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Identifying spatial values in the opinions of teenagers

This article presents the attitude towards cultural and natural spatial values in the population who have completed elementary schooling. Identifying spatial values can be considered a fundamental skill of the active population, which are necessary for the deliberate activities in the existential and functional environment of every individual. An insight into the potential investors' environmental value system is also useful for spatial disciplines.

The results presented represent the conceptualisation of spatial values in a sample population (N = 188) taken from four elementary schools. In relation to other research, the principal recognition of spatial values by teenagers is assessed, together with the limited possibilities of this knowledge into their local living environment. Conclusions can be drawn about their deficient knowledge of the cause-and-effect in the relationship in individual processes in both natural and constructed spaces. The reasons for such deficient knowledge on a local, living environment level are predominantly attributed to the influences of their domestic social environment. The superficial awareness of the values and aspects of space vulnerability also hints at the insufficient and incoherent teaching curriculum in the process of comprehensive education. Solutions might be found in upgrading existing teaching methods and techniques. Furthermore, by carefully setting specific teaching goals the comments mentioned above could be synthesised into a more palpable, logical whole.

Key words: environmental values, spatial values, teenagers, built-up environment and sustainable development

1 Introduction

Identifying spatial values, be they from a natural or cultural space, or recognising the elements of the physical (tangible) and the relatively objective perceptible reality (genius loci) can be considered a fundamental skill of the active population necessary for the deliberate activities in the environment (and a decrease in spatial chaos).

In this article, the term spatial[1] is used in the sense as a cross-section of the physical, natural and socially conditioned structures on the Earth's surface. It is also used in the same sense in word combinations spatial values and spatial features. The term environment is used only in the meaning as it has in every permanent set phrase or if it expressly refers to a certain locality. That is true in the following phrases: built-up environment, social environment, and existential environment and an urban or rural environment.

From an architectural and spatial point of view, any intervention into the environment frequently means a material manifestation or the placement of constructed structures in a previously more or less built environment. In order for the user to function optimally in his/her environment, it is not sufficient for him/her to understand the design, material characteristics of that environment, but to also understand the meaning of influences and the consequences that individual interventions might cause.

It has been achieved through relevant legislation that individuals must, in most cases, assert their environmental interests through competent institutions and companies. Even in this process the interests of both parties may differ. The results may be legal, but not also legitimate from an expert standpoint, and actors in the environment too frequently operate arbitrarily, avoiding the rules. Individual actions in any micro-environment (local environment) framework are growing into a mass of individual actions. This increases to a point where they achieve the intensity and dimensions on a grander scale – from the local to the global – although the awareness of the consequences should be strongest within the framework of man's daily living environment, that is to say, where they are most strongly felt and perceived. Learning about the values and "non-values" of the local living environment surely starts in childhood, during the socialisation process. It is then gradually assembled into a value system, which later usually coincides with a more general social value system.

As spatial planners, architects should by all means be interested in the values of future investors: do they wish for extremes, deviations from their social environment, or natural materials and construction based on the principles of sustainability. Equally, architects ought to know whether their potential clients recognise the natural and cultural values in their surroundings, their opinions on traffic and means of transport. Today, most people still build their homes in a way which leans towards random, scattered settlement patterns. The questions of whether the generation gap will become visible or not and whether their decisions will resemble their parents' decisions remains to be answered?

This article summarises certain research findings regarding the relationship between ninth-graders toward the natural and built-up environment. The study was conducted in parallel by teaching and researching architectural educational interfaces (Juvančič, 2008), in which the knowledge of the user value system surfaced as a necessity (in this way, the interfaces could later be adapted to a more active system, by raising awareness and education in light of the findings from other studies). The findings are also interesting in the light of all future efforts regarding the transfer and a more efficient inclusion of architectural and spatial contents into the curriculums of life long learning, and last but not least, for the improvement of public cooperation in the procedures of co-formation of the cultural environment. A socially acceptable individual value system in itself does not assure an appropriate spatial response – the discrepancy between what an individual believes, appreciates and how he actually functions in space frequently becomes obvious. But it certainly is a good indicator of future conflicts between the social and the beliefs of experts within this field – it forecasts different environmental consequences, which will arise when the user starts with more intensive environmental interventions. The younger generations simultaneously reflect their parents' value systems in their own value assessments.

2 Spatial values – a reflection of social changeability

As arises from one of the simplest and most general definitions, values are "/.../ beliefs about what is desired and good and what is undesirable and bad" (Krech, 1962; quoted in: Musek, 1994: 207). The terms spatial or environmental values are of a more recent origin, and perhaps therefore is not the most appropriate coming from the psychological perspective. According to Musek (1994), values are motivational goals of the highest hierarchical order, reduced to the abstract and conceptual level. In regard to the sciences concerned with the environment, the term spatial values became established even for very tangible features – spatial values of the environment which reflect an attitude towards spatial reality. Spatial values represent a system of norms, knowledge, beliefs, viewpoints, opinions and apprehensions influencing and directing social relationships, relationships between individuals, the environment and activi-

ties in the environment (Internet 1). Thus, our environmental behaviour and interventions are influenced by value systems established through our upbringing, parents, schooling, our micro and macro social environments, with which we communicate and which we act within. Values, according to Hogwood and Gunn (1984), lead to but also limit the actions of the participants in the decision-making and planning processes with respect to performing spatial interventions. Furlan (2003) emphasises that the period with early youth is essential there for the development of young people and their further reservations or dilemmas arising from their actions.

The rather abstract and general term "spatial values" becomes more easily understood through the definition of the basic elements of the designed and non-designed environment. Gray (2004) differentiates between instrumental and intrinsic values. This means that there are some spatial elements which are values due to their functional value (economic, aesthetic, didactic, cultural or historical etc.), and others which are values in themselves (*per se)*. The question arises, in what way does any spatial element justifies its intrinsic value, or of what principal value it is, if its value is socially not recognised? Thus Kirn (2004) and Curry (2006) agree that values may only be assigned to any given spatial element, or that its value is in the domain of the function and the role it plays for an individual or social group. Lampič and Mrak (2008) also state that certain elements represent a capital with the value of "non-use". This is the case up to now with regard to the poorly used natural capital with developmentally non-activated natural resources and ecosystem services.

The discussion here is not only about those natural and cultural environmental values which are transparently listed in various (legal) environmental documents and on lists of cultural and natural values. In contrast, it also encompasses those environmental characteristics to which we gravitate towards and even desire. Regarding the developmental aspect of some environment, which certain societies consider important, values are potentials that in recent years have become popular objects of groupation and categorisation in accordance with the key environmental (natural and physical) with respect to the economic, cultural and social characteristics. These express a connection on a smaller or larger scale with our physical environment – be it natural or constructed – and also bear their developmental and functional stamp: "/.../ Every ingredient of any potential may, from a developmental standpoint, have a direct functional value, an indirect functional value or a non-use value /.../" (Lampič and Mrak, 2008: 152). All this of course depends on the users adopted view.

Without regard to the degree of diligence applied in the categorisation of spatial values in accordance with different criteria, social values and their hierarchical order of importance are not permanent. They are therefore variable, varying in accordance with time, place, social group, their belief system, level of education, financial status, generation of the population representatives etc. Špes (2008) denotes these factors as filters, influencing a different spatial understanding and spatial perception while simultaneously modifying ideas of it. Špes divides these filters into socio-geographic filters, among which the characteristics of any particular population can be found (age group, education and professional training, cultural, religious, ethnic background, personal stability, motifs), economic filters (short-term reaction profit) and social filters. Among the latter, the same author mentions the quality of education and schooling, access to information, public participation in decision making procedures, etc. At least indirectly, almost all the enumerated filters contribute to the development of spatial values.

This means that the demands, wishes and aspirations on all levels – from the individual through to local communities and to nations – strive not only towards a greater use of the environment, but are increasingly becoming more diversified. This is where different valuations and also different assessments and perceptions of private and public spaces stem from, as are given by either the actual or potential users of the said spaces. Hočevar (2004: 2) indicate as the key question: "/.../ [H]ow is it possible to mutually approximate a conflicting group and individual individualistic tendencies, without distorting the ever increasing differentiated and newly emerging lifestyles (housing, working, free-time, etc.) of individuals /.../" This question is singled out to achieve a certain level of unification of the measures for spatial intervention in the sense of the sustainable paradigm and sustainable motifs from different groups within the general public.

The phenomenon of different hierarchical listings of these values or their variability in different social strata, does without a doubt, not originate in the present. In the past it was most frequently reflected upon as the generation gap, since every society wishes to bring up their offspring in accordance with their own values, expectations and beliefs. In this manner, the discrepancy between the older and younger generations can be understood. The thought: "Our youth displays bad habits, despises authority, disrespects the opinions of their elders and holds nothing sacred /.../" Even though these words were written by Socrates, they seem to be equally true today! What worries us even more today is, what habits the young will have when they become adults, or when they become old enough to organise their living environment and otherwise intervene in the environment most actively.

Alterations, designing and the conscious tendency toward the unification of values, spatial as well, have always been present

and also long term social processes. Equally, formal education is undoubtedly a strong factor, since it consists of several motifs enabling that. Questions formed in conjunction with each other are: what knowledge is really acquired through formal education and which should be; which are those spatial contents that ought to be emphasised, and how to teach something, that is constantly upgraded with the development of new technologies and ideas, and adapted to the existing knowledge?

If many environmental issues can be generalised and detected in equally developed societies, on specific continents or in globally neighbouring regions, problems related with construction interventions upon the environment are, in most parts, locally specific. They depend on local conditions, natural factors, social development, established practices, legislation, and last but not least, the established values, ethics, awareness and mentality of the local population (actors). While the global and joint ecological problems are characterised by numbers (CO_2 emissions, for instance), many local culprits have not made their way into people's awareness and teaching plans.

3 Are values only debated or actually abided by?

The question about the discrepancy "between words and actions" is certainly an interesting phenomenon of human nature, which is particularly materially expressed in cases of spatial interventions. The reasons for this duality can be found between the awareness of spatial values on a principal level and that of the actual knowledge of every individual, which may differ. One of the view points allows that value formation on a declarative level, including their normative function of what is and is not allowed, is often not related with day-to-day priorities. It is furthermore far from the role of a strong motivational force giving energy, wish and inspiration for action. Polič et al. (2005) declare that values on a personal level function as important motivators for human actions: the more we apply ourselves to something, the more we appreciate something, the more we strive to achieve that. The constant underlining of problems, especially those related to the natural capacity of spatial elements – using non-renewable natural resources, large quantities of long-term degradable waste, excessive use of energy – came to fruition, while lowering our tolerance levels of sensitivity for these. Slowly people started separating waste, close the valves on radiators, use reusable cloth bags and in this way became aware of the consequences of their actions. In conjunction with their actions, they began acquiring a sense of environment. On the other hand, the oversaturation and constant bombardment with stereotyped phrases of global issues, do not contribute towards the sensing of these global problems on people's "local" levels.

Therefore, if there is a discrepancy between what "should" be done, and what is "actually" done, it is noticeable already with actions of a more single and simpler cause and consequence structure, that the question is, how to prevent this from happening in actions in more complex circumstances, with intertwined relationships between elements and processes?
It may occur that the "trained" society is aware of global environmental issues and also strives to act towards decreasing them, but with simultaneous interventions (unintentionally) harms their local environment. Therefore, it is not always completely evident whether man's interventions into the environment generally truly strengthen, or in direct contradiction to this, weakens the preservation of the designed or the natural. This is also true because the consequences of numerous interventions of this calibre become evident only as time passes.

For this reason, it is sensible to consider methods to change the rigid schooling concepts of spatial values as norms, to more internalised opinions and a desire and inspiration for action, built around a clearly defined range of core values. These are universal values formed in every society and ensure its existence. The environment as a medium of social and cultural survival and the related values of the living environment may in this way justifiably be considered as core social values.

The point is that it is possible to teach teenagers about environmental awareness and a relationship to the environment, in a similar manner as encouraging and cultivating a sense of compassion for other human beings and fundamental ethical principles. This does not solve the problems, but problem awareness, perception and understanding are the first step towards an active solution to these problems. Furthermore, this does not only concern the narrow optics of merely environmental co-ordinated or completely un-coordinated interventions – but also provides a more complete insight in the sense of understanding the causes and consequences triggered by such interventions. This is precisely why it is not only important to teach the young about environmental values in general – it is of even greater importance that they understand what defines these values as values themselves, and why they are worth aspiring towards.

4 Research regarding architectural and environmental values among teenagers

4.1 Purpose and methodology

The purpose of the research, of which this article is a part, is to become better acquainted with the knowledge of ninth-grade elementary school pupils of the values dictated by the princi-

ples of rational use and sustainable environmental treatment, with maintaining a long-term balance between the constructed and the natural, as well as their perception of the built-up environment, their own residences, their ability of visual expression (the latter is namely not the subject of this article). The research was founded on principles which are recorded as values, and the desired developments in the strategic documents of Slovenian spatial planning. These were then transferred to the local environments of selected elementary schools.

For the purpose of this article a general descriptive analysis of some important questions were conducted. Attempts were made to form opinions about mutual connections:

- There are considerable differences among pupils of different schools in relation to material, cultural, natural, and formally recognised natural spatial values;
- Urbanisation levels of the participants' domestic environment influences the valuation of material goods in relation to the natural and cultural environmental values.

A combination of methods and techniques most suitable for the objectives of the research were used. These are: the descriptive method for establishing the situation and findings on a description level; the causal-non-experimental research method on the level of cause interpretation, at which a causal explanation is founded on empirical testing of dependent relations between the phenomena by the selected sample. Surveying was used, as well as information transformation to quantitative components and quantitative data analysis and synthesis. In the statistical processing of the surveyed data, answer shares were calculated for the purposes of descriptive analysis, while in definition of relevant research questions to establish indicative discrepancies between values, the χ^2 test was used, at a margin of error of $p < 0.05$.

The survey questionnaire contained 24 questions in total, of which one question tested the degree of graphical expression skills of the participants (Figure 1). The remaining questions were a combination of open and closed type questions. In the first phase, the pupils were asked about the characteristics of their domestic built environment – about their homes and their immediate environment. Furthermore, the questionnaire aimed at establishing the participants' attitude towards location, forms, materials and colours used in the built-up environment, and lastly, their partiality to the elements of the natural and the built-up environment within their domestic surroundings. This part of the questionnaire was in principle conceptualised in the same fashion, but the contents were specially adapted for the environment of the location of every elementary school that was included. In the last phase, a unified part of the questionnaire, the participants answered questions about their attitude to traffic and means of transport (as an important factor associated with the built-up environment) and assessed the pupils' knowledge with regard to the fundamental tasks of architecture. This article only focuses on that part of the results referring to pupils' attitude to the environment and their values.

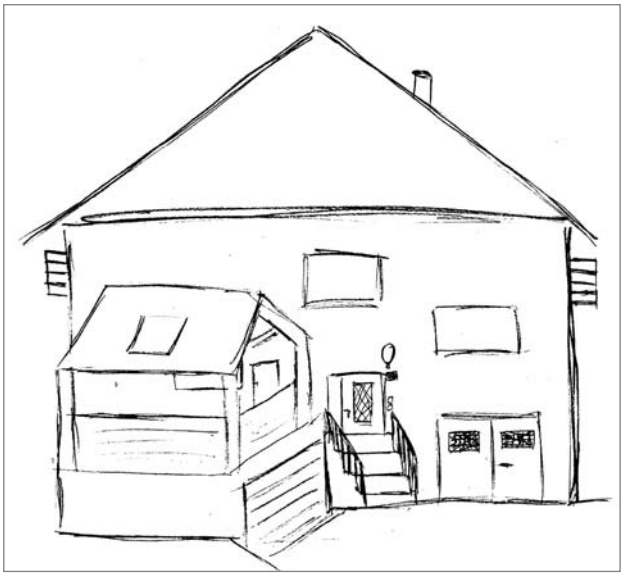

Figure 1: Is that what tomorrow's Slovenian reality will be like? A sample answer to the task: draw the house you live in (source: Verovšek and Juvančič, 2009).

Sample population

The research focused on the awareness of environmental values in a sample population of ninth-grade elementary school pupils, since the aim was to asses the situation in a social group finishing elementary or compulsory schooling. They namely represent a population in the final stages of a formally unified teaching situation, before becoming terminally dispersed and specialised. The sample population was therefore varied (different professional interests, learning results, social backgrounds), but at the end of the elementary schooling process for the last time, exposed to the same learning contents and comparable schooling conditions. At this age, teenagers already have formed their basic value and priority systems (Furlan, 2003).

The sample population included in the March 2008 research, was represented by 188 ninth-grade pupils from four elementary schools: 46 pupils from the Stranje Elementary School, 41 pupils from the Toma Brejca Kamnik Elementary School (Kamnik Elementary hereon after), 43 pupils of the Kobarid Elementary School and 58 pupils from the Preserje at Radomlje Elementary School (hereon after referred to as the Radomlje Elementary). The research sample population comprised of 54% girls and 46% boys.

The sample population was not coincidental. The elementary schools were selected predominantly in Ljubljana's urban regions, with regard to a more or less urbanised surrounding

of school locality and also with regard to the readiness of the school management to co-operate in such a research programme.

Definition of the domestic environment of the participants

To determine the urbanisation levels of the participants' domestic environment, data of their place of residence and settlement status was used. Residences in settlements and villages were considered as rural environments, while towns, suburbs and urbanised settlements were deemed as mainly an urban environment. The Stranje Elementary and Kobarid Elementary Schools are placed in a **low urbanisation level environment,** with as much as 91% of the pupils residing either in villages or settlements (Stranje Elementary 95.5% and Kobarid Elementary 86%).

The majority of participants from the Kamnik Elementary Schools reside in an urban environment (70%), while the participants from Radomlje Elementary School reside in the "suburbs" or urbanised settlements (55%). The participants from both elementary schools were placed in the category of **higher urbanisation level environment,** despite the fact that the percentage from the last elementary school was not convincing. The criteria for placement in this category included the ties to larger towns (Domžale, Ljubljana) and good accessibility of several tertiary and public services. It was also accounted for that the locations of individual schools and their background is considered as a domestic environment for pupils attending the same school.

4.2 Results and interpretation

4.2.1 Wishes in accordance with house exterior and location

Pupils were invited to provide their idea of their ideal house. The questionnaire specifically inquired after the type, colour of the façade and the location – whether the house would be situated in a predominantly natural or predominantly urbanised environment.

The answers to this open–type question with regards to the appearance of the house, the majority of pupils pointed out the house dimensions (Figure 2), stating mostly the house qualities of "big and luxurious" (39%), with façades in yellow, orange and red brick tones (38%) or colourful façades (red, blue, pink, violet, and green – 32%).

In as many as 49% of all pupils asked, stated that they identified their favourite position as being in the vicinity of water, with a location, such as at the edge of a forest was 17%. The

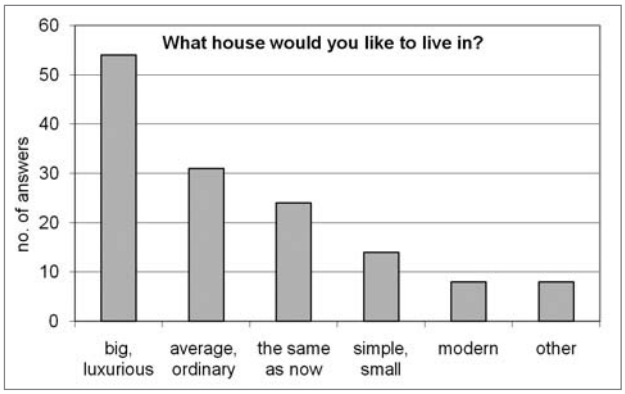

Figure 2: Ideal house characteristics in the opinion of the survey participants (source: Verovšek and Juvančič, 2009).

tendency to build in direct proximity of water courses is rather frequent in Slovenia, as according to Polič (2002), people consider water as a strong aesthetical element to add variety to the living environment, with river terraces offering suitable relief and morphological building conditions. Only a small percentage of the general public, however, is aware of the several years of high water levels and the consequences of building in such areas may actually cause (Komac, 2008); a poor awareness of flooding risks is also evident from the responses provided by the pupils interviewed.

In cases of built-up areas, the majority of the pupils would like to live on the outskirts of the areas (48%), what they mainly substantiate with peace and seclusion, while the second most desired location in a settlement is next to a shopping centre or shopping and services complex, (20%). The tendency to build on the outskirts of settlements and the chaotic spreading thereof (along communications and to farming areas not yet built up) is another problem of the Slovenian residential pattern and is in the light of the survey responses, strongly rooted in the minds of the younger population. The phenomenon is gaining dimension in the merging of uninterrupted flows of settlements, which weakens the cultural spatial identity, its rational use aesthetic stamp and so causes new transport and other infrastructure problems. With these findings it needs to be mentioned that these were the generations which matured and experienced migration to the outskirts (their parents or neighbours have just built or are building a house as they describe). Additionally, this is not necessarily connected to evaluating suburbia as a positive living environment, but also migrating for better living conditions in general (moving from small apartments to large houses, from "rented" to "owner" apartments or from old houses to new ones).

4.2.2 Partiality to wood as a building material and wooden buildings

In relation with sustainable built-up environment and a pleasant living environment, wood is again gaining in popularity,

which was certainly in declining in the last decades. It is a renewable material with recycling and regeneration potentials and is, as opposed to concrete or steel, a good isolator. It is also an ecologically acceptable material, since its production does not require a vast expenditure of energy, while its treatment is relatively straightforward. In addition, it does not require transportation distances from far away. As a material, wood is traditionally well represented in the Slovenian vernacular of architecture (predominantly in the more wooded areas), and with over 50% of Slovenia's area being wooded, also one of those materials, which is always locally available and in abundance. Under conditions of the sustainable and controlled use of forests, wood is a renewable sourcing material, the use of which is encouraged for building purposes also due to its favourable loading capacity. Unfortunately, wood is still too expensive in Slovenia, and still undervalued as a building material by the general public, since users associate it with demanding a degree of maintenance and protection.

The pupils were asked about their willingness to reside in wooden houses or apartment buildings. If their answer was negative, they were required to state the reasons why! 46% of all pupils replied they would like to reside in wooden buildings, while 49% of all pupils replied in the negative (5% remained undecided). In 47% of all negative answers, flammability, fire risks and a decrease in the safety of living emerged as the most common reason for not accepting wood as building material. In a further 34% of all answers, pupils simply defined wood structures as unattractive or as "not to their liking". Bad stability and bad isolation were also mentioned in a number of cases, as well as the conviction that wooden houses were too cold in the winter.

When compared, the answers according to individual schools or environmental urbanisation levels a clearer, more perfect pattern of answer distribution does not emerge. In spite of that, differences are evident between the answers provided by pupils from different schools. While in Radomlje 64.9% of all participant would be willing to own a wooden house, the Kamnik pupils are expressly not in favour of such an idea (as many as 70%).

Refusing wood is understandable on one hand, since in spite of all environmental (eco) education regarding the rational use of materials and renewable resources, the participants' answers still reflect the predilections of their parents. Judging from the research results, half of all the participants would refuse wood as a building material from the outset. This is a fact, where Slovenia with large tracts of wooded areas and a long tradition cannot pride itself on. As long as we avoid the use of renewable and rational resources from our nearest surroundings (local environment), the principles of sustainable development in general and sustainable spatial development will only remain on paper.

4.2.3 The attitude to the location of the elementary school and means of transport

The participants in the survey were also invited to state some disturbing factors in the locality where their school is situated, that they could identify as a local centre /gravitational point. The question was non-suggestive – (open), and later the answers were joined in several categories. Pupils identified traffic and traffic related issues such as noise, air pollution, decreased safety, too much traffic, too many trucks, etc. as the most disturbing factors in the localities of their schools. It is interesting that those participants of all the schools but the Kobarid Elementary, stated traffic as the most disturbing factor.

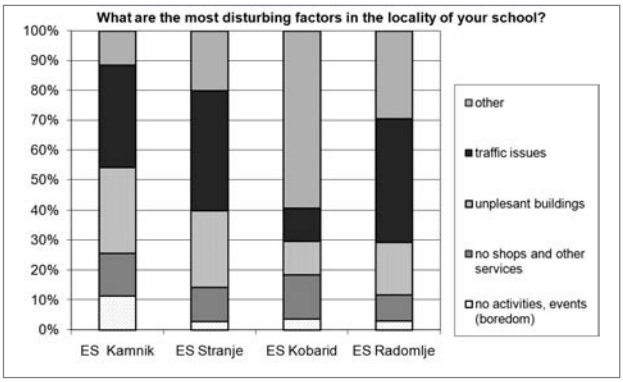

Figure 3: Disturbing factors in the locality of the elementary school in the participants' opinion (source: Verovšek and Juvančič, 2009).

The severity of the traffic problem in more urbanised parts of Slovenia is therefore disturbing enough to evoke a certain sense of perception and awareness thereof, but not necessarily its fullest dimensions. This becomes evident upon comparison with the answers regarding the general travelling habits of the participants, their preferred means of transport and the good and bad qualities of private cars they recognise.

To provide orientation, the participants were invited to provide information about the number of private cars per family, as well as the means of transport usually used in their attending school. The surveyors accounted for the fact that the latter is in most cases not a matter of choice of the participants, but their parents' decision, and a consequence of their living conditions. Participant families or households with four or five members on average own more that two cars (2.2 car/4-family members). Pupils most frequently walk to school or come by school bus if they live farther from their place of schooling.

It is only the pupils' evaluation of the means of transport that shows the actual ambivalence between their perception of traf-

fic disturbance and the most popular means of travelling. An express preference of private cars evidently emerged, (46% of participants), in most cases, because of speed (25%) and a sense of independence/flexibility (16%).

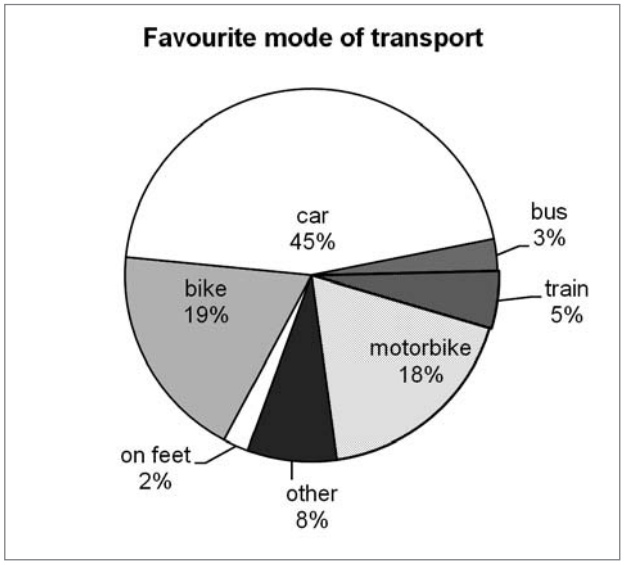

Figure 4: The preferred manner of travel in the participants' opinion (source: Verovšek and Juvančič, 2009).

With the open (non-suggestive) question regarding good and bad personal car characteristics, the following qualities (speed, flexibility and independence) were enumerated on average as the greatest advantages of cars. Most pupils mentioned pollution (59%) and (24%) the high costs (fuel, maintenance and insurance) as the most important shortcomings of cars. Other answers were in the minority and rarely referred to traffic safety, traffic jams, lateness, parked traffic and energy consumption (in comparison with some other means of transport), and very rarely to any other, there were more indirectly related negative consequences.

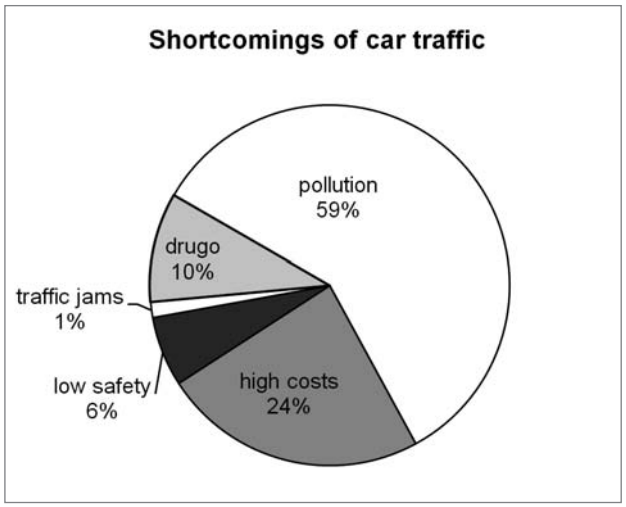

Figure 5: The shortcomings of car traffic in the participants' opinion (source: Verovšek and Juvančič, 2009).

4.2.4 Partiality to value groups

In this task, pupils were asked to list (in descending order) 10 terms – from the one they personally considered most relevant, to that which means the least to them. The terms were related to four potential groups of values: material values (personal car, holiday property, new clothes, etc.), natural values (tree, ponds, wheat field, etc.), formally recognised natural values (sights, parks, natural monuments), and lastly cultural and historic values (museums, churches, castles, etc.) The first 10 terms were adapted to the questionnaires for individual schools by selecting those natural sights and cultural and historic values, best known in the environment of each of the participating schools.

Upon the first average assessment made, with regard to the primary listing of the ten terms, individual categories were assigned certain values. The pupils were most aware and appreciative of the generally recognised natural values, which also have a specially determined protected status. Material values come after this, and third no-name natural values, with historic and cultural values in last place. Natural (nameless) values scored lowest with the greatest number of participants (34%) and thus ranked them last - fourth on their priority lists (Figure 6). However, their position on the chart is improved in the joint assessment of the natural values group, due to their frequent ranking as second.

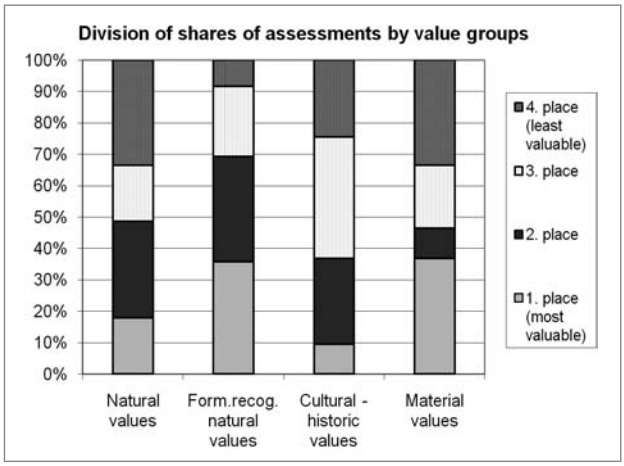

Figure 6: Division of shares of assessments by individual value grouping, in accordance with the participants' opinions and preferences (first place = best mark) (source: Verovšek and Juvančič, 2009).

In regards to the average assessments of pupils from individual schools assigned to value groups, an ever greater inclination towards material goods on the part of pupils who attend school (and live) in more or less urbanised environments. Pupils from the Kamnik and Radomlje, ranked them highest on their priority lists, while a smaller attachment to material goods was stated by pupils from Stranje, and particularly the Kobarid elementary schools (lower levels of urbanisation of domestic environment).

On the contrary, the figure is juxtaposed on the recognition of naturally recognised values by pupils from more urbanised domestic environments (parks, monuments, protected natural heritage), while pupils from less urbanised domestic environments show more (the Radomlje Elementary School the least, a bit more in Kamnik, followed by the Stranje Elementary School, while awareness of natural values is highest in Kobarid).

Similar tendencies emerged in the next question posed (of a closed type), in which the participants were required to describe new facilities (apartments, parks, roads etc.) or services (various services, shopping centres, cultural institutions, health institutions, libraries, fun fairs, galleries and film theatres), they wish for most in their native place of residence, or for which they feel they lack the most. In the majority of cases, the participants decided upon the "indulging" elements – the most widely desired element in general is a multiplex, followed by a swimming pool and a shopping centre. The least frequent answers were art galleries, cultural and tourist centres and new apartments. Such an order of priorities was anticipated given the sample population.

4.3 Discussion

The results partially enabled the authors to confirm some of the initial hypotheses, namely:

- Significant differences are evident between pupils from individual schools in their evaluation of natural values ($\chi^2 = 20.5$; $p < 0.05$). In other categories, no significant differences were noted, that is why the distribution variable cannot be statistically supported. In contrast, an exceptional harmony is notable between the answers concerning the cultural values provided by pupils from all four elementary schools. A significant discrepancy between pupils of individual elementary schools was also observed, with respect to their partiality or refusal of wood as a building material ($\chi^2 = 20.5$; $p < 0.05$).
- The comparison of pupils from rural and urban environments, through the assessment of value categories shows no significant differences. Despite that, it is possible to talk about a certain degree of (reverse proportion) connection between listing **material** and **formally recognised natural** values and the **urbanisation levels** of the domestic environment of the participants (chart 1). Pupils from Kobarid and Stranje listed natural values as the most important (formally recognised) and most valuable, while simultaneously listing material values as the least important. While the Kamnik and Radomlje pupils in the majority of instances placed material values first, and the natural (formally recognised values) last.
- A significant difference between pupils from urban and rural environments was also noted in the selection of the location for their ideal dwelling within settlements ($\chi^2 = 13.2$; $p < 0.05$). Participants from predominantly rural environments would chose the outskirts of settlements to live in, while pupils from more urban settlements decided for a central location of their homes within the settlements.

The results obtained in the individual questionnaire, where certain fragments can be joined in several thoughts for conclusion.

The tendency to build big houses is still present. It is difficult to assess the answers given without researching the participants' present home size. It was therefore impossible to say whether the answers reflect a wish for a logical increase of living space concerning their present conditions, youthful aspirations for material goods, or simply a conviction of the characteristic of Slovenian society as a whole – bigger is better, in particular when houses are concerned. The very answer inquiring about the appearance of a house, stating size as the first and foremost quality to the open question, certainly indicates that expert recommendations for suitable construction, in regards to the function for the users, and not exaggerating by building a home for three generations, still has not become rooted in the consciousness of the younger generation (and their parents). Simultaneously, it needs be emphasised that a lot of Slovenian families solve their existential problems by their parents' house and the latter's attachments to it, because they cannot afford to purchase real estate otherwise.

Table 1: Average distribution of marks most frequently assigned by pupils from individual schools with regard to natural (formally recognised) and material values.

Type of environment	Elementary school	Natural (formally recognised) values	Material values
RURAL	Kobarid	1. place (a. v. 1.84)	4. place (a. v. 2.84)
	Stranje	2. place (a. v. 1.98)	3. place (a. v. 2.45)
URBAN	Kamnik	3. place (a. v. 2.00)	2. place (a. v. 2.39)
	Radomlje	4. place (a. v. 2.27)	1. place (a. v. 2.33)

Note: a. v. is an average value marker (1 = most valuable; 4 = least valuable)

Source: Verovšek and Juvančič (2009).

The question of building with wood was intentional. On the one hand, wood is an important and trendy building material, and that it has returned to the area of housing construction is to be welcomed from a professional viewpoint, because of its aesthetic value, design and traditional essence. On the other hand, wood is also one of the few renewable natural materials in our immediate surroundings with which the complete understanding of individual sustainable awareness may be encompassed: for example from the aspect of energy efficiency – a favourable ratio between energy for processing, montage and life span; from the point of view of transport – a local material, low transport-related costs and energy consumption; from the aspect of supporting local communities and eco practices – wood consumption makes possible the survival of the populace, more job openings; from the point of view of living comfort – wood as a warm and pleasant material etc. The answers clearly indicate that the qualms are not mere consequences of individual tastes, but are rather deeply rooted and completely unfounded stereotypes towards wood as material itself. This also casts a shadow of doubt on the understanding of the sustainability concept, with respect to the generation we lay our hopes upon.

Even the younger generations cannot resist the appeal of houses in relative isolation, even though different natural values are not equally well recognised. The prevention and restriction of dispersed buildings will still be a cause for friction between the experts and the general public, unless there is a considerable change in the opinion of this sample population, and the perennial struggle for concentration and the rationalisation of diverse infrastructures. The appeal of the outskirts, which in this way is moving farther and farther away from the centre is a problematic trend, which even the younger generation does not intend to avoid.

Based on the analysed questionnaires and previous research results and also based upon the presentational techniques and educational interfaces for presenting architectural issues to the general public, the article states those pupils on average value natural environmental values slightly above cultural values. The fact that they appreciate those natural values, formally specified and present in curricular topics deserves attention. It is to be concluded that the reaction to such value questions is learned, trained, principled, while in other circumstances, they do not show the capability of transferring the value system on "nameless" and "not recorded", but no less important values. It is worrying that pupils recognise everyday (nameless) natural spatial elements (trees, fields, rivers, etc.) poorly and rather infrequently associate them with respect to the quality of living.

In regards to the actual increase in traffic and high motorisation rates in Slovenia, (particularly in the urban Ljubljana region) pupils show a high level of recognition of this problem in their local environments, but connect this to a smaller degree with the causes leading to it. They mainly project the consequences toward pollution, which again shows a rather superficial knowledge of this problem, and to a lesser extent, of the deeper understanding of the cause-effect connection. Therefore, it is hardly surprising that pupils in general recognise traffic, noise, dust, danger, etc. as disturbing to a large extent, but still show an explicit partiality toward cars as means of transport. They rarely allow for the recreational (physically beneficial) role of bicycles or walking.

5 Conclusion

Despite the greater efforts for sustainable development and sustainable spatial planning on all levels (from the national to the local) in recent times, the research results show that either:

- The messages do not reach the surveyed sample teenage population;
- The generation of the sample population only adopts the principal values and follows simple actions (waste separation), but does not simultaneously question about the cause-and-consequence relationship of environmental interventions, or simply does not understand them;
- The generation of the sample population still follows their parents' values (the generation functioning as the reference or model population).

Numerous official procedures for spatial engineering and planning often appear extremely rigid, difficult to comprehend and non-transparent for the average investor eager to build him/herself a new home, teaching about spatial values and the causes that make these elements valuable often appears rigid and incoherent.

Therefore both – the actual spatial engineering/planning and education thereof need to find some sort of *modus vivendi,* between the integrative and differentiation principles (Hočevar, 2004). This would enable the transfer of these contents in this manner toward the teaching curricula of different subjects.

Very few human interventions (or non-interventions) into the environment have only one sided positive or negative long-term effects. The complexity and constant variability of the outside environment is a part of the whole amalgam of reality, since it is also formed within the framework of parallel sides, which are constantly developing, re-learned and also recognising the environment in which they live. That is why it is important not only to teach young people about values, but also why certain values are values.

Even though we are inundated with sustainable and eco terminology, which also shows through the eco-school pro-

grammes (three elementary schools included in the research are also a part of the eco-schools project), it can for now be concluded, that the young generation we place our hopes upon and for which we seek to provide a better tomorrow, would presently not act any differently as the generations that have gone before them.

Similarly, as the sustainable paradigm has long ago outgrown the purely "environmental", "eco" scope, and the issues related to natural landscapes, education and schooling within this framework should have long ago gone beyond just separating waste, gathering waste paper and turning lights off. Teaching the young to understand the mutual interconnectedness of spatial elements and the efficient use of doubt in evaluating environmental processes is of equal, if not greater importance. Neither natural, social, biological, ecological, architectural, ethical, and cultural, nor any other, narrowly defined developmental aspect should be solely concentrated on. It is also not suitable to merely let the information on this topic remain suspended in thin air unconnected, with no relevance and no place in their actual image or within their "local" contexts.

The change of attitude in environmental interventions and their adaptation to the principle of sustainable development form a long-term (well thought of and strategically planned) process. It is the kind which experts should not merely leave in the hands of others. Solutions should be sought through suitable life-long learning about the environment, its values and interventions into it. Appropriate methods are currently still being developed to achieve that. Furthermore, we have yet to find room for them in the already too extensive teaching plans.

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Notes

[1] In regards to the fact that the generally accepted definition of the use of the terms "space", "spatial" and "environment", "environmental" does not exist, we also utilised the terminology used in other expert/scientific literature and official legal documents and titles, for the purposes of this article. We decided to use the term space except fort cases where that proved impossible (permanent set phrase, reference to locality). Environment is understood as a narrower term, which may, in a single set phrase refer to the actual or the spiritual world (material, spiritual, social, existential, living environment etc.) with certain characteristics of the individual or a part of the society which refers to locality. Especially in recent years, in the sense of physical reality, the terms "environment" and "environmental" are mostly used in relation with environmental protectionist terminology and predominantly natural elements of reality, which may be subject of pollution, capacity, and social influences (e.g.: Evaluation of environmental influences).

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