

THE IMPACT ASSESSMENT OF THE “OUR ENVIRONMENT IN THE XXIST CENTURY” PROJECT IN SECONDARY SCHOOLS

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Received: 18.05.2013; Accepted: 27.08.2014; Published online: 17.12.2014

There are many methods have become general nowadays with which the teaching and learning can be made more successful. Beside teamwork, situational game and debate, the project method is becoming more and more widespread. This method reinterprets the traditional lesson activities. It gives a chance for children to move at its own pace in order to achieve a common goal. Project work is a much applied method in environmental education too. Its significance is that through their independent activity resulting from their interest, students get possession of such knowledge and attitudes that is more difficult to reach by other methods of environmental education. From this consideration applying of the “Our Environment in the XXIst Century” project has took place, which is dealing with environmental problems that are closely related to our daily lives.

Keywords: environmental education, project method, self-, and peer assessment

Aims and methods of environmental education

The humanity needs have increased substantially in recent decades because of the scientific and technical development. All people have to pay attention that the satisfying of needs do not endanger the recent and future generations, do not harm environment. We should develop an environmentally conscious behavior in which people respect and recognize the diversity and greatness of nature (Gulyásné, 2003).

Today mankind realized that our today’s lifestyle is unsustainable in this way. The term of sustainable development is appeared in the public mind, and scientists are more and more often deal with it.

The environmental education includes pedagogy of sustenance (Schróth, 2004), which strengthens and transforms people’s scale of values about environmental consciousness and develops cognition, action and decision-making skills. It helps to recognize the responsibility about the protection of nature and environment (Péntekné, 2000). Beside this, it is important to note that the environmental education can not be limited to kindergarten or school, since it is a lifelong process.

Acquiring environmental knowledge and knowledge about concepts and environmental problems is not enough to act as an environmentally

responsible person. It is important to believe in the importance of their activities and they needed to be able to independent action. *Péntekné* (2000:4) prepares a person, how to lead its life in terms of the appropriate harnessing and sustainability of natural assets.

In December 2002, the UN declared the decade between 2005 and 2015 as “the decade of sustainability”. This decade is serves the purpose that the basic values of sustainability, protection of environment and health should be appears in all levels and forms of education (Havas & Varga, 2005).

A survey was conducted among teachers earlier, what are the most important objectives of environmental education according to them. According to the survey (Havas, Széplaki & Varga, 2004) they considered the attitude shaping and forming environmental awareness as main objects. Beside this the more active civil education and the knowledge of local environmental issues appeared too, but they did not mention the promotion of sustainable development as pedagogical aim.

A wide variety of methods developed at the field of environmental and sustainability education. Application of them inside and outside of the school framework is closely related. Some of the general methods used in the classroom (Havas, Széplaki & Varga, 2004; Gulyásné, 2003) discussion, narration, drawing, see scientific films, experimentation, playing, modeling, observation or measurement. Of course the application of methods is determined by the age of students. Extra-curricular activities are excursion, report method, campaigns (Earth Day, World Water Day), and the forest school. Specific methods of environmental education are project work, case studies, simulation games, group work and field tasks.

The project method was developed by *Dewey* and *Kilpatrick* in the early twentieth century. They consider the empirical learning of children as the most important thing. Dewey established an experimental school where children are actively involved in the teaching-learning process, and not behave as passive recipients (Szira, 2002).

The project (Mérő, 2007; Nyiratiné, 2005) is elaborating some real problems or activities. The focus was on the activity, collaboration and organizational skills of the students. During carrying out the tasks communication skills of children are developing (Kruger & Shannon, 2000), their responsibility-taking and independence (Galambos & Kozma, 2006), their organizational abilities are developing (St. Clair & Tschirhart, 2002).

In recent decades the number of projects elaborated at various stages of education is steadily increased. These projects are proving the more and more versatile using of the method in education.

The Concept and Importance of Project Based Learning

In education, more and more methods can help the teachers to find varied ways for knowledge transfer. It has become an increasingly accepted approach that children are not only observers of school education and passive recipients of information, but active participants too. In spite of this, unfortunately, in schools children are participating as passive recipients at almost all levels.

It is necessary to use such new forms of work in teaching and education that expand opportunities for students for independent work. The project method gives possibility for this because solving of complex, real problems happens during it.

The definition of the projects by *Katalin Hortobágyi* (1991:5) points out, that the application of project method can become an effective method of

learning in such a way, that it is a process that requires interdisciplinary knowledge and activity which is aimed at solving real problems and directed by the interest of students.

It shows the effect of the project to personality that during the application, the thinking, collaboration and problem-solving abilities of students are developing (Bujna, 2005).

It shows the importance of project method, that as part of the two-level final examination, students can perform project work, and they can present it as one of the theses at the oral examination. It also appeared in several subjects, such as Ethics and Social Studies. Besides this, from among scientific subjects at secondary level, biology can be chosen as oral examination. According to *Katalin Falus* (Falus & Jakab, 2005:3): “*it brought the possibility and necessity for secondary schools into tangible proximity to get acquainted with project method*”. By the help of the new examination form, the interested teachers and students could re-think the whole teaching process, the usual order of student and teacher activities, the assessment of students (Falus & Jakab, 2005).

The *project-based education* is important because it breaks with traditional principles. The students can get their obtainable knowledge by the help of overall plans (projects). The project method is build upon the interest of students and common activities of teachers and students. Important characteristic of the method is its interdisciplinarity. It treats certain topics in the way that the knowledge material of other subjects appears in it so the given topic can be worked out from the greatest possible approach by the student. The final outcome is always some kind of product (exhibition, video film, newspaper, etc.). It is important, that we should accustom the students with collective work, so the method can be applied at primary school, too (Tuza, 2005; Dombi, 2006).

The activity-oriented school model (Kovátsné, 2006) places great emphasis on the development of project based learning and project pedagogy. The project work develops the students’ sense of responsibility, decision-making ability, their collaboration with group members, and their problem-solving ability. Beside this it requires the active participation of students in the teaching-learning process.

The project method is excellently suitable for the application of modern evaluation methods. Projects are formulating aims that different from traditional educational and developmental objectives, its realization should be graded. The evaluation can be done in several different aspects. There is a possibility for both self - and external estimation. Different forms of self-estimation are important because they are constructive, and students are more critical with themselves than external observers (parent or teacher). The presentation of the work (product) of student is important. It can happen in narrower or wider environment. Realization of the objectives of curriculum, competencies to be developed, and the organization of collaboration in groups must be evaluated. Performance of students is assessed by teachers but the different abilities of students should be considered. Interim evaluation is always necessary in the project work; it can happen in some phases of the work. Beside the product, evaluation of the mental process and collaboration is an important task (Hunya, 2009).

The Research

Sample and Methodology of the Research

The project took place between September 2011 and June 2012 at Diósgyőri High School in Miskolc. There were ten smaller sub-projects within the “*Our Environment in the XXIst Century*” major project. Three-person groups from 10th and 12th grade worked in every project. In September 2011 the children volunteered to solve the task. They chose the most likeable one of the ten sub-projects and they worked it out during the school year. Elaboration of each sub-topic has been taken place on the basis of personal ideas of students with the help of the leader teacher. There was one hour per week for working out the project.

The major project

According to its type the main project is an extracurricular long-term (a year long) project that is taking place within the school and aiming the acquisition of scientific knowledge. It is not implemented in traditionally organized school environment.

Primary aim of the project is the acquirement and improvement of interdisciplinary knowledge related to environmental pollution. Our environment is subjected to increasing stress because of the economic development in the XXth century and the increasing global population growth. The air, soil and air pollution has become such an extent which can have irreversible consequences. These problems have increased to global scale problems for today. During the project the children are get acquainted with the consequence of air pollution, soil pollution, urbanization, water pollution, etc. Beside this they are searching for possible solutions about reducing the emissions of pollutants. Among the educational objectives there is the obtaining of interdisciplinary knowledge in the given theme that affects the geography, biology, chemistry and physics subjects. The students can learn the features of planning and collaboration; they experience the joy of success of common work.

Among priority development objectives I aimed the development of the self-image and self-knowledge, education for the love of nature and for animal protection, environmental education, culture of information and communication, aesthetic education, learning, thinking culture, preparation for the roles of adult life, education for empathy, education for healthy lifestyle (hiking in nature).

Among organizational learning processes, methods, and tools appearing in the project I considered experimental cognition – personal interest, success, student independence – personal relationships, frontal, cooperative and individual work forms, complexity in content (integration) as important.

The subprojects

The execution of project has begun with setting the aims of subprojects. At the beginning of the year, I introduced the main tasks in groups then after finishing certain tasks (closing date), I asked for situation report about partial carrying out of works. We discussed it with the students together, than I gave further partial objectives for certain groups. At last they completed the team works and evaluated the completed products.

During the work, the teacher has appeared mostly as a facilitator, as the supporting of the work. The working processes can be divided within the

group between students or they could do it together. The work was performed outside of school hours. In case of need students could ask for help to other subject teachers too, and the groups could share their knowledge among themselves as well. At the end of the project the participant students presented the results of their research through a Power Point presentation to members of other groups and other students not participating in the project.

Titles of the ten subproject: 1. Air pollution, 2. Pollution of water 3. Soil Pollution, 4. Biodiversity, 5. Urbanization, 6. Noise pollution, 7. Waste, 8. Energy consumption, energy production, 9. Traffic and transporting , 10. Global Challenges.

Evaluation of the project is done from several aspects. The experimental (participant of the project) and the control group completed a knowledge level test worksheet before the starting and after the ending of the project. I examined with this, that how the environmental knowledge of students changed by the effect of the project. Beside this I measured the change of the environmentally conscious attitude of students. Lastly I examined the effect of the project to the personality of participant students by a questionnaire.

The Self- and Peer-Assessment questionnaire

We measured the complex effect of the project on personality on the basis of student's opinion by a questionnaire that helped the self- and peer-assessment and contained 60 statements. In the questionnaire developed by *Revákné* (2013) the students had the opportunity to assess themselves, their peers and mentors too.

The questionnaire contains different statements regarding different abilities, skills and activities. 5-5 questions are belonging to every field. Questions of a given field are not following each other in the questionnaire, so the predictability of answers for the questions is reduced. With this method we can increase the reliability of the assessment of the given field. Certain fields of the questionnaire:

- 1., 13., 25., 37., 49., items cover motivation, attitude
- 2., 14., 26., 38., 50., items cover being aware of own divergent thinking
- 3., 15., 27., 39., 51., items cover creativity
- 4., 16., 28., 40., 52., items cover ability to recognise critical thinking (in self and others)
- 5., 17., 29., 41., 53., items cover problem solving
- 6., 18., 30., 42., 54., items cover decision making
- 7., 19., 31., 43., 55., items cover argumentative skills
- 8., 20., 32., 44., 56., items cover collaboration and communication skills
- 9., 21., 33., 45., 57., items cover work ethic
- 10.,22.,34., 46., 58., items cover level of previous knowledge
- 11.,23.,35., 47., 59., items cover practical skills
- 12.,24.,36., 48., 60., items cover self-knowledge

There is no separate statement in connection with meta-knowledge but the 2., 4., 6., 12., 14., 15., 17., 18., 24., 36. points are suitable for the evaluation of this ability too. So this ability can be evaluated separately, its score is not part of the maximum number of points.

The writing time of the test is 45 minutes; it is suitable for the peer- and self- assessment too. Moreover the opinion of students about each other and themselves is comparable, and this is enhancing the ability of self-assessment.

Levels of evaluation: evaluation of the whole sample (overall effect of the project on the whole sample as well as the effect on the fields of the whole sample occurring in the questionnaire). Evaluation of certain groups (overall effect on certain groups, effect on the fields of certain groups occurring in the questionnaire); comparison concerning gender; evaluation of certain students (overall effect on students, effect on fields of certain groups occurring in the questionnaire, connection between the self-, and peer-assessment (assessment by group members)).

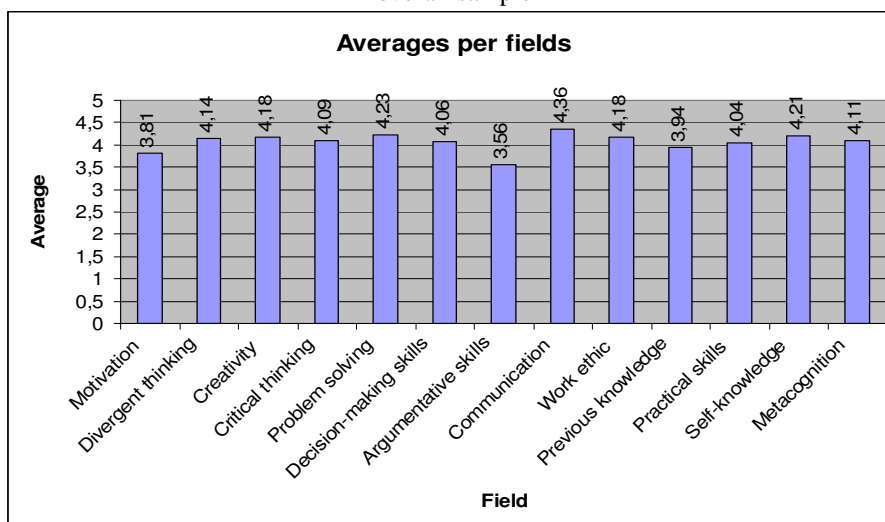
I evaluated the answers with the Statistical Package for Social Sciences (SPSS 17) program by the method of paired t-test, independent T-test and One-Way ANOVA (unary analysis of variance). Evaluation of certain items of the questionnaire by the students has done by five-point Likert scale.

Results

During the evaluation of data, points regarding the student himself and other two persons in his group were fixed. There were 30 students in ten groups, so a total of 90 sets of data have been recorded. I examined all the above-mentioned 13 fields at every student, so we had 70 points during the evaluation of each student. I worked a total of 6300 data.

I calculated the effect of the project on the entire sample (N=30) from the average of points given to the entire questionnaire. It was 4,1 (SD=0.63). Figure 1. shows the effect on subfields. On the basis of the ANOVA analysis there is significant difference between averages of certain fields in the entire sample ($F(12) = 9.078$; $p < 0.005$). You can see on the diagram that from among certain fields the average of the argumentative skills is the lowest. It differs significantly ($p < 0.005$) from the average of all other fields except motivation. The answers revealed, that children are rather discussed the problems emerged during the solving of the project because their inclination for debate was small. The field of communication reached the highest average (Table 1.). This shows, that the children were helpful, they accommodated with each other during task solving.

Figure 1. Effect of the project on the fields of the questionnaire regarding the overall sample



On the basis of averages we can say that the project has the least effect on the argumentative skills (3.56), the motivation (3.81) and the application of previous knowledge (3.94). The most affected fields were the communication (4.36), the problem solving (4.23) and the self-knowledge, of which. There was no significant difference between them. The project mainly enhanced the social characteristic of learning. You can see from the results that a project can be successful only if the participating students are cooperating, taking responsibility, managing conflicts well, appreciate each others work, so if they are showing responsibility towards the whole group during their work. The solving of tasks and problems was an independent task inside the group, so everyone took its part in learning the necessary knowledge and methods.

Table 1. Averages of certain fields regarding the total sample

	Field	M (SD)
1.	Motivation	3,81 (0,75)
2.	Divergent thinking	4,14 (0,58)
3.	Creativity	4,18 (0,62)
4.	Critical thinking	4,09 (0,56)
5.	Problem solving	4,23 (0,58)
6.	Decision-making skills	4,06 (0,66)
7.	Argumentative skills	3,56 (0,97)
8.	Communication	4,36 (0,64)
9.	Work ethic	4,18 (0,58)
10.	Previous knowledge	3,94 (0,59)
11.	Practical skills	4,04 (0,56)
12.	Self-knowledge	4,21 (0,51)
13.	Metacognition	4,11 (0,53)

During measuring the effect of the project I determined the average of certain fields. It was 2.57 – 4.88 (SD=0.00 – 0.94). I found the 2.57 average at one group in the case of argumentative skills. I found average above 4.80 in three categories (creativity, problem solving, decision-making skills).

Examining the averages per fields regarding every student it could be laid down as a fact that the averages show values between 2.53 and 5.00 (SD= 0.00 – 2.02). Average below 2.60 occurred at three students on the field of the argumentative skills.

It appeared from the examination of the overall effect on groups that according to the student's opinion we can observe the weakest effect among the 10 projects at "Biological diversity" and "Noise pollution" and the strongest effect was at the "Waste" group (Figure 2.). The average of all the three groups show significant difference ($p < 0.005$) compared with the average of other groups. As the students evaluated themselves and the other two members of the group too at the 13 fields, 9 data series and 70 points were regarded to one group. So there were 630 data in one group. I categorized the groups into three categories. Students between 4.5 and 5.0 were got to excellent category, if the average was between 4.4 and 4.0, they were classified as good, and if the average was below 4.0, they were classified as medium. The "Waste" is come under the category of *Excellent* (4.5-5.0) with the highest average. There are "Air pollution", "Urbanization", "Energy production", "Traffic and transporting" and "Global challenges" in the *Good* category (4.4 – 4.0) ; "Pollution of water",

“Soil pollution”, “Biodiversity” and “Noise pollution” in the *Medium* category (below 4.0).

Figure 2. Overall effect of the project on certain groups

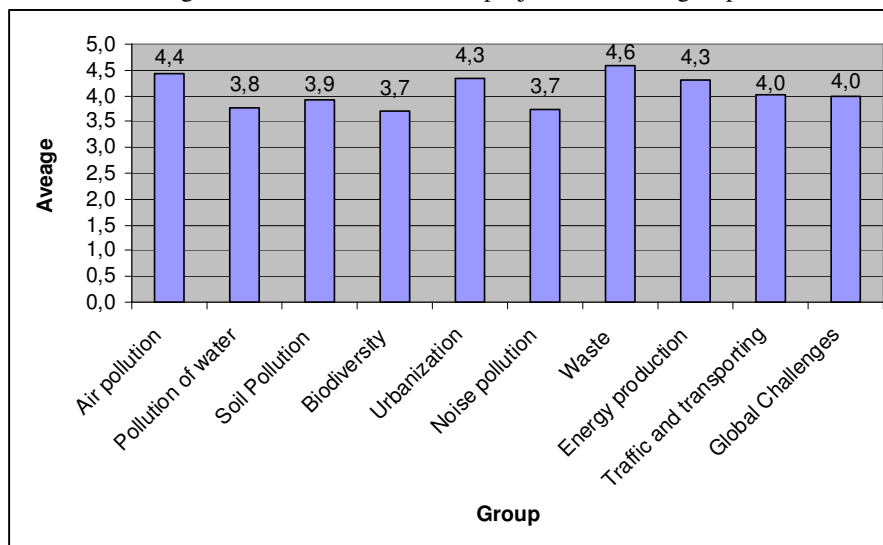


Table 2. Overall effect averages of certain groups

	Group	M (SD)
1.	Air pollution	4,4 (0,33)
2.	Pollution of water	3,8 (0,41)
3.	Soil Pollution	3,9 (0,40)
4.	Biodiversity	3,7 (0,38)
5.	Urbanization	4,3 (0,44)
6.	Noise pollution	3,7 (0,14)
7.	Waste	4,6 (0,25)
8.	Energy production	4,3 (0,22)
9.	Traffic and transporting	4,0 (0,25)
10.	Global Challenges	4,0 (0,31)

On the basis of the ANOVA analysis there is significant discrepancy between the averages of groups ($F(9) = 5.741$; $p < 0.005$). If we examine the certain groups, we can say that values of averages are varies between 2.56 and 4.90 (SD 0.00 – 0.94). I calculated the averages regarding certain students on the basis of the points of him and his two group members. The following averages 3.01 – 4.55 (SD 0.34 – 1.48) show the overall effect of the project on students.

We can say about sixty percent of groups that they are in the excellent or good category from the aspect of the effect of the project. This is enhance the 4.1 average value of the overall effect on participant students of the major project. You can see the effect on subfields in the following table.

Table 3. Averages of groups in certain fields

Group	Motivation	Divergent thinking	Creativity	Critical thinking	Problem solving	Decision-making skills	Argumentative skills	Communication	Work ethic	Previous knowledge	Practical skills	Self-knowledge	Metacognition
Air pollution	3,6	4,5	4,7	4,5	4,7	4,5	4,8	4,7	4,5	3,9	4,4	4,4	4,5
Pollution of water	3,4	3,8	3,9	3,5	4,0	3,7	2,8	4,3	4,5	3,6	3,6	3,9	3,7
Soil Pollution	3,4	4,2	4,3	4,5	4,1	4,0	3,2	4,0	3,5	3,9	3,6	4,4	4,2
Biodiversity	3,5	3,8	3,8	3,9	3,6	3,7	2,6	4,2	4,0	3,7	4,0	3,8	3,7
Urbanization	4,3	4,6	4,3	4,2	4,6	4,4	2,9	4,5	4,5	4,5	4,4	4,6	4,4
Noise pollution	3,8	3,6	3,8	3,7	3,9	3,5	3,5	3,7	3,9	3,8	3,8	3,8	3,5
Waste	4,2	4,5	4,8	4,5	4,8	4,9	4,0	4,7	4,5	4,4	4,3	4,5	4,6
Energy production	4,2	4,3	4,5	4,3	4,4	4,1	3,9	4,8	4,5	4,2	4,1	4,4	4,3
Traffic and transporting	3,5	4,2	4,0	4,0	4,3	4,2	3,5	4,2	4,1	4,0	4,2	3,9	4,2
Global Challenges	4,2	3,9	3,8	3,8	4,0	3,6	4,4	4,6	3,8	3,5	4,1	4,3	3,9
All	3,8	4,1	4,2	4,1	4,2	4,1	3,6	4,4	4,2	3,9	4,0	4,2	4,1

At groups, table 3 is suitable for the analysis of certain field's values relative to each other. Beside this it gives information about the identities of fields for which the project has the least effect and of those fields for which it has the most positive effect. The results of the effect on the overall sample are shows some similarities with table 3. According to students' opinion the project has the most positive effect on communication and problem solving while it has the least effect on argumentative skills. You could see on table 1, that the average of argumentative skills was the least while the average of communication was the largest. Motivation shows the second smallest average after argumentative skill which is surprising because the students could choose the topic they worked with. The "Waste" group reached the highest average (4.9) on the field of Decision-making skills while the "Biodiversity" group reached the smallest average (2.6) on the field of Argumentative skills

Table 4 shows the overall effect of the project concerning gender. According to data of the table the project has a more positive effect on boys. The averages do not show significant difference between genders $F=3.08$, $t=0.751$, $p>0.05$.

Table 4. Averages regarding overall effect concerning gender

Gender	N	M (SD)
Girl	14	4,02 (0,42)
Boy	16	4,12 (0,27)

Boys reached higher averages except two fields (table 5). The difference between boys and girls is significant only in the case of critical thinking and argumentative skills ($p<0.5$). The two genders showed the least difference in

the effect on argumentative skills and practical skills. I noticed the biggest difference in estimation of previous knowledge and decision-making skills, so the boys had considerable previous knowledge of the examined field. The girls showed higher averages at fields of collaboration, communication and work ethic, owing to their better collaboration abilities and their better attitude to work.

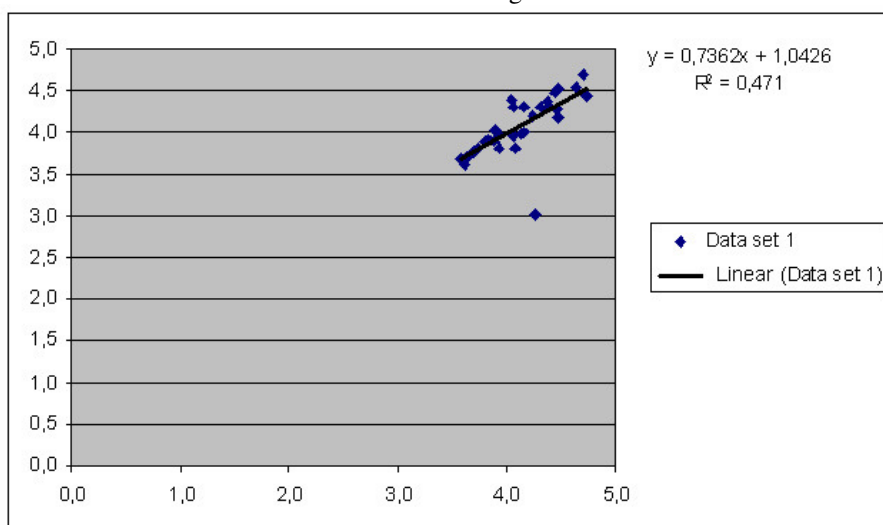
Table 5. Averages of certain fields and their difference between genders

Field	Boy M(SD)	Girl M(SD)	Difference of averages	t	p
Motivation	3,89 (0,42)	3,72 (0,37)	,16518	1,124	> .05
Divergent thinking	4,18 (0,41)	4,10 (0,41)	,08125	,534	> .05
Creativity	4,25 (0,35)	4,10 (0,56)	,15625	,912	> .05
Critical thinking	4,20 (0,27)	3,98 (0,49)	,22054	1,537	< .05
Problem solving	4,30 (0,41)	4,15 (0,45)	,14286	,898	> .05
Decision-making skills	4,18 (0,44)	3,92 (0,47)	,25893	1,528	> .05
Argumentative skills	3,57 (0,58)	3,55 (0,88)	,02500	,092	< .05
Communication	4,31 (0,31)	4,42 (0,46)	-,11607	-,807	> .05
Work ethic	4,11 (0,44)	4,26 (0,46)	-,15179	-,914	> .05
Previous knowledge	4,06 (0,37)	3,80 (0,38)	,26161	1,900	> .05
Practical skills	4,07 (0,28)	4,00 (0,39)	,07500	,602	> .05
Self-knowledge	4,26 (0,31)	4,15 (0,42)	,11250	,840	> .05
Metacognition	4,17 (0,34)	4,03 (0,45)	,13929	,953	> .05

During evaluating the achievement showed by certain students in the questionnaire I acted the same way as during evaluating the total sample and the groups.

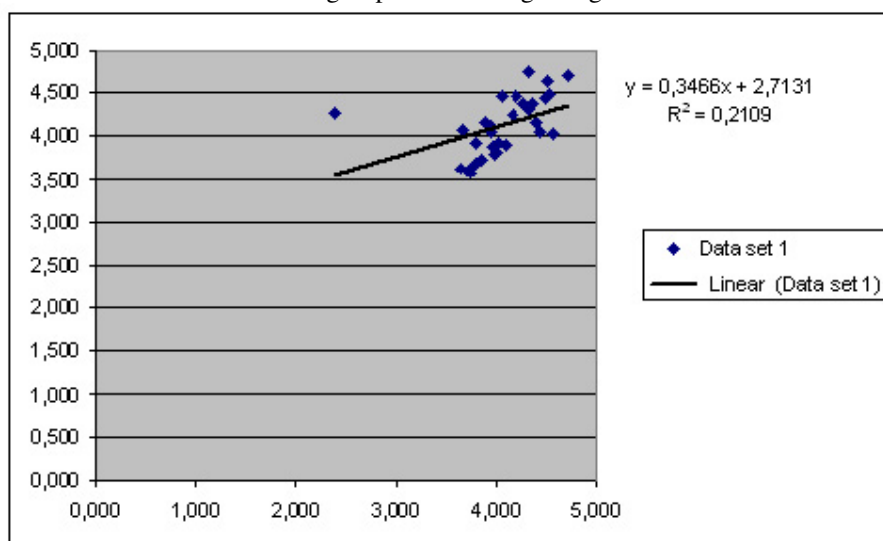
To verify the authenticity and validity I compared the values the students gave to themselves with values given to them by group members. Furthermore I examined the relation between his own average and the overall average regarding him (=own + member of team1+member of team 2 / 3). I performed the comparison by regression analysis.

Figure 3. Correlation between self-assessment regarding certain students and the overall average



You can see on figure 3 that there is moderate correlation between the students' own average and the overall average regarding them.

Figure 4. Correlation between certain student's self-assessment and the assessments of their group members regarding them



There are bigger differences between the student's self-assessment and the assessments of their group members regarding them, but it is still positively correlated. (figure 4). This means that the two assessments are realistically converging.

Figure 5. Correlation between averages regarding each other and the overall average regarding the student

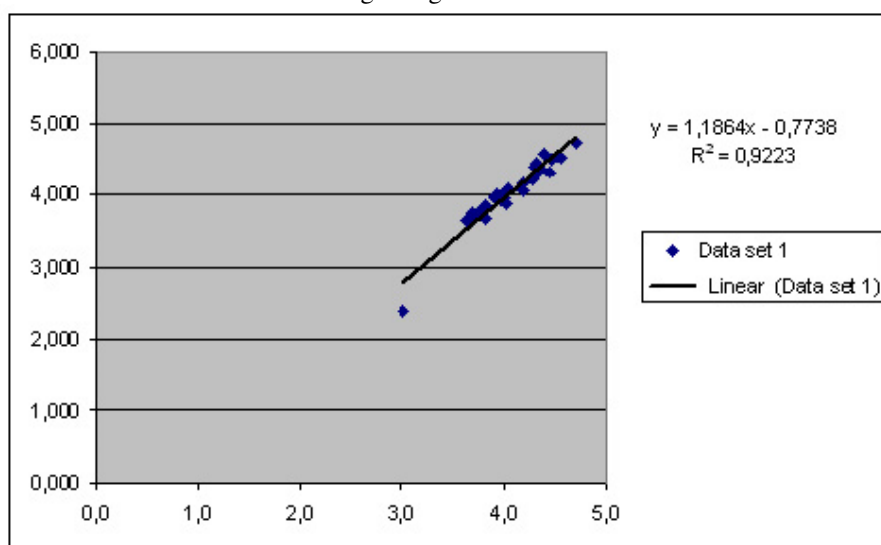


Figure 5. shows strong correlation between the values given by group members regarding the given student and the overall average of the student. Accordingly, the opinion of group members are much more decisive in forming individual overall averages.

The self average is 4.12 while the peer average (values of group members) is 4.06. Students gave significantly higher values to themselves. The 30 students in the project assessed themselves too since there was the field of “Self-knowledge” among the examined fields with which I examined how they know themselves. To verify how realistic their self-assessment is, I compared the self-knowledge with the self-assessments of other fields. I performed this by paired t-test. (for example I compared the value given by the first student to himself for the “Self-knowledge” field with the averages he gave to himself at the whole (containing every fields) questionnaire.

The value of overall average was 4.12, the self-knowledge average was 4.25 which is shows significant difference ($p < 0.05$). Value of the Pearson-Correlation is 0.618 that is significant on 0.005 level. The correlation between the two values is strong so the students are realistically considered themselves.

Summary

The “Our Environment in the XXIst Century” project has a positive effect on the students’ personality development in the examined fields. We could notice the most positive change in the fields of collaboration and communication, problem solving and the self-knowledge. One of the main objects of projects is that children could work together as much as possible. Students can perform tasks in groups so their communicational abilities, collaboration, the common problem-solving are developing more and more. However it is remarkable that motivation has the second weakest value. At the beginning of projects the students were volunteered for the elaboration of themes on the basis of their field of interest. I think they should be more motivated.

In the light of events I have concluded that the students realistically assessed themselves and each other too, the results are reliable.

Examining the effect of the project on the basis of student's opinion we can say that the project has excellent or good effect on personality development in six groups of ten. This confirms the 4.1 average value of the overall effect on students participating in the major project.

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Appendix

The self and peer assessment questionnaire

You can evaluate yourself and your peers using the following table. You can give 1-5 scores depending on how much you agree with the statements regarding yourself and your peers during the project.

Entirely true: 5 points

True: 4 points

Partly true: 3 points

Hardly true: 2 points

Not true: 1 point

<i>Assessment criteria</i>	<i>Members of team</i>				<i>Own points</i>
	<i>Name</i>	<i>Name</i>	<i>Name</i>	<i>Name</i>	
1. Taking part in the project actively and enthusiastically.					
2. Multi-tasking					
3. Creative thinking					
4. Evaluating ideas critically but objectively.					
5. Skills to identify and summarise problems.					
6. Good decision making skills.					
7. Initiative to take part in argument.					
8. Helpfulness					
9. Having good ideas to plan the work					
10. Having previous knowledge needed to solve the task.					
11. Awareness of scientific literature.					
12. Knowing own abilities.					
13. Increasing enthusiasm resulting from participation in the project.					
14. The ability to focus on more tasks at the same time.					
15. Clear explanation of ideas.					
16. Critical analysis of completed work.					
17. Many excellent or very good ideas and assumptions.					
18. Quick and correct decision making.					
19. Objective reasoning in arguments.					
20. Accommodation and/or adaptation.					
21. Completing tasks in time and meeting deadlines.					
22. Having extensive transferrable knowledge (which can be used in the project).					
23. Effective use of the internet.					
24. Realistically assess own abilities.					
25. Decreasing absence during the project.					
26. Ability to multi-task.					
27. Numerous suggestions for solution.					
28. Forming realistic opinion.					
29. Finding the solution in a short period of time.					
30. After consideration, definite action taking.					
31. Active participation in argument.					
32. Co-operative skills					
33. Accurate, precise work.					

34. Adequate use of previous knowledge.					
35. Finding the relevant information in scientific literature.					
36. Ability to recognise what was understood and what was not.					
37. Inspiration to join other projects.					
38. Effective solution of complex task.					
39. Having several ideas to solve the problem.					
40. The ability to realise what was in the right order and what was not.					
41. Taking part in data analysis effectively.					
42. Avoiding hesitation.					
43. Taking part in discussion of arguable questions.					
44. Collaboration					
45. Feeling that your own work is supporting the success of the group.					
46. Ability to recall previous knowledge any time.					
47. Ability to find the way in the library.					
48. Cheerful and eager work.					
49. Enthusiasm and interest .					
50. Ability to explain to others the theoretical and practical importance of the project.					
51. Genuine ideas in problem solving.					
52. Correct judgement of the completed task.					
53. Quick and accurate problem solving.					
54. Confident decision making in ambiguous situations.					
55. Enthusiastic participant in argument.					
56. Good communication skills.					
57. Listening to others' ideas.					
58. Recall useful information					
59. Ability to search information on the internet .					
60. Good behaviour during the project.					