Menschen*, Frankfurt 1994; E.M. Standing, *Maria Montessori – Leben und Werk*, München 1995.
[24] H. Gardner, *Multiple Intelligences. The Theory in Practice*, op. cit.

2. Ecology and empathy

Both Montessori and Gardner also argue that the task of education is to prepare individuals to satisfy their needs in a prudent and thorough way. However, very early on in their lives, children should also develop an interest in the needs of other people as well as those of plants and animals. First demonstrated by Montessori's cosmic education theory, the environmental aspect should have a pride of place in the way people think and act in the contemporary world.[25] An intelligent human being is set with the task to take care of their environment in the broadest sense possible.

3. Independence

One of the aspects which both authors repeatedly touch upon is independence. The task of education is to provide intellectual tools to foster it. The Montessori pedagogy offers specific practices which encourage children to develop their motor and cognitive independence. A case in point is the initiative to extend developmental material with a self-evaluation system, i.e. a system of checkpoints which provide children with information on whether the task has been completed successfully or not without any feedback from the teacher.[26] A gradual process in which children learn how to become independent thinkers has a direct bearing on their sense of control over their own lives, the ability to make decisions and their assertiveness levels. Intellectual self-reliance and critical thinking can shield against manipulation and pressure exerted by other people.[27]

4. A development promoting setting: Montessori's prepared environment

The prepared environment is a term deriving from the Montessori lexicon, but it also seems to concur with Gardner's insights on the ideal properties of the immediate learning environment. Adults should adopt a conscious approach to creating a learning environment which fosters children's development by paying attention to its physical (rooms and surrounding areas) and social (class-make-up, teachers, ways to communicate) properties as well as the teaching methods applied.[28] The prepared environment is becoming broader in meaning as the contemporary world turns into a "global nest" for young people. The minds of contemporary children and young people are also influenced by the media, social

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[25] I. Sikorska, *Rozwój dziecka w przedszkolu. Stymulujące wartości wybranych systemów edukacyjnych*, Kraków 2010; B. Surma, *Pedagogika Montessori – podstawy teoretyczne i twórcze inspiracje w praktyce*, op. cit.

[26] M. Montessori, *Die Entdeckung des Kindes*, op. cit.; M. Montessori, *Erziehung zum Menschen*, op. cit.

[27] J. Nowak, *Tutoring rówieśniczy jako wsparcie rozwoju poznawczego dziecka*, [in:] *Dziecko i dorosły w koncepcji pedagogicznej Marii Montessori*, B. Surma (ed.). op. cit.; I. Sikorska, *Rozwój dziecka w przedszkolu. Stymulujące wartości wybranych systemów edukacyjnych*, op. cit.

[28] H. Helming, *Montessori – Paedagogik*, Muenchen, Wien 1994.

movements and the world's political and economic upheavals. The activities to promote social, ethical and tolerant attitudes may be promoted by foundations and associations and other initiatives which foster a peaceful co-existence on the micro- and macro-scale.[29]

5. Suggestions for reform

The theories of education presented above show certain inclinations for reform. They both express criticism towards the existing systems of education for children and young people. Montessori, who adhered to the New Education movement challenging Herbart's intellectual approach, which prevailed in European schools in the 19th century, emphasised the importance of adopting a new approach to children. She argued that parents and teachers should rediscover children through patient and thorough observation. Gardner's suggestions for change in education go beyond the needs of today. In his analysis of the future cultural and civilizational change, he furnishes a forecast on which thinking and acting styles will be most effective for the people of tomorrow. This in turn demonstrates the necessity to focus on the school of today which nonetheless works for the benefit of the future.

6. A holistic approach

Both Montessori's and Gardner's theories prove to be holistic in their approach to education. Both suggestions derive from interdisciplinary thinking styles of their authors, who embrace anthropology, psychology and education in their reflections on human development. Having scrutinised the form and content of their views, one may venture to say that the five minds for the future theory is inherent in both Gardner's and Montessori's insights. They both describe the disciplinary thinking style as they develop psychological and pedagogical discourse and theory; and they rely on the synthesising style while integrating the examples or analogies from other fields of research into their own (life sciences, economics, history). The respecting and the ethical thinking styles can also be traced in both approaches, and they serve as signposts on the road to learning and self-development. As they promote experimental approaches and foster courage, assertiveness and critical thinking, they also acknowledge the need for creative activity and innovation to benefit both individuals and their communities.

Conclusion

For centuries, philosophers, psychologists and educators have reflected on human development and the best ways to support it. A number of

[29] H. Gardner, *Five Minds for the Future*, op. cit.

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celebrated thinkers were also rebels who defied the existing system of education. These include: Rousseau, Pestallozzi, Steiner, Dewey, Freinet, Froebel and, last but not least, Montessori herself.[30] Contemporary reflection on education dates back to the turn of the 20th and 21st centuries and Jacques Delors's report entitled *Learning. The Treasure Within*,[31] which he prepared for UNESCO's International Commission on Education for the 21ˢᵗ Century. In order to define the mission of learning for human development, the report elaborates on four aspects, including cognitive tasks which belong to the area: learning to know; pragmatic tasks formulated as learning to act; social tasks which adhere to the maxim: learning to live together; personal tasks which define the area: learning to be.

By way of a summary, I would like to present several of Jerome Bruner's observations on education, since they seem to chime with Montessori's and Gardner's ideas and may serve as a reference for latest suggestions inspired by the psycho-cultural approach.[32] As it strives to develop children's individual resources, the learning process should be organised in such a way that it makes the most of its cultural setting. According to the psycho-cultural approach, education has the following characteristics.

The attitude to learners, which has a direct bearing on their personal development, manifests itself through accepting both the limitation rule and the learner's identity and self-esteem and by acknowledging the principles of interaction and externalisation in the learning process.

The limitation rule highlights the impact that children's former experiences and mental states have on their future lives. However, learning also makes it possible for individuals to go beyond the boundaries of their inborn intellectual capacities. It does this by providing learners with symbolic systems. The ability to achieve the meta-cognitive level, i.e. the ability to think about oneself thinking, facilitates the process of constructing reality.

The interactive principle postulates that the learning process is intentional and requires reciprocity. This particular maxim comes to the fore in peer tutoring, which breaks away with the teacher's monopoly for knowledge.

The externalisation principle highlights the importance of group activity, which has an enormous social importance as it creates a sense of coherence and solidarity in the group. The process of creating a community requires that its members share and negotiate their thinking styles as they work together towards a common goal.

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[30] H. Helming, *Montessori – Paedagogik*, op. cit.; E.M. Standing, *Maria Montessori – Leben und Werk*, op. cit.
[31] J. Delors, *Learning. The Treasure Within. The Report to UNESCO of the International Commission on Education for the 21ˢᵗ Century*, Paris 1996.
[32] J. Bruner, *The Culture of Education*, op. cit.

Identity and self-esteem are instrumental in human development. One of the universal aspects of human personality is its sense of agency, which concurs with a belief in one's ability to act on one's own and influence the events. It is at preschool and school that children can first experience their "extended selves" by assimilating other people and objects in their learning environment. Thus, the two places belong in a way to children, who can easily identify with them. Children build their sense of self-esteem as they learn to assess their efficacy in performing learning

Table 1. Characteristic features of psycho-cultural education

Attitude to students (personality formation)	Adaptation to thinking (mind formation)
limitation rule	perspectivism
interactionism	constructivism
externalisation	instrumentalism
identity and self-esteem	institutionalisation
	narrativism

(figure by the author, based on Bruner 1996).

tasks. "Ideally, of course, school is supposed to provide a setting where our performance has fewer esteem threatening consequences than in the 'real world', presumably in the interest of encouraging the learner to try things out".[33] The attitude to thinking, which influences the process of shaping students' minds, can be easily traced in the psycho-cultural approach to education, which adheres to perspectival, constructivist, instrumental and institutional principles. The perspectival principle postulates that education should offer learners a number of different points of view to encourage interpretation. "In a word, the perspectival tenet highlights the interpretive, meaning-making side of human thought while, at the same time, recognizing the inherent risks of discord that may result from cultivation this deeply human side of mental life".[34]

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[33] J. Bruner, *The Culture of Education*, op. cit., p. 37.
[34] Ibid., p. 15

The constructivist principle in turn places an emphasis on transferring cultural tools which encourage thinking and allows learners to either better understand or attach meanings and better adjust to the world.

The instrumental tenet postulates that: "education, however gratuitous or decorative in may seem or profess to be, provides skills, ways of thinking, feeling, and speaking, that later may be traded for 'distinctions' in the institutionalized 'markets' of a society".[35]

Thus, competencies acquired and developed at school may facilitate children in their adult lives.

The institutional principle highlights education in the developed world as an institution subject to regulations and external influence. It is treated as a preparation stage for young people to take active part in culture, the latter exerting an enormous influences of the former throughout the entire learning process.

The narrative principle says how to facilitate children in the learning process to make them discover thinking and feeling styles which will later help them find fulfilment in their lives. The postulate is based on the belief that narrative makes a culture more coherent and can add structure to individual lives. "A system of education must help those growing up in a culture find an identity within that culture"[36].

In their interpretations of modern education, adherents of the psychocultural approach lay emphasis on children's self-awareness and self-reflection and their ability to negotiate and engage in a dialogue. The teaching and learning process is believed to be a process whereby a culture is adjusted to the needs of its members and vice versa.

This summary will also try to examine the question of the nature and sense of contemporary education.

Firstly, it appears that young people need school as a place which gives them a chance to interact with teachers (experts) and masters (mentors) and to receive guidance and achieve synthesis. Undoubtedly, the fundamental task of school is to develop the ability to select information, identify correlations and provide tools which help to integrate and synthesise knowledge. Considering the power of the Internet, knowledge is no longer school's sole property. Despite living in prefigurative society, people still tend to ascribe more knowledge and experience to its mature members. The ability to learn modern technology aside, teachers with their postformal thinking style have a significant advantage in understanding and integrating knowledge over their students. The capacity for in-depth

[35] Ibid., p. 25.
[36] Ibid., p. 42.

reflection and integrative thinking, the ability to deal with contradictions and, last but not least, wisdom are the irreplaceable attributes which help adults to explain the world to children.

Secondly, as is clearly suggested by Montessori's, Gardner's and Bruner's insights, the fact that the learning process takes place in the social context through interaction and negotiating meanings may help individuals develop more than any other experience. It builds both their self-esteem and trust in others and helps to feel a sense of community and find their own place in it. Basic and, over time, more complex interpersonal experiences constitute the learning of "life in life", which was suggested by the New Movement reformers and is now considered a fundamental social experience.

Thirdly, independent thinkers who are also creative and able to transcend their own point of view can develop in a learning environment which creates a context to suit both individual and group requirements. The dynamic and faster than ever, the flow of information on research outcomes in social, life and medical sciences as well as suggestions for reform are of much assistance in this respect. Alternative pedagogies create ideal conditions for children to free their potential and learn at their own pace and in their own rhythm and, also, to learn to like to learn as a result. The standard approach to pedagogy makes painstaking attempts to develop social competencies through group interaction and by fostering empathy and tolerance. An affirmative answer can be made to the question whether systems of pedagogy should integrate more or at least exchange experiences.[37]

Fourthly, thinking is also one of the fundamental areas which can be developed in the learning process. People of the future will face the need to adjust to dynamic cultural and civilizational change. The capacity for independent thinking offers them a chance to succeed in this respect and have happy and fulfilled lives as a result. In her writings, Barbara Skarga clearly demonstrates the importance of thinking for human individuals. She argues that thinking should be protected against advancing technology and points out that thinking opens up new and unexplored areas, encourages to see or do "more", offers a space for metaphysical speculation, allows for doubting, knows no boundaries and forms a type of understanding which shows concern for and trust in the cognised object. But thoughts never emerge by themselves, they are created by people.[38] And it is creative individuals who the education for the future is concerned with.

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[37] I. Sikorska, *Czy systemy edukacyjne powinny się integrować? Aktualność pedagogiki Marii Montessori w świetle doniesień współczesnej psychologii*, [in:] *Nowe wyzwania i perspektywy dla wychowania przedszkolnego i edukacji wczesnoszkolnej*, B. Surma (ed.), op. cit., pp. 13–36.
[38] B. Skarga, *Człowiek to nie jest piękne zwierzę*, Kraków 2007.

The main conclusion which comes from the observations presented above is that education and school as a place for self-realisation will be an enduring element in children's and young people's lives. Thus, it is not the question of if but rather how they make sense that should be constantly examined.

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Abstract

In its discussion of Montessori pedagogy and its importance for education, contemporary psychology often focuses on the cognitive and the social areas of children's development. This article makes an attempt to highlight the similarities between the Montessori method and Gardner's five minds for the future theory with regard to the image of young people they create and the practices they offer to foster their development.

The aim of Montessori pedagogy is to educate people who are capable of freedom and inner discipline, are critical and independent thinkers, show respect to themselves and others and bring order and harmony to their own lives and to their environment. Gardner's theory also propounds that education should develop young people to lead a productive life in a peaceful community. The minds of modern individuals should contain five crucial elements: disciplinary thinking, the capacity for synthesis, empathy, creativity and respect for ethical principles.

Both suggestions derive from the interdisciplinary thinking styles of their authors, who embrace anthropology, psychology and education in their reflections on human development. They both touch upon issues such as taking care of oneself and the environment (ecology and empathy), developing tools which foster independent thinking and a specially prepared learning environment to promote respect in children. In their suggestions for education and upbringing, both authors use a richly metaphorical style which helps their readers embrace their ideas.

The challenges and needs of the global world raise new questions concerning ideal education. The answer to this question can be answered only through a dynamic process which offers constantly new solutions.

Umysły przyszłości wyzwaniem dla współczesnej edukacji. Propozycje reformatorskie Marii Montessori i Howarda Gardnera

Abstrakt

Dyskusje wokół wartości pedagogiki Marii Montessori w świetle współczesnych badań psychologicznych koncentrują się często na obszarze poznawczym czy też społecznym w rozwoju dziecka. Poniższy artykuł jest natomiast próbą znalezienia podobieństw w zakresie proponowanego wizerunku młodego człowieka ukształtowanego drogą określonych działań stymulujących w metodzie Montessori a koncepcji umysłu przyszłości Howarda Gardnera.

Celem pedagogiki Montessori jest wychowanie człowieka potrafiącego zachować wolność i dyscyplinę wewnętrzną, myślącego niezależnie i krytycznie, odnoszącego się z szacunkiem do siebie i innych, dbającego o ład i harmonię w sobie i wokół siebie. Oddziaływania edukacji w myśl założeń H. Gardnera powinny rozwijać u młodego człowieka sposób funkcjonowania, który zapewni mu produktywne życie w pokojowej wspólnocie ludzi. Umysł człowieka odpowiadającego na potrzeby współczesności zawiera pięć istotnych elementów: myślenie kategoriami określonej dyscypliny wiedzy, zdolność do syntezy, zdolność do rozumienia innych ludzi, kreatywność oraz respektowanie zasad etycznych.

Obie propozycje opierają się na interdyscyplinarnym myśleniu twórców, uwzględniającym aspekt antropologiczny, psychologiczny i edukacyjny w refleksji nad rozwojem człowieka. Obie również dotykają takich

zagadnień jak dbanie o siebie i otoczenie (ekologia, współodczuwanie), kształcenie narzędzi myślenia w celu osiągnięcia jak największej niezależności w myśleniu, intencjonalne przygotowanie otoczenia promujące troskę o środowisko. W stylistyce opisu propozycji wychowania i edukacji odnaleźć można u obu twórców bogatą metaforykę ułatwiającą odbiorcy recepcję opisywanych idei.

Wzywania i potrzeby globalnego świata stawiają kolejne pytania dotyczące optymalnej edukacji. Formułowanie odpowiedzi na te pytania jest procesem dynamicznym, dostarczającym wciąż nowych rozwiązań.

Słowa kluczowe: edukacja, pedagogika Montessori, koncepcja Gardnera, umysł.

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