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Does Tutoring Develop Reflexivity? (pp. 131–151)

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Abstract

Research objectives (aims) and problem(s): The article presents the results of research on the development of students' reflective thinking. The purpose of the research was to determine the level of students' reflexivity when they began participating in a tutoring project, and then to verify it after the project ended.

Research methods: The first phase of research was conducted in October 2020. Two groups of students took part in the research: those undergoing tutoring (n = 70) and those not undergoing tutoring (n = 77). The tool used was the Polish adaptation of the Reflective Thinking Questionnaire. The four scales of the questionnaire are habitual action, understanding, reflection and critical reflection. The research – in the same groups – was repeated in 2023.

Structure of the article: The article has a classic layout. First, the concepts of tutoring and reflexivity in education are presented. Then the research method and results are presented.

Research findings and their impact on the development of educational sciences: The importance of the tutoring method for the development of reflexivity was recognised by analysing the results of both the tutored and non-tutored groups. The tutored group developed in terms of reflexivity

and critical reflection, but also in habitual action. Students who did not participate in tutoring did not make such progress. The research also established relationships between other educational and sociocultural variables and students' levels of reflexivity. Academic performance, knowledge of foreign languages and parents' education were taken into account.

Conclusions and/or recommendations: The research made it possible to better identify the attributes of the most talented students, and to further identify possible opportunities for their development. An additional added value of this study is that the participants will be better able to understand themselves in terms of development. Those from the tutoring group were especially interested in their individual results.

Keywords: reflectiveness, academic tutoring, reflective thinking, student development

Introduction

In October and November 2021, 77 students from the Academy of Special Education in Warsaw began a tutoring programme, which was to last five semesters. This was made possible by the Academy's participation in the Ministry of Education and Science's "Masters of Didactics" programme. The main aim of the project was to conduct a full cycle of education at universities using the tutoring method. Students who applied and qualified for the project were provided with individual tutoring support. The situation was unique for two reasons: firstly, a unique methodological intervention was to be applied to a specific group of students, and secondly, it was during the pandemic. Students faced unprecedented demands for self-discipline and regularity. Suddenly they were deprived of the physical space of the university and the need to commute every day – something that imposed a rhythm, motivated them and sometimes forced them to behave in a certain way.

Taking up the research problem, which is the recognition of the educational potential of students participating in tutoring in university

practice, is part of the discussion on the quality of higher education learning and teaching which has been taking place in recent years. Both tutoring and reflexivity are elements of the concept of learning, which is an active, individualised process that serves to bring out the unique attributes of each student and to emphasise their responsibility for their own education. Looking for the paradigmatic roots of tutoring, we link it to constructivism, especially in its social (Jendza, 2016) and critical (Perkowska-Klejman, 2022) varieties, personalised education (Adamski, 2005), the community learning trend (Bruffee, 1999) and communicative action theory (Habermas, 1981). Reflexivity has very similar roots, to which pragmatism and progressivism should be added (Dewey, 1972, 2014). A common feature of the aforementioned approaches is the focus on the individual, whose qualities are supposed to be outstanding intellect and responsibility.

Reflexivity and education

Students' reflexivity will be defined in this research as self-referencing their own knowledge, learning and education and careful, in-depth, conscious reflection on beliefs, cognitive processes and other educational experiences. The topic addressed in the research is new: there has been no longitudinal research in Poland on the reflexivity of students participating in tutoring. However, it is worth adding that both tutoring and reflexivity are becoming increasingly popular areas of research.

It is understood that reflective thinking was first defined by John Dewey in 1910 as an active, persistent and careful consideration of a belief or supposed form of knowledge, the grounds that support that knowledge and the further conclusions to which that knowledge leads (Dewey, 1910, p. 6). The key elements of this definition are using evidence, reasoning, challenging beliefs and knowledge and actively pursuing balanced conclusions. Kurt Fischer and Ellen Pruyne (2003), who research the development of reflective thinking, are convinced that it depends on abstract thinking and is associated with more advanced stages of development.

Their cumulative conclusions are supported by the results of numerous behavioural and brain function studies. Thus, reflective thinking may emerge in adolescence and then develop in adulthood. Importantly, the emergence and development of reflective thinking are not automatic and do not occur in everyone. Instead, it depends on individual experiences, the most important of which is attributed to education.

Fischer and Pruyne (2003) emphasise that human development in general, and the development of reflective thinking in particular, is not linear and progressive as is commonly assumed. Instead, it occurs non-linearly and dynamically. Individuals of the same age may therefore differ in both cross-domain and intra-domain skill levels (Fischer & Bidell, 1998; Thelen & Smith, 1998; van Geert, 1991). Thus, a couple in their twenties and a couple in their fifties may have different levels of reflective thinking skills. Fischer and Pruyne (2003) distinguished the so-called functional and optimal tendency of reflexivity development. In the context of tutoring, we are interested in the optimal development path. Following this path involves strong environmental support combined with the use of personal intellectual potential.

Previous research on reflexivity has most often focussed on assessing its level in a functional context. Static evaluations were made of the characteristics of individuals at a particular age (e.g. Dawson, 2002; Kegan, 1982; King & Kitchener, 1994). In the present study, we consider optimal development. Given the characteristics and the “power” of tutoring, it can be assumed that we are dealing with both strong environmental support and the personal potential of the tutees who were selected for the programme.

Fischer and Pruyne (2003) compared the development of reflective thinking to the development of advanced stages of morality. It would depend on fostering abstract thinking with multiple perspectives (Dawson, 2002; King & Kitchener, 1994). Kathy Beland (2003) adds that reflection is the key that opens the door to understanding oneself in relation to core ethical values. The authors (Fischer & Pruyne, 2003) point to a number of professionals who can support reflective thinking: teachers, coaches, tutors, therapists, supervisors and spiritual and religious leaders. Among

the educational and intellectual stimulators of reflexivity, a highly stimulating learning environment is mentioned first and foremost. Considering the maturity for the development of reflexivity – an abstract ability – a high school can be such an environment, and certainly a university should be. In academies and universities, we encounter a position that is far from looking at knowledge as dichotomous: unequivocally good or bad. Universities are spaces for discussion, self-determination, expressing one's views and openness to various interpretations. This has traditionally been fostered by the high intellectual capital of the participants. Nowadays, with the increasing popularity of university studies, this factor may be losing its importance. So far, the experience of today's students – the so-called background that feeds cognitive perspectives – can be very diverse.

Adults deprived of development opportunities in stimulating environments will be left behind. Tutoring, which is based on reflexivity, is about awakening the attitude of effort and confronting cognitively ambiguous problems, i.e. those that do not have a single, verifiable solution in every context. Aysun Gurol (2011) defines reflective thinking as a directed, precise process that includes analysis, evaluation, the need for deep understanding, cognitive motivation and a positive attitude towards learning. Jozua Sabandar (2013) states that the ability to think reflectively includes the ability to think critically and creatively. He conducted empirical research on the subject with a group of future teachers. A clear relationship was established between reflective thinking and critical thinking ($r = 0.68$). Reflective thinking requires a constant evaluation of beliefs, assumptions and hypotheses and a comparison with other plausible interpretations.

Reflective thinking is a major step towards understanding oneself. The individual is aware of what they already know and what they need to learn. Reflective thinking gives them a chance to interpret their own thoughts and actions. The process of self-reflection makes it possible to relate new information to previous experience and knowledge. Reflective thinking also involves personal reflection on one's achievements and failures and asking what has worked well and what areas should be

improved. Self-reflection enables individuals to understand personal concepts of reality.

In tutoring, reflective thinking must be applied by both partners: tutor and tutee. Both actors have reflections, which includes retrospective analysis whilst solving problems and reflection on themselves – their own convictions, beliefs and efficacy. Critical reflection can lead to questioning past experiences in the context of broad issues such as ethics, personal learning theory and technological development. The tutor not only evaluates themselves, but also reflects on the tutees' past experiences because they affect current learning.

Tutoring and reflexivity define education based on human emancipation and broadening of experience. Such education is the “essential weapon” for eliminating ignorance and contributing to someone becoming productive, useful and of value to both oneself and society.

Tutoring and education

Tutoring is most often carried out in the form of an academic teacher working individually with a student. It usually takes the form of conversations or creative discussions during which intellectual inspiration takes place, personal potentials are activated and the student develops cognitively, socially and personally. Adrianna Sarnat-Ciastko (2017, p. 81) states that tutoring allows the student to take responsibility for their learning, whilst contact with a master – an expert in the field – shapes the student's analytical and critical skills, as well as rhetorical skills. The intellectual development that occurs thanks to tutoring has also been noted by Katarzyna Czayka-Chełmińska (2007, p. 51) and Piotr Czekierda (2015, p. 20). In the first case, it is about maximising the potential of relationships in the context of knowledge development. Importantly, “in a relationship understood in this way, the tutor and the student are equal partners, for each of them is equally important and unique” (Czayka-Chełmińska, 2007, p. 43). Partners benefit from each other's resources and better cope with cognitive challenges. In the second case, an integral

view of the human being comes to the fore. Tutoring ensures the full development of the student's potential, thanks to reflection – deeper forms of thinking, in-depth analysis of problems and contextual considerations. The reflexivity-related aspects of tutoring are highlighted by Beata Karpińska-Musiał (2012, p. 58), who claims that the basis of education using the tutoring method is subjective decision-making and reflection on one's own cognition. The self-determination in question also means a deeper insight into one's own learning processes. Of utmost importance is self-awareness, which Richard Barrett (2011) sees as the beginning of what he calls *personal transformation*, which involves discovering one's potential and capabilities, learning about one's strengths and weaknesses and recognising one's relationships with others. Tutees analyse themselves not only in the context of personal characteristics, but also in terms of their environment. Reflexivity is crucial in this process because it allows one to not only rethink the social structures to which one belongs, but also to free oneself from them. Scott Lash, Ulrich Beck and Anthony Giddens (2009) discuss this in the pages of their iconic *Reflective Modernisation*. They emphasise the importance of fully realised subjectivity – in-depth consideration of one's decisions, autonomy in thought and action and freedom from the aforementioned structures, especially if they are rigid, collective and of little value to the individual.

In tutoring, student activity is highly stimulated. Talents and gifts are found, as well as interest in scientific careers. In the whole process – in the context of developing reflexivity – the figure of the tutor is extremely important, whose involvement consists in the ability to ask questions and bring out from the student tacit knowledge: possessed but previously unconscious knowledge. It is also important to pay attention to the context and teach critical thinking, the art of argumentation and the ability to build conclusions. These issues are highlighted by Bartosz Fingas (2015), who emphasises the “master” skills of motivating and intensifying students' efforts in achieving their goals.

The research of the tutoring method and its usefulness at different levels of education is a popular area of research in Poland (e.g. Brzezinska

& Rycielska, 2009; Brzezinska & Appelt, 2013; Czekierda, 2007; Czekierda, 2015). The concept of tutoring involves a developmental approach to education, which means that both the student and the education are subject to evolution and change. At the academic level, it is not regarded merely as the transfer of information and skills, but as the transfer of patterns and methods of scientific reflection and research (Kohlberg & Mayer, 2008). Active learning also requires commitment and taking responsibility for one's learning (Reschly & Christenson, 2012; Skinner et al., 2009). The multidimensional concept of student involvement (Reeve, 2011, 2013) implies the expectation that students play a key role in the teaching process. The role of the tutor is to share their experiences, encourage exploration and asking questions, as well as to provide feedback (Cowie & Harrison, 2016). Daria Hejwosz (2010) points out that the role of the tutor is a non-dominant participant in the discussion, not imposing their beliefs and interpretations as a partner.

Description of the method

Let us recall that the aim of the research was to determine how participation in academic tutoring impacts the development of students' reflective thinking. Students' reflexivity in this research is understood as self-referencing their own knowledge, learning and education. It is a careful, in-depth, conscious reflection on one's beliefs, cognitive processes and other educational experiences. The place of research was the Academy of Special Education in Warsaw, which participated in the project entitled "Masters of Didactics".

The aim of the research was to identify the students' level of reflexivity immediately after they began the tutoring project, and then to verify it after five semesters. The first round of research was conducted in the autumn of 2020, whilst the second round took place in early 2023. Establishing a link between the development of reflexivity and tutoring was possible after comparing the results with those of a control group. Therefore, students not benefiting from individual tutor support also took part

in the research. In both groups of students, attempts were made to identify a relationship between the level of reflexivity and selected educational and sociocultural variables: academic performance, knowledge of foreign languages and parents' education.

The main research questions were:

- What levels of reflexivity are shown by Academy of Special Education students when beginning tutoring?
- Do these students differ in their level of reflexivity from students who did not enter the tutoring programme?
- Have the levels of reflexivity of both groups of students – those taking part and those not taking part in the tutoring – changed after five semesters, and if so, to what extent?
- How do the selected educational and sociocultural variables relate to the reflexivity of the participants, and is the relationship, if any, the same after one year of being tutored?

The research was exploratory in nature; therefore, no research hypotheses were formulated related to the possible increase in reflexivity among students participating in the tutoring at the Academy of Special Education in Warsaw. However, expectations were formulated about the relationship between the level of reflexivity and some educational and sociocultural variables. It was assumed that academic performance would not be related to the reflexivity of the respondents. On the other hand, students who speak foreign languages at a higher level were expected to show higher levels of reflexivity and higher education of their parents to translate into greater reflexivity in the respondents. These suppositions were based on previous research conducted in Poland (Perkowska-Klejman, 2019; Perkowska-Klejman & Odrowaz-Coates, 2019) and worldwide (King & Kitchener, 2004; Kember et al., 2000; Boyd, 2008; Fischer & Pruyne, 2002).

The students' reflexivity was measured using the Polish adaptation of the *Reflective Thinking Questionnaire* (Kember et al., 2000; Perkowska-Klejman, 2014, 2019). The questionnaire consists of four scales: habitual

action, understanding, reflection and critical reflection. Sociocultural variables were determined through the students' declarations on a questionnaire.

Table 1. Characteristics of the four scales of the Reflective Thinking Questionnaire

Name of the scale	Description of the scale	Sample statements from the questionnaire
habitual action	These are activities with a fixed, previously learned and repeatedly used procedure. They are performed mechanically, with little awareness on the part of the subject, who does not think about what they are doing.	When I am working on something, I can do it without thinking about what I am doing. In college, we do some things so many times that I started doing them without thinking about them.
understanding	Understanding is a "prudent" action based on the use of existing knowledge without attempting to evaluate it. Learning in the case of understanding uses existing cognitive perspectives and widely used systems of meanings and concepts.	In my studies, it is necessary that I understand the concepts that the teachers use. I need to understand the material taught by the lecturers in order to complete practical tasks.
reflection	Reflection is defined as the ability to question assumptions about the content or way of solving problems. This criticism, in turn, leads to the awakening of new cognitive doubts. The subject wonders whether the problem has been solved well and with the best methods. The analysis of an issue leads to the adoption of a kind of problem-solving attitude, which involves asking questions about the validity of solutions.	I like to think about what I will be doing and consider alternative ways of doing it. Sometimes I think about how others have done something and try to think of a better way of doing it.
critical reflection	The advancement of thinking at this stage consists in changing the way of looking at a given issue under the influence of reflection, which results in new problems to be solved. People capable of critical reflection make knowledge-related assumptions at the highest level. For example, they reflect on the nature of knowledge, the areas of its application and the nature of its evidence.	Studies have changed some of my previous beliefs. During my studies, I discovered errors that I had previously accepted as truth.

Research results

Before proceeding with the analysis to answer the research questions, the reliability of the individual scales of the questionnaire was determined.

Table 2. Reliability of individual scales of the Reflective Thinking Questionnaire

Reliability of scales, Cronbach's alpha coefficient		
Name of the scale	1st round of research	2nd round of research
habitual action	.72	.67
understanding	.61	.75
reflection	.71	.70
critical reflection	.76	.80

The results of the internal consistency analysis of the various scales of the questionnaire should be considered satisfactory. Importantly, they do not differ from analogous results obtained in other studies (Gülşah & Evin Gencil, 2013; Tehran et al., 2023; Kember et al., 2000).

Table 3. Size of the study groups in the 1st and 2nd rounds and the respondents' fields of study

Participation in tutoring	1st round of research		2nd round of research	
	YES	NO	YES	NO
Psychology	23	21	21	6
Sociology	7	8	6	7
Pre-school and early childhood pedagogy	5	3	5	3
Pedagogy	16	21	16	18
Special needs education	16	25	12	25
Art education	2	0	2	0
Total	70	77	62	59

A total of 147 students took part in the first round of the research. The research was repeated in a group of 121 students. The first round of research included almost all students participating in the tutoring

programme. According to the assumptions of the “Masters of Didactics” project, the students who were tutored had to meet certain criteria: be a laureate of a national or international scholastic competition (*olimpiada przedmiotowa*), be a laureate of the “Diamentowy Grant” programme or have a high number of points in the recruitment process for first-cycle studies or long-cycle Master’s studies. In practice, these stricter criteria were not a barrier to joining the programme because the number of applicants was only slightly larger than the number of places in the programme. Only a few people did not qualify. The control group was selected purposively, according to the criterion of the field of study – in such a way that the different fields of study were as equally represented as possible among the respondents in both groups. In the second round of the research, the same students were asked to participate. The percentage of completed questionnaires was 89% in the group participating in tutoring and 77% in the group not participating in tutoring. In fact, it was psychology students without tutoring who did not repeat the survey after 5 semesters. Almost all respondents in the first round were between 18 and 20 years old, and in the second round between 20 and 22 years old. Only three people were older, but they did not exceed the age of 30 even in the second round. Due to the nature of the university, where the employees and students are predominantly in the area of education, a social science, the number of women in the project was higher than the number of men. This proportion is similar to the proportion for the university as a whole and was maintained in the second round of the research. Thus, 133 women and 24 men participated in the first round of the research, with similar proportions in the second.

The first research questions concerned the level of reflective thinking demonstrated by the students who were tutored in comparison with that of the students not in the programme. Again, this was the first round of research.

Table 4. Levels of reflective thinking of students tutored and not tutored

Levels of students' reflective thinking, 1st round of research			T test
Name of the scale	Tutoring – YES	Tutoring – NO	
habitual action	2.33	2.74	t = -3.42; p < .001
understanding	4.32	4.14	t = 1.78; p = .038
reflection	4.02	3.64	t = 3.26; p < .001
critical reflection	4.24	3.66	t = 4.81; p < .001

The students undergoing tutoring differed from the control group in terms of thinking described on all four scales of the *Reflective Thinking Questionnaire*. They showed higher levels for understanding, reflection and critical reflection, and lower levels for habitual action.

After five semesters, the research was repeated. The goal was to investigate whether the levels of reflexivity of both groups of students had changed after five semesters, and if so, to what extent.

Table 5. Levels of reflective thinking of students tutored and not tutored

Levels of students' reflective thinking, 2nd round of research			T test
Name of the scale	Tutoring – YES	Tutoring – NO	
habitual action	2.89	2.83	t = 0.39; p < n.i.
understanding	3.97	3.91	t = 0.46; p = n.i.
reflection	4.18	3.75	t = 3.89; p < .001
critical reflection	4.44	3.83	t = 5.19; p < .001

Students participating in tutoring achieved significantly higher scores on the reflection and critical reflection scales compared to the students who were not participating in the programme. The following steps attempt to resolve the key issue of these studies. It was examined whether students' level of reflective thinking had changed over the course of their studies. In the tutored group, there was an increase in

scores on the critical reflection scale and a decrease in scores on the habitual action and understanding scales (Table 6). In the group not undergoing tutoring, only a decrease in the scores on the understanding scale was observed (Table 7).

Table 6. Comparison of the levels of reflective thinking of students participating in tutoring at the beginning and at the end of the programme

Levels of reflective thinking of students participating in tutoring			T test
Name of the scale	1st round of research	2nd round of research	
habitual action	2.33	2.89	$t = -4.13; p < .001$
understanding	4.32	3.97	$t = 2.65; p = .004$
reflection	4.02	4.18	$t = -1.59; p = .56$
critical reflection	4.24	4.44	$t = -2.08; p = .02$

Table 7. Comparison of reflective thinking levels of students not participating in tutoring at the beginning of their studies and after five semesters

Levels of reflective thinking of students not participating in tutoring			T test
Name of the scale	1st round of research	2nd round of research	
habitual action	2.74	2.83	$t = -0.67; p = .25$
understanding	4.14	3.91	$t = 2.03; p = .02$
reflection	3.64	3.75	$t = -0.91; p = .18$
critical reflection	3.66	3.83	$t = -1.20; p = .11$

The research considered selected educational and sociocultural variables in the context of their potential relationship to the reflexivity of the participants. Several educational variables were used in the first round of the research: the students' results on the *matura* exam in Polish, mathematics and a foreign language. These variables were chosen because they

applied to all respondents – everyone took the *matura* exam in these subjects and obtained a certain score. In the second round of the research, the educational variable was the average marks earned by the respondents in the semester preceding the research.

Table 8. Academic performance vs levels of students' reflective thinking

	1st round of research			2nd round of research
	Polish	mathematics	foreign language	grade point average from previous semester
habitual action	F = 0.46; p = .83	F = 0.90; p = .49	F = 0.90; p = .49	F = 1.01; p = .38
understanding	F = 0.64; p = .69	F = 1.91; p = .08	F = 0.60; p = .72	F = 0.86; p = .46
reflection	F = 2.45; p = .02	F = 1.23; p = .29	F = 2.1; p = .04	F = 5.13; p = .002
critical reflection	F = 1.2; p = .27	F = 0.79; p = .57	F = 0.87; p = .51	F = 1.48; p = .22

In general, academic performance made little difference in the students' reflective thinking. What is noticeable, however, is that the results obtained on the Polish and foreign language *matura* exams were related to the results from the reflection scale. The analysis of descriptive statistics allows us to draw the conclusion that the people who earned better exam scores in Polish and in a foreign language had higher results on the reflection scale. Scores on the reflection scale were also differentiated by educational achievement as expressed by the grade point average earned by students at the end of their second year of studies. Higher scores on the reflection scale were achieved by students with better marks during their studies.

The level of English proficiency did not differentiate the results obtained by the students in either round of the research.

Let us recall that the first round of the research involved 70 people being tutored and 76 people not being tutored. The vast majority of students who signed up for tutoring had mothers with higher education (n = 47) or high school education (n = 13). The control group included

children of parents with varying levels of education: 29 had mothers with higher education, 19 had mothers with high school education and 20 with vocational education.

The educational distribution of the respondents' fathers was similar in many respects. The fathers of students from the tutoring group most often had higher ($n = 36$), secondary ($n = 12$) or vocational ($n = 20$) education. The fathers of the students in the non-tutoring group most often had vocational education ($n = 34$), less often higher education ($n = 20$) and the least often secondary education ($n = 14$).

No relationship was established between the respondents' reflective thinking and their parents' education at the beginning of their studies in the first round of the research. Nevertheless, this changed over the course of the studies.

Table 9. Parents' education and students' levels of reflective thinking

Level of students' reflective thinking (second round of research) vs parents' education		
Name of the scale	mother	father
habitual action	$F = 6.39; p = .003$	$F = 6.06; p = .001$
understanding	$F = 0.85; p = .43$	$F = 0.87; p = .45$
reflection	$F = 0.28; p = .75$	$F = 0.37; p = .77$
critical reflection	$F = 0.97; p = .38$	$F = 1.90; p = .13$

An important result of the F-test can be noticed on the scale of habitual action. A look at the descriptive and post hoc analyses leads to the conclusion that those whose mothers and fathers had vocational education showed, on average, the highest scores on the habitual action scale. Those whose mothers and fathers had a high school education achieved average scores on this scale. The higher education of the respondents' parents was associated with the lowest average scores on this scale.

Conclusions and significance of research results

Taking up the research problem of recognising and verifying the levels of reflective thinking of students participating in tutoring is part of the discussion on the quality of teaching in higher education which has been taking place in recent years. Increasingly common and free access to information obliges universities to use modern, diversified teaching methods. Both reflexivity and tutoring fit into the concept of active, individualised learning that brings out the unique attributes of each student and emphasises the student's responsibility for their own education. Tutoring is considered an elite method, which has been introduced into the practice of the Academy of Special Education in Warsaw to a limited extent. Let us recall that 77 students took part in the programme covering almost the entire cycle of bachelor's studies or half of the long-cycle Master's studies, which represented only 1.3% of all Academy students. Did it pay off? The project's budget was nearly PLN 1,200,000, or about PLN 15,000 per student. It can certainly be said that this group was subject to higher learning standards, willing to develop and make an effort and open to change. These advantages, however, clash with systemic factors that favour mass education and basically ignore the quality aspect, but are cheaper. The inclusion of tutoring means that the university places a greater emphasis on the cognitive and personal development of the individual student. An expression of this development is the increase in reflexivity found in this research. Comparisons of the results of the tutored vs non-tutored groups show that young people who receive individual tutoring develop better in the course of their studies. Nonetheless, it should be noted that these were people with significantly higher reflective potential at the beginning of their studies. It is likely that even without the participation of the tutor, these individuals would have developed cognitively. The results can also be commented on by comparing them to previous studies. Although the previous measurements of reflexivity were made on a one-time basis, higher results were usually obtained in groups of older students compared to groups of younger students (e.g. Kember et al., 2000; Fischer

& Pruyn, 2003; Perkowska-Klejman, 2019). Older students also scored higher in these studies, but only those undergoing tutoring.

Of cognitive interest is the relationship between academic performance and scores on the reflection scale. The results show that students who score well in external exams are more concerned about rethinking aspects of their own learning. In practice, they may look for innovative ways to solve a problem and reflect on their actions.

It would seem that socialisation variables indexed by parental education would co-occur with reflexivity. This link, however, has not been confirmed. It was noted that students of parents with lower education think and act at a habitual level to a significantly greater extent compared to students of parents with higher education.

The research revealed that not taking advantage of tutoring did not work out well for the students in terms of developing reflexivity. Data on the intellectual development of adolescents subject to individualised learning methodologies can be extremely useful for designers and implementers of didactics in higher education. The research also made it possible to better identify the attributes of the most talented students and to further identify possible opportunities for their development. An additional added value of these studies is that people participating in the research are better able to understand themselves in terms of development. The respondents, especially from the tutoring group, were very interested in their individual results.

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