

THE INTEGRATION OF THE SUBJECT ENVIRONMENTAL STUDIES WITH OTHER SUBJECTS: THE TEACHERS' VIEWS

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Abstract

The author of the present paper first theoretically describe the didactic concept of integrated lessons, then lay out the discussions on integrating lessons in subject Natural and social studies (now Environmental studies) with lessons in Slovene subject. In the empirical part she demonstrate the attitude of teachers in the first triad toward integrated lessons and how the subject Environmental studies is included into this concept. The findings show that the teachers included in the sample had different opinions about integrated lessons. They saw one of the basic advantages of integrated lessons compared to classical ones in the linking of the lessons with the pupils' lives. In the integration of the subject Environmental studies with other subjects, the subject Slovene language plays an important role. Teachers, however, cannot find connections with some of the subjects, despite the fact that they are defined in the national curriculum. The teachers claim they have greatest difficulties in the phase of planning integrated lessons.

Key words: *integrated lessons, elementary school, environmental studies.*

Theoretical Background

With the elementary school reform in Slovenia (1998) integrated education have appeared to be the basic concept in the first three years of the nine-year elementary school system in order to enable the children a “softer” transition from the preschool to the school period. The child is expected to progress in the cognitive, emotional, social and motor fields, and this requires an integral educational approach.

Kramar has the following view of integrated lessons: “In the lower grades of primary school, where pupils cannot yet cope with individual parts as starting points and their synthesis into a whole, the stress regarding lessons is on the starting point from the whole and a gradual transition to the starting point of individual parts. For this reason lessons divided into subjects and restricted to hours are not suitable for pupils, which is why lessons should be integrated.” (Kramar, 1991, p. 127)

The basic requirements of integral lessons are the following (ibid, p. 128):

- the conceptualization of lessons should take into consideration also the characteristics of children;
- lessons should be based on an integral exterior world – on society and nature, and should then transcend toward individual features;
- the content of the lessons should derive from the pupils' living (home) environment and be closely linked to it;

- during lessons pupils should familiarize with and acquire knowledge primarily through experiencing things and on the basis of personal encounters;
- the organization, process and dynamics of the lessons should be geared in accordance with the pupils psychological characteristics.

One of the main characteristics of integrated lessons is a guided development of the pupils' potentials and the acquisition of the basic functional knowledge.

Mileksič describes integrated lessons as “//lessons where the thematic clusters are treated “simultaneously” in all the dimensions of the child’s cognition and expression of the world, or in a combination of these dimensions. The starting point of the integrated lessons are the structure and the process of the child’s cognition and expression of the world and not a field of individual subjects. The primary function of integrated lessons is the knowledge, understanding and use of languages (the Slovene language, the language of mathematics, the language of arts, and the language of music) or the functional use of languages, respectively.” (Mileksič, 1992, p. 62)

Kralj (1992) finds that this definition emphasizes an important component of integrated lessons, namely the structure and process of the child’s cognition and expression of the world. It fails, however, to provide information on how this treatment is to take place. Which are, therefore, the theoretical findings integrates lessons are based on.

“Kralj builds her theoretical basis (integrated lessons – note by V. H.) on the findings of humanistic-constructivist psychology which defines learning as a process of ‘progressive, permanent/sustainable change in the individual based on experience’. In this process the existing cognitive structure (cognitive structure or network), as well as the view points, expectations and the emotions of the individual together with the social context significantly influence what the individual will learn and how” (ibid, p. 116). The author makes implications to the findings of Marentič Požarnik (1990) and explains that the introduction of integrated classes is supported also by Piaget’s theory and the papers by D. Piciga on recent findings in the mechanisms of the perception of cognitive progress. Piaget’s theory of the child’s cognitive development provides integrated lessons with two processes, namely that of ‘assimilation (placing new data into existing mental structures) and that of accommodation (adjustment of old structures to new data), which could together be called the process of equilibration. The child assimilates new data from the environment into already existing knowledge, structures. Children arrive at new, more accurate discoveries as soon as they become aware that the existing knowledge is contrary to fact, or to some information from the environment. The old structure needs to be changed, accommodated, adjusted to the new experience. A cognitive conflict between the mental processes themselves is also possible, when, for example, children become aware that two of their statements contradict each other. The mentioned process leads the child to increasingly higher levels of cognition.” (Piciga, 1991, p. 53)

The findings of humanistic and constructivist psychology have brought about also the following definition of integrated classes. “Integrated classes enable and stimulate the pupils in all their activities and social interactions to experience learning as an internal process of acquiring knowledge and of progressive and constant change, taking into account the pupils’ prior knowledge, viewpoints, emotions and social context in which they find themselves.” (Kralj, 1992, p. 120) The same author claims that what distinguishes integrated lessons from traditional ones can be found in the new view of learning/teaching on which its concept is structured..

Integrated lessons have their roots in the integral lessons introduced on the Slovene territory between both World Wars. Other names were also used such as: global, complex, condense and real lessons. “The subjects were combined into so-called “life segments” or “methodical units”, e.g. “meadows in spring”, where the fundamental subject, usually the mother tongue, played the leading role with which other contents of some other subject fields were integrated.” (Strmčnik, 1998, p. 134)

After World War II the integral lessons were gradually abandoned, since the belief was that the subjects were not scientifically systematic and structured enough, neglecting also the scientific

development of thought. The same danger threatens also the existing integrated classes. Super-subject integrations between teaching contents are extremely demanding and should be included already in the framework or national curricula. But they are not, because they cannot cope with the more improved content correlation due to reasons relating to trained specialists. Experts covering vast areas of study who could train global professional profiles of teachers in specialist schools, write interdisciplinary text-books and other didactic materials are extremely difficult to find. "If what is necessary does not exist here, then there is always the danger of improvisation in the school practice/.../. This requires caution and gradual progression. Such caution is necessary also in the case of the globalization of the contents in the lower grades of primary school education, e.g. in integrated lessons, although more daring steps are possible here due to a lesser professional complexity and more experience. Under no condition should they be hindered by the desires of individual experts who would due to narrow scientific and educational ambitions wish to introduce systematic subject classes already at this level." (Strmčnik, 1998, pp. 134–135)

Kralj (1992, p. 120) offers the following view about the reintroduction of integrated lessons into practice in the 1980s and 1990s: "The Slovene National Education Institute did provide guidelines as to which theoretical findings should be used in our work, it gave the strategy and methodology of planning in accordance with the thematic clusters and didactic system of planning. At the joint meeting of the schools which were this year included in the project of the school reform, however, one could sense that teachers differed in views and approaches." Some of them see integrated lessons merely as inter-subject combining of contents, others as a type of lessons in levels, while the third emphasize the importance of games and apply the "Osijek" model."

Debates have taken place on the suitability of the didactic concept of integrated classes in the lower grades of primary school and expert presentations have accordingly been published in journals. In this way D. Skribe – Dimec and M. Umek (1994, p. 92) wished to prove to M. Herberle Perat in the paper entitled Integrated lessons or Hotchpotch that the subject Social studies (presently the subject Environmental studies – note by V. H.) cannot merely serve as the "binding between subjects." The "theoretical framework of the first triad (Mileksič, 1992) might be a good starting point for integrating the subject fields with each other, but not so much for abandoning them... We are advocates of thematic planning, however, the **aims of the professional fields should be clearly defined** (emphasis by V. H.). The goals of one professional field cannot replace another one. It could sooner be said that they even obscure it. Integrated lessons in practice are frequently superficial, simplified, and losing the basic goals of individual subjects. In Šolski razgledi and Sodobna pedagogika Saksida (1993) wrote that artistic texts will no longer serve the Natural studies, so several goals of Natural and social studies can not be realized through other subjects. Rendering children literate would be incomplete without the goals of Natural and social studies. Experts in Slavic languages do not include popular scientific texts in the first textbooks in primary schools, and teachers of fine arts do not plan (the) drawing of objects and notions in such a manner that the children would realistically pick up every little detail. Both, however, are important in Natural and social studies. In music classes and those of fine arts and literature the stress is on experience and expression of children through their imagination. In natural and social studies the starting point is frequently the children's experience, however, one of the important goals is particularly **the delimiting between the child's imagination and reality** (stress by V. H.)

In her paper Še enkrat o integriranem/celostnem pouku z zornega kota književne didaktike (1998, p. 127) Kordigel, too, points out the problem of incorporating literary texts in the framework of the didactic concept of integrated lessons in the introduction of notions and the development of notional structures (which is one of the basic goals of the subject Natural and social studies). She gives the topic Forest as an example and concludes that "the integration of the literary forest and the objective, real one thus has little cognitive function and it at the same time obscures the boundary between the real and the unreal, since such integration implies that both the literary and the real forest can be inserted into the same slot, or, to use the language of cognitive psychology, both form one and the same mental scheme."

The point of integrated lessons is thus in a logical connecting of subjects, or in A. Blum's words (1999) it is a case of teaching different scientific disciplines and subjects in a unified manner. The reason for such teaching can be in:

- science (in this case the emphasis of the integration is in the epistemological and methodological arguments. Lessons concentrate on scientific disciplines and the organization of knowledge is based on the structure of individual scientific disciplines) or
- the manner in which lessons take place, which means that different scientific disciplines (school subjects) are taught in a unified way for pedagogical-didactic reasons. The reason for such an approach is the consideration for the psychological elementary before the scientifically elementary, since the children are not supposed always to learn the contents the way science is organized. A. Blum, A. Glathorn, A. Foshay (1999) also claim that lessons organized in such a manner can have positive influence on the children's motivation, because the integration enables a confrontation of various viewpoints which can contribute to the lessons' variety and breadth and exclude all redundant knowledge.

Defining the Research Problem

The curriculum for the subject Environmental studies places special emphasis on the integration with other subjects, which is a novelty compared to the previous curriculum for Natural and social studies. For each thematic cluster it defines the subjects with which that particular cluster should integrate. And the teachers (and their autonomy) are entrusted to account for these inter-subject connections, to realize or concretize them.

The aim of the empirical part of the research was to find:

- Whether the teachers approved of integrated lessons as the leading concept of teaching in the first triad of the nine-year primary school system?
- Which advantages do teachers find in integrated lessons compared to classical ones?
- Which subjects do the teachers consider most suitable for integration with the subject Environmental studies (ES)?
- At which stage of the lessons do teachers encounter difficulties as they integrate the subject ES with other subjects?

Methodology of Research

The research was based on a descriptive and causal non-experimental method of empirical research.

The study involved teachers of the lower grades of primary school in the school year 2003/04, namely from schools of the first, second and third round of entry into the nine-year school system. The sample to be analyzed included 72 teachers from the first, second and third grade which is 51.4% of the chosen sample. Due to the poor response on the side of the teachers from the third round (only 10 teachers responded) only teachers from the first and second round were analyzed.

The tool for data collecting was a questionnaire. The chosen primary schools were in May 2004 sent 140 questionnaires through regular mail. The participating teachers returned them in the envelope enclosed with the questionnaire.

The data are presented in tables by giving the absolute frequencies (f) and percentage frequencies (f %). To test the differences regarding the round in which the school entered the reformed school system, the χ^2 test was used.

Results of Research

The teachers' opinion about integrated lessons as a leading concept of teaching in the nine-year primary school system

Table 1. Number (f) and structural percentage (f %) of teachers relating to the opinion on integrated lessons as a leading concept of teaching in the nine-year primary school system.

Answer	f	f%
Yes	41	56.9
No	0	0
Partly	31	43.1
Total	72	100

The results show that a good half of the teachers has a positive view of integrated lessons. Skepticism can, however, also be detected, since many teachers only partially approve of integrated lessons as a leading concept of teaching. They justify this skepticism with the claim that all goals and contents cannot be realized through integrated lessons.

Table 2. The teachers' approval of integrated lessons as the leading concept with respect to the round of entry into the nine-year primary school system (N/%).

Round Answer	1	2	Total
Yes	21/70	20/47.6	41/56.9
Partly	9/30	22/52.4	31/43.1
Total	30/100	42/100	72/100

$$\chi^2 = 2,908 < \chi^2 (\alpha = p = 0,05, g = 1) = 3,841$$

No statistically significant difference exists regarding agreement with the claim that integrated lessons are the leading concept of teaching in the nine-year primary school system. There is a tendency among teachers, however, that more of those teachers approving of integrated lessons had entered the nine-year primary school system already in the first round.

We assume that teachers who had entered the nine-year school system already in the first round have more experience in and possibly also more knowledge (gained through modules carried out by the Faculty of Education in the framework of supplementary education of teachers) on integrated lessons.

Advantages the teachers claim that integrated lessons have over classical lessons

Table 3. Numbers (f) and structural percents (f%) of teachers relating to the assessments of the advantages of integrated lessons (1 – most important, 4 – least important)

Rank Advantages	1,2	3,4
	f (f%)	f (f%)
Self-activity	33 / 45.8	39 / 54.2
Integration of the lessons with the lives of the pupils	45 / 62.5	27 / 37.5
An integral view of the contents	41 / 56.9	31 / 43.1
The adjustment of the lessons to the child's level of development	27 / 37.4	45 / 62.6

The teachers consider the link between lessons and the lives of the children the most important advantage. This is followed by an integral view of the contents, self-activity activities and the adjusting of lessons to the child's level of development. The table shows that all the mentioned advantages are represented in high numbers. As all the advantages relate primarily to the pupil, it is possible to conclude that teachers perceive integration as significantly advantageous for the pupils.

Table 4. Self-activity, integration of the lessons with the lives of the pupils, an integral view of the contents and the adjustment of the lessons to the child's level of development as an advantage of integrated lessons relating to the round of entry into the nine-year primary school system.

An Advantage	Rank	Round			χ^2 test
		1	2	Total	
Self-activity	1,2	14 (46.7%)	19 (45.2%)	33 (45.8%)	$\chi^2 = 0,013 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4	16 (53.3%)	23 (54.8%)	39 (54.2%)	
Integration of the lessons with the lives of the pupils	1,2	17 (56.7%)	28 (66.7%)	45 (62.5%)	$\chi^2 = 0,745 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4	13 (43%)	14 (33.3%)	27 (37.5%)	
An integral view of the contents	1,2	18 (60%)	23 (54.8%)	41 (56.9%)	$\chi^2 = 0,195 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4	12 (40%)	19 (45.2%)	31 (43.1%)	
The adjustment of the lessons to the child's level of development	1,2	11 (36.7%)	16 (38.1%)	27 (37.5%)	$\chi^2 = 0,014 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4	19 (63.3%)	26 (61.9%)	45 (62.5%)	

No statistically significant differences exist in self-activity, in the linking the lessons with the lives of the pupils, an integral view of the contents and the adjustment of the lessons to

the children's level of development as an advantage of integrated lessons relating to the round of entry. This would mean that teachers from both rounds, the first and the second one, similarly estimate the mentioned advantages of integrated lessons.

Assessment of teachers relating to the suitability of the integration of individual subjects with the subject ES

Table 5. Numbers (f) and structural percents (f %) of teachers relating to the assessments of the suitability (1 – most suitable, 5 – least suitable) of the integration of music education, fine-arts education, physical education, mathematics and Slovene language with the subject ES.

Rank \ Subjects	1,2	3,4,5
	f (f%)	f (f%)
Music education	18 / 25	54 / 75
Fine-arts education	43 / 59.7	29 / 40.3
Physical education	11 / 15.2	61 / 84.8
Mathematics	16 / 22.2	56 / 77.8
Slovene language	58 / 80.6	14 / 19.4

The teachers considered most suitable the integration of subject ES with Slovene language and fine-arts education. Obviously it was in these subjects that the teachers were able to find common goals which could be integrated during lessons. Third came music education but with a considerably lower score followed by mathematics.

This is an interesting observation considering the fact that the national curriculum defines the goals which can be integrated within these two subjects. We claim that the integration of ES and mathematics is more significant than estimated by the teachers.

Table 6. The suitability of the integration of music education, fine-arts education, physical education, mathematics and Slovene language with the subject ES relating to the round of entry into the nine-year primary school system.

Subjects	Rank	Round			χ^2 - test
		1	2	Total	
Music education	1,2	8 (26.7%)	10 (23.8%)	18 (25%)	$\chi^2 = 0,076 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4,5	22 (73.3%)	32 (76.2%)	54 (75%)	
Fine-arts education	1,2	15 (50%)	28 (66.7%)	43 (59.7%)	$\chi^2 = 2,026 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4,5	15 (50%)	14 (33.3%)	29 (40.3%)	
Physical education	1,2	3 (10%)	8 (19.1%)	11 (15.3%)	$\chi^2 = 1,102 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4,5	27 (90%)	34 (80.9%)	61 (84.7%)	

Mathematics	1,2	9 (30%)	7 (16.7%)	16 (22.2%)	$\chi^2 = 1,805 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4,5	21 (70%)	35 (83.3%)	56 (77.8%)	
Slovene language	1,2	25 (83.3%)	34 (81%)	59 (82%)	$\chi^2 = 0,067 < \chi^2$ ($\alpha = p = 0,05, g = 1$)=3,841
	3,4,5	5 (16.7%)	8 (19%)	13 (18%)	

No statistically significant difference exists in the case of the suitability of integration of music education, fine-arts education, physical education, mathematics and Slovene language with the subject ES relating to the round of entry into the nine-year primary school system. A tendency, however, exists in the case of the integration of the subject arts education. More teachers from the second round of entry into the nine- year primary school system consider this subject more suitable for integration with ES.

The teachers' assessment of the difficulties they have in integrating the subject ES with other subjects

Table 7. Numbers (f) and structural percents (f %) of teachers relating to the defining the difficulties at different stages of integrated lessons.

Answers	f	f %
The level of planning	18	25
The level of execution	6	8.4
The level of assessment.	7	9.7
I have no difficulties	41	56.9
Total	72	100

More than a half of the interviewed teachers claimed they had no difficulties with integrated lessons, which is a good thing. Those who had difficulties related that these occurred on the level of planning rather than the level of execution and assessment.

Table 8. Difficulties the teachers face in the integration at different levels of integrated lessons with respect to the round of entering the nine-year primary school system.

Round Answers	1	2	Total
The level of planning	6 / 20	12 / 28.6	18 / 25
The level of execution	0 / 0	6 / 14.3	6 / 8.4
The level of assessment	4 / 13.3	3 / 7.1	7 / 9.7
I have no difficulties	20 / 66.7	21 / 50	41 / 56.9
Total	30 / 100	42 / 100	72 / 100

$$\chi^2 = 5,984 < \chi^2 (\alpha = p = 0, 05, g = 3) = 7,815$$

The difference in the difficulties at different levels of integrated lessons relating to the round of entering the nine-year primary school system is not statistically significant. The teachers from both rounds thus have greatest difficulties in the phase of planning. And this is the most important phase, as when the plan is made, it becomes clear how the lessons are to take place, while at the same time it becomes material for/subjected to evaluation.

Conclusion

The analysis of the respondents' statements shows that the teachers have different opinions about integrated lessons as the leading concept in the first triad of primary school. A good half of them are in favour of it, while the rest of them believe that all the goals in individual subjects cannot be integrated. They are, however, aware of the advantages of integrated lessons compared to classical lessons.

The teachers most frequently integrate lessons in Environmental studies with Slovene language, followed by fine-arts education and music education, mathematics, and seldom or hardly ever with physical education. These results are in agreement with the results obtained in the analysis of answers to the question on the integration of selected thematic clusters with other subjects. It can be observed that the teachers take into consideration suggestions for the integration of selected thematic clusters with other subjects defined in the national curriculum, however, their professional autonomy allows them to integrate also other goals they consider suitable for integration.

Almost half the teachers face difficulties with integrated lessons, mostly in the phase of planning. This fact should not be neglected. The planning of lessons is the phase on which the execution and evaluation of lessons are based.

We believe that the teachers have most difficulties at the level of planning lessons due to the fact that it is difficult to identify those goals of individual subjects which would be suitable for integration. It might be useful to include more detailed instructions in the curriculum regarding the integration of teaching goals with other subjects. Indeed, this would require cooperation of all the designers of the curriculum for the nine-year primary school system.

The Faculty of education in Maribor has from the very beginning of the introduction of the nine-year primary school system been training teachers (in the form of modules) for work according to this concept. From the point of view of the subject Environmental studies they are particularly been made aware of the importance of considering the basic goals of the subject ES, their systematic upgrading, thematic planning with clearly defined goals in individual subjects and the consideration of the reality principle in the integration of the goals of ES with the goals of other subjects.



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