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ENVIRONMENTAL EDUCATION OF CHILDREN IN DEVELOPING COUNTRIES

Master Thesis

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Declaration

I declare that I have worked on my diploma thesis titled "Environmental education of children in developing countries" by myself and I have used only the sources mentioned at the end of the thesis.

In Prague on _____

ZUZANA RAJTROVÁ

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Abstrakt

Tato práce se zabývala environmentálním vzděláním dětí ve třech rozvojových zemích tří kontinentů – Peru, Srí Lanka a Kongo. Cílem bylo zjistit úroveň environmentálních znalostí dětí z různých regionů v tropech a porovnat, zda jsou znalosti ovlivněny věkem, pohlavím, zemí původu nebo dalšími faktory. Výzkum proběhl v podobě dotazníků s osmi otázkami, na které odpovídaly děti z různých škol v těchto zemích. Pro možnost porovnání škol a zemí byl vytvořen bodovací systém, díky kterému byl posuzován vliv různých faktorů na výsledky jednotlivých otázek či na celkový bodový zisk.

Práce ukázala, že i přes mnoho rozdílů ve vzdělávacích systémech různého kulturně historického dědictví byly znalosti dětí podobného věku ve studovaných zemích velice vyrovnané a postoje dětí k ochraně přírody byly převážně pozitivní bez ohledu na jejich původ.

Klíčová slova:
Demokratická republika Kongo, Environmentální vzdělávání, Chráněné oblasti, Nakládání s odpady, Peru, Sri Lanka

Abstract

This study evaluated environmental education of children in three developing countries in three continents – Peru, Sri Lanka and Democratic Republic of the Congo. The aim was to determine the level of environmental knowledge of children from different regions in the tropics and compare their knowledge as influenced by age, gender, country of origin or other factors. The research was conducted in the form of questionnaires with eight questions which were answered by children from various schools in these countries. The scoring system was created to compare schools and countries evaluating the impact of various factors on the results of individual questions and on the overall points gained.

The work has shown that despite many differences in educational systems in various cultural and historical heritages the knowledge of children of similar age in the studied countries was very balanced and the attitudes of children to the nature conservation were mostly positive, regardless of their origin.

Key words:
Democratic Republic of Congo, Environmental Education, Peru, Protected areas, Sri Lanka, Waste management

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1 INTRODUCTION

Environmental education is an important part of everyday life for each of us. Nature and its components are all around us and it is necessary to take care and to avoid the influences that have a negative impact on it (Carleton-Hug and Hug, 2010). Each of us can affect the future of our children, and their relationship with natural resources with their behaviour. Ever increasing population, industrialization and the change of human needs leads to irreversible damage to our environment (Braus and Wood, 1993).

Developing countries are in a way closer to nature and thus may strongly negatively affect their natural surroundings with their cultural behaviour (Teixeira, 2013). People often only meet their basic needs and do not think of the long-term impact (Crohn and Birnbaum, 2010).

There are many educational programs and projects to lead people in developing countries to the knowledge, but despite their learning of the negative effects of their behaviour it is so low that the natural resources of these countries may be depleted in the near future and the lives of these people may be more difficult than currently (UNESCO, 2006). Open refuse dumps are places where many diseases are born and incineration of waste containing rubber and plastics can lead to other diseases, not only in humans but also in present fauna and flora. This may lead to the extinction of regular species as well as more rare species (Palmer, 1998). Therefore, it is necessary to explain to the people in these countries the necessity and urgency of environmental protection and ensure the next generation of rational eco-mentality sustains development (Maier, 2012).

2 LITERATURE REVIEW

2.1 ENVIRONMENTAL EDUCATION

Natural resources are now being abused by more than 5.3 billion people. It is becoming more and more difficult to cover the needs and wants with ever increasing population growth rates. It is also becoming harder to face up to the severe environmental degradation. People pollute the air and water, destroy the environment by disrupting natural areas, by deforestation, eroding soil, extracting minerals, poor waste management and creating hazardous waste. These all lead to general contamination, creation of deserts, poverty, starvation and importantly to increasing public health problems and even species extinction. Therefore, it is necessary to allow regeneration of natural resources by sustainable development (Braus and Wood, 1993).

The main aim of environmental education is to distinguish the environmental threatening behaviour and consider sufficient education and necessity of new strategy to attain the desired behaviour (Crohn and Birnbaum, 2010). Good strategy design can provide deep improvements and influence human impact on the environment (Carleton-Hug and Hug, 2010).

Social, economic and cultural factors are the origin of environmental problems (Arslan, 2012). Environmental education was recognized as being of high importance with its significant influence on lifestyles and environmental awareness (Zsóka *et al.*, 2013).

2.1.1 HISTORY OF ENVIRONMENTAL EDUCATION

The first combination of the words environment and education was influenced by famous thinkers like Goethe, Rousseau, Humboldt and others. Significant influence came from professor of botany, Sir Patrick Geddes, who characterized the importance of the quality environmental education. Geddes worked on methods to bring people into direct contact with the environment (Palmer, 1998). And since then these approaches and concern for quality education set the foundation of modern environmental education (Sterling, 1992).

The term “environmental studies” was established by the School Nature Study Union, founded in 1902, teaching elements of geography, history and local nature study. The topic of environmental studies grew in popularity in the 1940s. Wheeler and Bijur (2000) suggested the first use of the term environmental education in the book of Paul and

Percival Goodman, Communitas, from 1947. The first official use of the term comes from meeting of IUCN (International Union for the Conservation of Nature and Natural Resources) in Paris in 1948 by Thomas Pritchard. In Great Britain it was recorded in conference in Staffordshire in 1965 importance of conservation of the countryside and its consequences on education. This conference led to the establishment of the Council for Environmental Education (CEE), having main aim to develop the theory and practice of environmental education, promoting concepts, facilitating applications in all spheres of education, monitoring the progress and assessing effectiveness. Finally the definition of environmental education was formulated at IUCN/UNESCO International Working Meeting of Environmental Education in the School Curriculum in 1970 which was then promoted and adopted by other countries (Palmer, 1998).

The global interest in environmental education rapidly increased by the United Nations Conference on the Human Environment in 1972 and later led to the establishment of the United Nations Environmental Programme (UNEP) and International Environmental Education Programme in 1975 (Palmer, 1998).

2.1.2 DEFINITION OF ENVIRONMENTAL EDUCATION

UNESCO and IUCN (1970) defined environmental education as the process of meeting the values and explaining the terms with the aim of developing skills needed for the understanding of the interconnection of human, culture and biophysical surroundings. It also means the experiences of making decisions and creating a behavioural code on improving environmental quality (Hesseling and Čeřovský, 2008).

A couple of years later UNESCO specified that environmental education provides the opportunity to acquire skills and knowledge of values and needed protection of the environment. It creates new patterns of behaviour, support interest in economic, social and political interconnection in rural and urban areas (Abbas, 2003).

According to Lucas (1979) environmental education is every kind of learning closely related to the outdoors. It might be education with direct experience providing information about environmental issues, giving basic understanding and solving some problems, developing values and by that it encourages people to participate and improve the quality of the environment (Abbas, 2003).

Pandey (2006) defined environmental education as a form of active learning engaging students and by that increasing their knowledge about the environment and skills

such as critical thinking, solving of problems or making effective decisions. Environmental education then indirectly protects the human health and encourages governance of natural resources.

The environmental education may be formal consisting of activities in elementary and secondary education institutions or non-formal in business, non-profit organizations or media (Pandey, 2006). The non-formal education is more often and is mainly focused on youth (Wilke, 1995). The adult targeted education is more direct according to the individuals (Crohn and Birnbaum, 2010), which should change the behaviour of those causing environmental problems, such as establishing optimal fertilizer application rates in farmers so as not to influence the environment structures (Carpenter *et al.*, 1998).

2.1.3 THE MOST FOCUSSED TOPICS IN ENVIRONMENTAL EDUCATION IN DEVELOPING COUNTRIES

2.1.3.1 TEACHERS

The teachers have often a problem recognising how important a student's diversity for environmental education is and even how the multicultural diverse classrooms are beneficial and may improve the education in the current environmental crisis (Marouli, 2002). However, the teachers, just like the students, are influenced by their own cultural histories (Kimmel and Ferber, 2003). Because of these patronizing values of teachers, there can appear conflicts of values between the teacher and student and even some judgmental comments of teachers (Marouli, 2002).

It is obvious that subjects of environmental education are socially-constructed (Robottom and Sauvé, 2003) and all teachers need to expand their knowledge and capacities they need for the promotion of environmental education and for acceptance of the ethnic and linguistic diversity among their students (Blanchet-Cohen and Reilly, 2013).

The involvement of outside partners is valuable for education. There are different people environments such as family, communities, environmental organizations, teachers, students and all of those should honour the differences in each other (Blanchet-Cohen and Reilly, 2013).

One of the main problems in developing countries is the teachers' low salaries. That leads to less training and lower quality education. Weak creativity and little supervision often means high absense rates of teachers (Glewwe and Kremer, 2005). Higher financing

of education and higher salaries for teachers would increase the teachers' motivation and by that the quality of education (Saavedra, 2002).

2.1.3.2 SUSTAINABLE DEVELOPMENT

Sustainability is made by various public choices (Orr, 2002), is relative to the culture and creates balance between environment and people (Carrier, 2005). It is an alternative of social development, which reflects environmental limits of economic growth. It is a kind of development which does not harm the environment and does not deplete natural resources (Ministerstvo životního prostředí, 2008). Sustainable development is the improvement in living standards and the well-being within the limits of the capacity of ecosystems while preserving natural values and biodiversity for present and future generations (Maier, 2012). It allows natural resources to regenerate (Braus and Wood, 1993). Figure 1 shows the schema of sustainable development. The degradation of the environment is already evident and in a close relationship with the environment, economy and socio-political spheres with many consequences. It is necessary to find a balance among those spheres and make a new way of life (Teixeira, 2013).

Environmental problems grow rapidly with global warming, destroying natural life, increasing solid waste, pollution, species extinction, with the rising of population and consuming of natural resources (Smyth, 2004).

Figure 1: Schema of sustainable development
(Yong *et al.*, 2007, p. 6)

2.1.3.3 SLASH – AND – BURN AGRICULTURE

Slash and burn agriculture is a method of cutting down trees. When felled vegetation dries, it is followed by burning without removing the stumps. The land is used

as agricultural plot and is cultivated for one to three years (Mazoyer and Roudart, 2006). It releases accumulated forest biomass nutrients in the form ashes into the soil (Vosti and Witcover, 1996). Sulphur and carbon are released during burning and with higher temperatures even more nitrogen is release (Kleinman *et al.*, 1995).

By slash and burn agriculture already more than 72 percent of the tropical forests have been converted to other uses (Kleinman *et al.*, 1995). Even the existing farmlands are abandoned by land degradation, soil erosion, soil nutrient depletion and by cattle ranching (Palm *et al.*, 2005).

The most common reason for slash-and-burn agriculture is increasing numbers of smallholder farmers at the forest margin who need to use the land to escape poverty, produce food and create a home for their families (Palm *et al.*, 2005).

The problem of sustaining of this technique is that the farmer uses the land just for two to four years and so the soil quality becomes poor, is influenced by weeds, plant diseases and declining soil fertility. Then the farmers move to a new place and repeat the whole process (Vosti and Witcower, 1996). This process will vary according to different people involved in using the land and the level of shifting cultivation, agro forestry or commercial tree plantations (Palm *et al.*, 2005).

Slash and burn agriculture means a significant threat to regional ecology and instability of food supply. The extension of education can influence the behaviour of the farmers (Schuck *et al.*, 2002).

2.1.3.4 WASTE MANAGEMENT

There is a rapidly increasing quantity of sewage and solid waste like garbage, refuse and liquids from industrial or agricultural activities. These are the most serious threats to health and the environment. Improper disposal of sewage and solid waste causes diseases, pollution of water and air and so it harms people and the environment. Less than 10 per cent of urban waste is treated according to acceptable standards. It is necessary to combine the reducing of waste, recycling, composting, using landfills and incinerating due to the declining disposal capacity (Palmer, 1998).

Quantity of refuse depends on the culture of the community, wealthier communities throw more away, but poorer communities have less to throw away and are more sophisticated in reusing, recycling and refurbishing. The most notable differences in

composition of refuse are in percentages of paper and plastics which is higher in developed countries. Dust, ash and unidentifiable materials percentage is much higher in developing countries. There are also differences in refuse within developing countries influenced by nature of the culture, climate, and variations in diet or fuel use (Thomas-Hope, 1998).

A lot of people in developing countries live in overcrowded and ruined houses with rotting garbage around their livings. Limited access to clear water and diseases caused by pollution and waste disposal are still present there (Okot-Uma, 2000). Climate change has led to the deflection of land filling biodegradable waste creating more methane emissions (Marshall and Farahbakhsh, 2013).

Classification of waste depends on waste type according to its biodegradable content (paper, vegetable and animal matter), landfill size and climatic characteristics. High biodegradable waste contains 20 per cent or more dry mass. Hazardous wastes contain chemical, biological, explosive, flammable and radioactive content. These are non-degradable and lethal waste, which are persistent in the environment. Another dangerous type is infectious waste, coming mostly from medical environments (Thomas-Hope, 1998).

One of the way of reducing and recycling of waste in rural areas is composting which provides benefits such as income and employment opportunities, converging organic matter into a safer product, reducing pollution and quantities of waste. Composting requires household waste separation (Ali, 2004).

2.1.3.5 PROBLEMS OF EDUCATION IN DEVELOPING COUNTRIES

Aside from low teacher salaries, little training of teachers, a lack of teaching materials which is not available in governmental schools there is also ineffective monitoring and evaluation and diffused information about environmental focuses. Not to mention the low motivation of the teachers giving these conditions (Abbas, 2003).

What is often forgotten is the distance of schooling in rural areas in developing countries. Many of the people are geographically isolated and their access to schools is restricted (Barwell *et al.*, 1985). The children have to walk for a long distances also because of lack of public transportation. The children of rural areas are also strongly influenced by social and economic factors and most of them complete less than 4 years of elementary education (Vasconcellos, 1997). There is often low household income in the families, a lack of studying materials and parents need the help of children at home or even

at work. Because of this some of the children barely complete primary education. As result of this low education rate there is a poor appreciation of schooling among parents (Caldeira, 1960). Another problem might still be gender gaps and inequity of women education in some areas (World Bank, 2005).

Malnutrition is one of the major problems. More than 70 % of people in developing countries use water from unprotected wells and 60 % of people do not even have access to toilets. The high price of the food is caused by poor road conditions and high costs of transport (World Food Programme, 2009).

The education in developing countries has to face many difficulties and improve quality of life of people at the same. The Millenium development goals in recent years have led to decreasing poverty, increased efforts to fight against some diseases, decrease of undernutrition of young children and also to achieve gender parity in primary education. To achieve the goal of universal primary education requires enrolment in school and completion both together. Remaining obstacles are long distances from home to school, household poverty, combination of work and study, adult illiteracy, opportunity costs and around half of out-of-school children live in conflict affected areas. In the poorest households are more likely excluded girls from education and children with disabilities but on the contrary boys are in greater risk to leave school earlier (United Nations, 2014). But even the progress in achieving education goals during last 13 years was unprecedented and next to household poverty reduction there are more children at school than ever before, rapid reduction in child death rates and increased access to clean drinking water (UNESCO and UNICEF, 2013).

2.1.3.6 FINANCING IN DEVELOPING COUNTRIES

A quality education is fundamental in achieving the private goals and is necessary for attaining knowledge and skills required for effective economic, social and political development. Education does not only improve individuals and all societies to live a better life but it can respond to the needs of their future job market, reduce the illiteracy in general, reduce poverty, improve health and nutrition and by that improve the whole development of the country (World Bank, 2005).

A good education financing promotes optimized distribution of a quality education (Hanushek, 1996). Developing countries spent about four times more money on education

then other countries in recent years (Saavedra, 2002). Therefore there is a need for efficiency because the higher education expenditure does not always mean better outcomes (Hanushek, 1996).

Many indicators describe the financing of education. Among the most important are educational expenditure, the sources of education financing and the uses of education financing (OECD, 2013). There are different sources of education financing which vary depending on country. Public finance covers about 50 to 80% of national educational expenditures (various levels of governments or educational institutions). Private sources cover almost 20 % and include mostly households, then communities, civil society organizations and the private sector. International sources are not usually higher than 2 % (Saavedra, 2002).

Lewin (2008) mentioned that as much as the given concern is primary education, there should be improvement of secondary education now. Secondary education is the place where the children are coming to get essential skills for their future and leaving school like young adults. The secondary education is mostly publicly financed because the external assistance prefers to support the basic education (Lewin and Caillods, 2001).

2.1.3.7 PROTECTED AREAS

Protected areas have the important influence on environmental protection. There are numbers of projects and conservation programmes. They are a natural heritage, places of high biodiversity and often home of endemic species. Among the protected areas are National parks, National sanctuaries, Historical sanctuaries, Wildlife sanctuaries, Landscape reserves, National reserves, Community reserves, Protected forests, Hunting reserves, Reserved areas, Regional conservation areas, Private conservation areas and Biosphere reserves - protected areas in marine and coastal environments. Protected areas also serves as a conservation places for many animal and plant species (Solano, 2009).

2.2 CHOSEN COUNTRIES

2.2.1 PERU

Figure 2: Peru on the map of South America
(Maps Google, 2013)

Figure 3: Peruvian flag
(Worldatlas, 2014)

Peru is the third largest country of South America (Figure 2) with capital city Lima. The reason for a llama in the emblem on the flag (Figure 3) is the legend about llama warning the people that a flood is coming (Knox, 2003). Peru is a tropical country with cultural and natural diversity from parched coastal desert to sweltering tropical rain forest. Many natural hazards such as coastal tsunami, earthquake, and flooding are threatening the country (Gritzner and Gritzner, 2005).

Peru is geographically divided into three regions. The Costa region is characterized by areas of rough hills extending from the Andes to the shores of the ocean. Most of the river valleys in this region have rich soils. There is enormous number of birds, marine mammals and fish. Sierra region is an Andean mountain region. Its soils are fertile in some of the highland basins but in the mountain slopes the quality of soil is poor. Native animals to this region are vicuña and guanaco. The Amazonia region contains heavily forested tropical lowlands and jungles of Amazon Basin. This region is characterized by great rivers. The heavy forest causes the covering of the soils which makes for low fertility but creates a great environment for many plants, insects and animal species. There can be seen for example jaguars, capybaras, tapir and New-world monkeys. Also the coca plantations are found in this region (Encyclopædia Britannica, 2014). The main crops for agriculture are sugarcane, potatoes, rice, plantain, corn, cotton and coffee, which is important for export. Rising livestock include also llamas and alpacas providing meat and wool or for

carrying heavy loads on farms. The jungle regions are sources of medicines, rubber and hardwood. Peru is one of the world's largest fish producers of anchovies and pilchards (Marquez, 2004).

There are many diverse minority populations here such as Aymara Indians, Spaniards, Europeans and Japanese, making together about 12 per cent of population in Peru. The native population is made up of 50 percent Quechua Indians (Encyclopædia Britannica, 2014). Indians often remain at the bottom of the Peruvian social pyramid having little llama herds or small plots of land. The mestizo is a bilingual minority among which dominates monolingual Indian majority (Van den Berghe, 1974). The mestizos speaking Spanish create a middle class in society, often small landowners, labourers but also administrators and managers (Encyclopædia Britannica, 2014). Cholo are people of mixed Indian and mestizo descent using mostly Quechua language who work often in retail trade, small-scale artisanal production with little agriculture and stock rising (Van den Berghe, 1974). Generally, the languages used in Peru vary also within the area but officially Spanish, Quechua and Aymara language is used. There are a lot of languages and dialects in the Amazon region. English is used in the urban areas with active tourism (Encyclopædia Britannica, 2014).

2.2.1.1 PERUVIAN EDUCATION

There is a big difference in indigenous groups in Peru which is evident in the educational system. There are isolated communities living in the jungle or mountains and those who are more integrated into neighbouring Spanish-speaking areas – indigenous and non-indigenous. These two groups of citizens are considered ethnically and culturally diverse. Therefore, there are large inequalities within the country. The literacy rate in Peru was 38 percent in 1925, which was roughly average status among developing nations at the time. In the modern day, literacy rate have improved claiming to 87.7 percent but fell below when compared to the same countries as before - Mexico, Venezuela (Snyder, 2008).

Almost all students attending primary schools are successful and complete primary education but the success of secondary education is only about 65%, caused by various reasons such as poverty, fees, need to work, pregnancy, gang behaviour, educational quality factor and others (World Bank, 2007).

It is hard to determine the quality of education because there are many factors which can influence the quality. Among the most influencing factors are management quality and work effort. The general tests of pupils take overall reading ability, mathematics ability and science ability. These tests in Peru showed the lowest results in Latin America (World Bank, 2007).

2.2.1.2 STATISTICS OF EDUCATION

According to data from 2011, 4% of primary age children were out of school. Enrolment of children in pre-primary education was 77%, 94% in primary education, 77% in secondary education and about 42% in tertiary education. The data also says that the repetition rate in primary school was 5%. 96% of children completed a full primary school course but only 89% continued by studying at secondary school. The pupil teacher ratio in the primary stage was 20:1 in 2011. The literacy rates were about 90% in adults and 97% in youth from 15 to 24 years (UNESCO Institute for Statistics, 2011).

Peru has gone through a great development in recent years. The reduction of poverty went from 48.5 % in 2004 to 25.8 % in 2012 with big differences between rural and urban areas still remaining (UNESCO Institute for Statistics, 2011).

The statistics from 2008 to 2012 shown the literacy rate was still about 97% in youth, pre-primary school participation was about 78% and the participation in primary school was almost 100% due to over and under-aged children. Attendance was about 97%, the school participation was about 95% and enrolment in secondary school ratio was about 77%. Attendance at secondary school grew to 82% (UNICEF, 2013).

Figure 4 shows the primary completion rate which means all new entrants in the last grade of primary education. The numbers above the line is a percentage of children which may exceed 100 % because of over and under-aged children (World Bank, 2011).

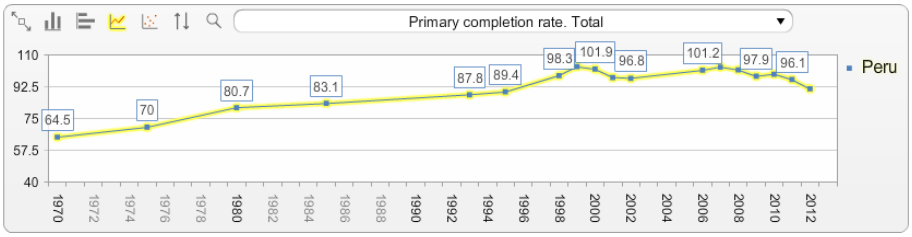


Figure 4: Primary completition rate in Peru

(World Bank, 2011)

2.2.1.3 HISTORY OF EDUCATION IN PERU

The Ministry of Education (originally called Charity and Ecclesiastical) was created on February 4, 1837 for greater advancement of public education. By the mid-nineteenth century general Castilla created the first Education Regulations, which established the separation between public and private education and opened Guadalupe National College (Ministerio de Educacion, 2001).

In 1866 Don Mariano Ignacio Prado started to regulate higher education and opened Sunday schools for all. In 1870 free schools were established in district capitals. In 1872 Schools of Agriculture, Engineering, Manufacturing and Fine Arts were opened. During the year 1907 a secondary instruction was increased to five years. The Teacher´s Day was set in 1941. Between the years 1948 and 1953 many schools, school units and four military colleges were built (Ministerio de Educacion, 2001). In 1945 implementation of bilingual education started in indigenous schools by the Ministry of Education (Garcia, 2005).

A series of ambitious reforms gave rise to regulations in the 1970s. A boost to early education was given and from the 80s it went through development also in to higher education. The National Institute of Educational Infrastructure (INIED) was transfered to Ministry of the Presidency (Ministerio de Educacion, 2001).

2.2.1.4 SYSTEM OF EDUCATION

According to the Constitution of Peru, education is compulsory and free for primary and secondary stages. There is pre-primary education for the children from the age of 3. The children attend primary education between the ages of 5 and 16, so the compulsory time takes eleven years (UNESCO - IBE, 2010).

Early education is provided in two basic forms in Peru, formal and informal education according to General Educational Law. Formal education has to follow the rules of the Ministry of Education and is led by classroom teachers. Informal education is delivered by teaching coordinators and community education visitors. The education is the same for girls and boys (UNESCO-IBE, 2006).

2.2.1.4.1 FORMAL EDUCATION

Filho (1957) described the curriculum of elementary school as including in the first two years subjects like community life, geographical environment, stories from history and

moral and civic training. Other subjects are language and other means of expression and special courses. In the following third year there is geography of Peru, language, child and health, social studies, artistic education and manual activities. The fourth year is the same as the third with the addition of vocational training, elementary child care and pre-military instruction. All the years contain subjects like calculation, moral and religious education, physical training and nature study about animals and plant life.

Since 1957 educational curriculum has gone through many changes and now the primary education has ten semesters. Each semester has 18 weeks with 30 hours per week. The main are the first 8 semesters and the last two semesters are made for student pre-professional development practice. There are two stages of primary education – general education and specialized training (Ministerio de Educacion, 2010).

Pre-primary education

Initial education is the first level of basic education and is organized in two cycles (UNESCO - IBE, 2010). The first is **Nursery** for the age group of 0-2 years, where the early education teachers and teaching assistants take care. The second is **Kindergarten** for the age group 3-5 years under the care of early education teachers. The organization of kindergarten education is in different ways specific to the home environment of the child (UNESCO, 2006). Since the Constitution of 1993 one year of initial education is mandatory (UNESCO - IBE, 2010).

Primary education

Primary, mandatory, education is the second level of basic education attended by age group 6 to 11 years. It includes six degrees organized in three cycles of two years each. The government prescribes a compulsory subject curriculum. Most primary schools are co-educational. In addition to the regular mode, the basic education also teaches an alternative mode (youth and adults who did not have access to regular mode) and especially serving a context of inclusion of children, adolescents and adults with special educational needs. Students are evaluated four times a year and graded on the scale of 0 to 20. Students require an average mark 11 out of 20 to pass primary education. There is a possibility to take a retest once a year for students who fail. Students who pass are supposed to get a certificate of primary education (Certificado Oficial de Educación Primaria) which allows them to enter the secondary school (Ministerio de Educacion, 2010; UNESCO - IBE, 2010). The Curriculum of primary education contains subjects as Social science,

Mathematics, Communication, English, Physical education, Arts, Culture and Productive enterprising, Environmental science culture, Religion, Psychology, Intercultural education and optional subjects (Ministerio de Educacion, 2010).

Secondary education

Secondary education is the third level of basic education, comprising five degrees. This level is divided into two cycles: the first for all students generally lasts two years (1st and 2nd), the second takes three years (3th to 5th) and is diversified, with humanist and scientific-technical options. Secondary education is offered in two ways: for teens (regular mode, age group 12 to 16 years) and for adults (as four year course). After the second cycle the students are supposed to acquire a certificate of completed secondary education (Certificado Oficial de Educación Secundaria Común Completa). Secondary education is also mandatory (Ministerio de Educacion, 2010; UNESCO - IBE, 2010).

Tertiary education

Non-university higher education is taught in schools and technological, pedagogical and artistic training colleges. The institutes offer teacher training programs (a duration of ten academic semesters) and a variety of options for technical training in careers that have a duration four to ten academic semesters (usually three years). The college awards the bachelor's degree and the titles of master and doctor as well as certificates and professional titles including subsequent specialization (UNESCO - IBE, 2010).

2.2.1.4.2 NON - FORMAL EDUCATION

Community children's programmes select specific needs of disadvantaged children in under 6 age group using different methods such as toy library. The children come with the family member or guardian and spent time in collective experiences (UNESCO, 2006).

Integrated education programmes, for children under 3 years of age offer care in health and nutritional needs. These **programmes are conducted in the home** serving to develop parental skills. Education visitor comes once a week for couple of hours. **Programs in organized venues with family members** for children from half a year to two years are attended twice a week for the couple of hours. **Programs in organized venues without family** for children from half year to two years with working parents run in morning or afternoon. **Early education programs for children 3 to 5 years old** offer all-

round development of children´s abilities placed in organized venues under the care of a Community Education Visitor. **Childrearing practices programmes** are made for coaching parental skills and social communication (UNESCO, 2006).

2.2.1.5 EDUCATIONAL PROJECTS

Project on Education in Rural Areas (PEAR) created as prevention of the exclusion of rural children reaching out cultural and linguistic diversity. This project is seen as biopsychosocial unity with enormous potential. The project is bilingual and promotes non-formal education for children 0 to 2 years via „Home learning", in „Learning families", and in community facilities such as „A place where children play". For children 3 to 5 years it promotes a combination of formal and non-formal education in early learning centres and early education programmes (UNESCO, 2006).

Integrated Care and Education Project for Children under six years in rural mountainous areas (PAIN) has a focus on education, health and nutrition while developing child rearing and affection needs and improving children's environment by secure learning opportunities (UNESCO, 2006).

Public Investment Project: „Improving integrated development of children under six years in poor and extremely poor areas", created for neutralizing development limiting factors of children under six years old in affected districts. The project improves all-round child development by increasing access to early education, quality of education management and early childhood care (UNESCO, 2006).

2.2.1.6 FINANCING OF EDUCATION

Peru has abundant natural resources and in recent years has shown a growing economic tendency and by that improved domestic policies and investment in education, even in regions marked by high inequality, entrenched poverty and social exclusion (World bank, 2005). The national income is mostly derived from taxation. The resources devoted to education increased in absolute terms but declined in proportion to GDP (Gross Domestic Product). The per pupil expenditures decreased by 50%. The money needed per student are much lower (200 USD) then for example in Chile or Argentina (over 1000 USD). The expenses spent for secondary education is twice or higher than for the public primary school. The higher education and university costs are four times higher than the

public primary education. The private education makes the costs about twelve times higher than public (UNESCO - IBE, 2006).

2.2.1.7 PROBLEMS IN EDUCATION

2.2.1.7.1 Inequeality of education

Educational inequality goes together with regional economy or even marginalization and discrimination. In the poorer regions there is lower quality of education, school managements is less effective and there is lack of resources and a linguistic challenge. Most of the poor people are indigenous using native mother language more then Spanish. According to the World Bank, 25–48% of people are indigenous. Indigenous adults spend approximately 6.4 years at school, the average non-indigenous spends at school 8.7 years at school (Snyder, 2008).

In general we can say that lower schooling achievement of indigenous students is influenced by the home educational environment, the number of books used as reading materials, less educated parents, their interactions with poverty in rural areas or failure to accommodate the diversity in language. Almost all indigenous students attend public schools, but about 25% of non-indigenous students attend private schools (Hernandez-Zavala *et al.*, 2006).

The education quality is measured in two ways. One of them is testing and scoring the students in reading and mathematics. The test results of non-indigenous students is much higher in language then in the mathematics test (also by attending private school), indigenous students in poor classroom conditions have lower test scores. The second way of considering quality of schools is about management, teachers, infrastructure and other closely related factors which may improve teaching (Hernandez-Zavala *et al.*, 2006).

Educational inequality relates also with a lack of intergenerational education and will have an impact on marginalization of indigenous population (Snyder, 2008).

2.2.1.7.2 Bilingual education

More than 31 percent of children at school level do not have Spanish as a first language (World Bank, 2007). The way to enhance the capacity of indigenous people is a bilingual program valorising indigenous languages within a nation-building framework. The bilingual education was implemented in all areas and Quechua language was stated a

national language co-equal with Spanish. Law from 1976 made teaching of Quechua compulsory at all educational levels (Garcia, 2005).

Intercultural Bilingual Education is an initiative but leaves gaps such as differences in rhetoric, paternalistic practices and the problem of difficulty in implementation of ideas by new policies, teachers and trainers (de Mejía, 2005).

2.2.1.8 PROTECTED AREAS

Peru has about 128 million hectares with 83 „life zones“ and a rich biodiversity. By that it is one of the 17 most megadiverse countries in the world. The area of the country includes diverse territories beginning with semi-arid coastal zone, through mountainous region to Amazonian jungle. Examples of protected areas (Figure 5) include Huascarán, Manu or Tingo María National parks, sanctuaries such as Santuario Nacional Lagunas de Mejía, Historical sanctuaries or National reserves as Tambopata. There are a lot of conservation projects focused on Amazon Basin and wildlife (Chape *et al.*, 2008).

The first national park in Peru was established in 1961 and it was just a beginning of covering almost 15 per cent of the country by 63 more protected areas at the national level, 4 regional level and 16 private conservation areas. The landowners of private conservation areas voluntarily accept specific conditions of use. The first Peruvian protected area extending over marine ecosystems was established in 1975 (Solano, 2009).

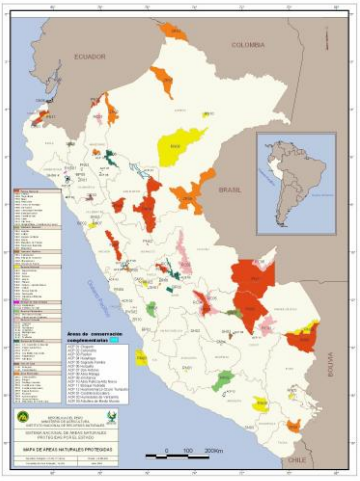


Figure 5: Map of protected areas in Peru

(INRENA, 2012)

2.2.1.9 WASTE MANAGEMENT

Waste management is performed mostly with no respect of regulations and laws. The most used is recycling markets for metals, plastic, glass and paper. Other frequently used is re-utilization through second – hand markets. Compost and humus market is also used (Chang, 2005).

The Faculty of Tropical AgriSciences of ČZU works on research of composting in Peru, which is widely used in there (Banout *et al.*, 2008).

Compost is an organic compound of urban garbage which can be applied to the soil, improving fertility and its physical, chemical and biological properties. Use of the compost lost its importance due to the industrialization of agriculture but with the emergence of organic farming is becoming used with the domestic garbage (food waste). The certification must verify that the external inputs do not contain toxic waste. Among the best known organic fertilizers are manure (68.13%), compost (14.3%) and others like carob. Most of the soils are poor in organic matter and with a low fertility, so the application of organic fertilizers is essential because agriculture is one of the most important activities, producing mainly rice, cotton, lemon, mango, bananas and crops such as coffee, cocoa, potatoes, corn and wheat (Ecociudad, 2005).

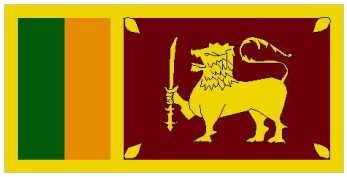
2.2.2 SRI LANKA

Figure 6: Sri Lanka on the map

(Maps Google, 2013)

Figure 7: Flag of Sri Lanka

(Encyclopædia Britannica, 2014)



Colombo is a capital city of Sri Lanka, known also as Ceylon (Figure 6), has diverse and relatively fertile soils and great biodiversity (Peebles, 2006). The lion on the flag of Sri Lanka (Figure 7) represents the strength of the nation (Facts, 2014). The first major colonial export was cinnamon just after the coffee and coconut. But the most famous export from the Ceylon region is tea. The main mineral resources are graphite and gemstones (Peebles, 2006).

Unemployment is about 8% of the people and about 22% of the people are below the poverty level (Epstein and Limage, 2008). The religion of Sri Lankan people is mostly Buddhist (about 76.7%), others are Hindus (7.58%), Muslim (8.5%) and Christian (7%) (UNESCO, 2008). The mother languages of Sri Lankan people are Sinhala and Tamil which are both official languages (Peebles, 2006). 82 % of the population is Singhalese, 9.2% is Tamil and the rest are Moors and others (UNESCO, 2008). There are also Malay immingrants speaking Malay. All the local elites, influenced by 150 years colonial administration speak English as well. The people are grouped into ethnic identities and hereditary castes. The structure of castes is hierarchical and is segmented to caste grades. In the caste structure are significant regional differences (Peebles, 2006).

The colonial economy was based on agriculture, not just for consumption but also production of commercial crops for export. Even there are high improvements of living in some areas in the sense that the people live in permanent houses with access to running water and electricity and electric appliances such as TV, fridge or phones, but despite this

Sri Lanka remains a poor country (Peebles, 2006), with more than 5 percent of people still live in tents or shelters and almost 50 percent of people have houses made of durable materials (World Food Programme, 2009).

On the 26th of December 2004 three-fourths of Sri Lanka's coastline was destroyed by a tsunami. It killed over 35 000 people and almost a million of people were left homeless Rebuilding of houses was not allowed however the tourist resorts received permission (Peebles, 2006).

2.2.2.1 SRI LANKAN EDUCATION

Most of the schools are under Governmental support. National Institute of Education (NIE) creates national curriculum to monitor and train advisors guiding teachers. In the provinces there are Teachers Centres and Colleges for training and upgrading skills of teachers. The Governmental welfare services for students were created to increase school attendance and literacy rates (UNESCO, 2008).

The education system in Sri Lanka lasts thirteen years composed of five years of primary, six years of secondary and two years of higher secondary. The education is free and compulsory for children from five to fifteen. The differences between rural and urban schools are still evident as well as education quality among children of different socioeconomic levels, but the basic skills does not show a significant difference among children. At all levels of education there are trained and specialized teachers (Epstein and Limage, 2008).

2.2.2.2 STATISTICS OF EDUCATION

According to a school census from 2006, 72.8% studied Sinhala medium, 26.1% studied Tamil and 1.1% studied English media school. Tertiary education is mainly educated in English. Teacher pupil ratio is 1:19. There are approximately 9714 governmental schools, about 93 private, 653 Buddhist learning centres and 200 international English medium schools in Sri Lanka (UNESCO, 2008).

The statistic from the years 2008 to 2012 had shown the literacy rate about 98%, pre-primary school participation about 84%, participation in primary education about 95 %, primary school attendance 98% and the participation in secondary school about 88% (UNICEF, 2013).

The data from 2011 show that 6% of children in primary school age were out of school and the percentage of repeaters in primary education was just 1%. The literacy rate

in 2008 was 90.6% in adults and 98% in youth in the age 15-24 (UNESCO Institute for Statistic, 2011).

The primary completion rate (Figure 8) shows all new entrants in the last grade of primary education. The numbers above the line is a percentage of children which may exceed 100% because of over and under-aged children (World Bank, 2011).

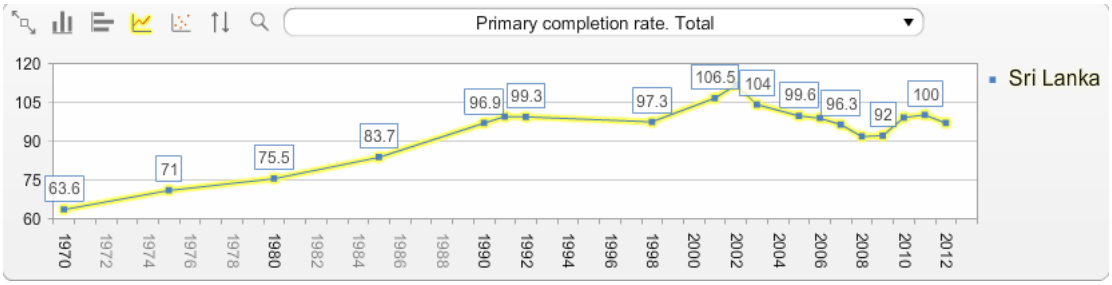


Figure 8: Primary completion rate in Sri Lanka

(World Bank, 2011)

2.2.2.3 HISTORY OF EDUCATION IN SRI LANKA

Because Sri Lanka was under colonial rule for almost 450 years, we can divide the history of education into four main eras (Epstein and Limage, 2008).

PRE-COLONIAL ERA

Education was seen as valued treasure and played an important role of the cultural tradition in ancient times. The main aim was to provide religious knowledge and practices in Buddhist temples or monastic colleges (UNESCO, 2008).

COLONIAL ERA

The Portugese colonization (1505 – 1658) missionaries established schools to propagete the Roman Catholic religion. The following Dutch colonization (1658 – 1796) established school supervising Scholarchal Commission and education was still focused about converting people to the Dutch Reformed Church but the education was still undetermined (Epstein and Limage, 2008). At the end of 18th century Dutch were dislodged by British (1796 – 1948) who founded the mass education system in the 19th century. The education was under the clergy at the beginning but soon Government started to support education because of natives educational need. They created a dual school system where some of the schools used English and some the mother language, Buddhists and Hindus established their own schools (UNESCO, 2008).

The first English school was open in 1800. 1835 established Colombo Academy for boys in elite families. In the 1840s other schools were established for boys and girls with significant regional imbalances (Kirk, 2008). There was even a high increase of schools where British missionary concentrated their interest and improving existing schools more than building new ones. During this time there were vernacular, bilingual and English schools where the free vernacular schools were promoted by government and were compulsory for children between 5 and 14 years of age. The number of students increased and the literacy rate got higher. The success of bilingual schools with their program of local language in the morning and English in the afternoon was not so high. The English elementary and secondary schools were aimed at preparing students for higher education in British universities (de Silva, 1981).

In the year 1931 the first minister of education was elected. Since that year a period of transition started toward political independence and until 1948 there were made many achievements such as law education enactment - The Education Ordinanace No. 31 of 1939, providing English education in government schools, financial support of denominational schools providing free education, promoting of mother language from the primary grades, changes in curriculum by concentrating on academic knowledge, aesthetic sensibilities and practical skills, students welfare providing free health services, lunch and scholarships. In general it advocates compulsory school attendance and requires schooling for all the children in the ages of five to fourteen (UNESCO, 2008). Introduction of free primary, secondary and tertiary education was the main factor promoting gender equality in educational access. During the years the education of girls was increasing and even the number of women teachers expanded (Kirk, 2008).

POST INDEPENDENT ERA

Sri Lanka became independent ot the 4th of February 1948 (Epstein and Limage, 2008). The government was following the policies in education, health and social services and extended the mother language to the secondary grades. The reforms from 1972 made a general curriculum for nine years which includes science, math, social studies, languages, aesthetics and prevocational studies (UNESCO, 2008).

POST- JOMTIEN, EDUCATION FOR ALL ERA

This is era after World Conference on Education in Jomtien, Thailand in 1990 which mentioned the main facts about education. The facts that education is a fundamental right for all people, can help ensure a better world, contribute to social, economic and

cultural progress, need for quality education and the fact that basic education is the fundamental for higher education. The World Bank also set the goal of ensuring the completing of quality basic education, opportunities to learn advanced skills and also education of adults (World Bank, 2000).

The need for reforms and policy for stability and continuity of education led to establishing of the National Education Commission (NEC) in 1991. The new reforms aimed at the improving of education quality, promoting access and equity in education and the development of teachers and management. These reforms brought a significant change in curriculum by making the education child-centred compared to previous teacher-centred and more activity-based against the textbook-oriented methods before (UNESCO, 2008).

2.2.2.4 SYSTEM OF EDUCATION

The education is co-educational and compulsory for children from 5 to 16 years old. As in the other countries, the public schools are funded by the Government offering the necessary free education. All public schools have to follow the National Curriculum prepared by National Institute of Education and offer education in Sinhala or Tamil medium of instruction (depending on the area), with couple of schools re-introducing full or at least partial English medium education in addition to Sinhala or Tamil medium. In the school syllabus there may be some local variations, mainly in the lower grades which do not influence the National level examinations. Private schools are usually owned by religious groups but have to follow the National Curriculum as well. Most of the private schools offer English medium education and by that allow students to pass international exams instead of national. The private sector education is still very small in comparison to the government one. The general dividing of the government schools is Type 1AB offering science, arts and commerce stream, Type 1C offering arts and commerce streams, both types to the grade 13, Type 2 including schools with a wide range of subjects in grades 1 to 11 and Type 3 including primary school grades 1 to 5 (Ministry of education, 2012). Schools with high malnutrition provide lunch for children, the government provides food stamps for the families below the poverty level. The public health nurses visit schools as well as homes and provide supplementary vitamins and high nutritious supplementary food (Epstein and Limage, 2008).

Educational government programmes:

Trilingual programme for the ability to use Sinhala, Tamil and English.

School library development programme for improving the libraries and quality of reading materials and promotion of reading habbit among school children.

School health promotions and nutrition programmes for improving the nutrition and health level of students, increasing attendance and ensuring the water and sanitary facilities available at school.

Education for social cohesion and peace programmes for providing practical experiences on democracy and social values.

Drug prevention programmes for awareness of students in drug misuse.

UNICEF Assisted programmes for development of primary education, provision of water and sanitary facilities, monitoring education and training of instructors

(Ministry of education, 2012).

2.2.2.4.1 FORMAL EDUCATION

Pre-primary education

Pre-primary education is for children from 3 to 5 years. It is run by local authorities, religious bodies, voluntary organisations and also by the private sector (Ministry of education, 2004).

General Education

General education is mandatory for the children from 5 to 18 years and is divided into three levels. The government provides free education from primary school to the first degree of university.

Primary education is for children 5 to 9 years old, grades 1 to 5. The key subjects are, Native language, Mathematics, Religion, Environment related activities. The 5 years of the primary education are divided into three stages, first is grade 1 and 2, focused on physical and mental play and activities, second stage is grade 3 and 4, focused to mix of play, activities and deskwork and the third stage is grade 5 with greater emphasis on desk and academic work (Ministry of education, 2004).

Junior secondary education is for children 10 to 13 years old, grades 6 to 9. The common curriculum contain Native language, Second Language (English), Second National Language, Mathematics, Science and Technology, Social studies and History, Religion, Aesthetic studies, Health and Physical education, Practical and Technical Skills

and Life competencies. In this education level the students learn through simple projects and practical work (Ministry of education, 2004).

Senior secondary education lasts two years, grades 10 to 11. It is preparation for the GCE O/Level examination; passing is compulsory to enter the collegiate level of optional study. In the grades 10 to 11 studies include the common nine subjects of curriculum and six of them are compulsory. The common curriculum contains the variations of certain areas of studying Aesthetics or Technical subjects (Ministry of education, 2004).

Collegiate level lasts 2 years, grades 12 to 13, finishes by examination GCE A/L. This qualification is used as an entrance examination for Sri Lanka´s national universities. In these grades there are four major fields of study – physical science stream (math, physics and chemistry), biological science stream (biology, physics and chemistry), commerce and accounting stream and an arts stream. In addition there is an English test and common general test (Ministry of education, 2004).

Tertiary and University education

In the primary and secondary education the students pass courses oriented to the tertiary education preparation; they choose the stream, complete their advanced level of education and enter the tertiary level. This level provides better job opportunities and makes use of vocational skills and by that provides the possibility of better jobs and quality of life. To enter the university the students have to pass difficult examinations and only 2 % of students enter the universities (Tharmaseelan, 2007).

NON-GOVERNMENTAL SCHOOLS

Non-governmental schools include private, specified schools and religious institutions. The private schools can be fee levying and non-fee levying (teacher salaries are paid from MoE). There are two kinds of specified schools, one for delinquent children and one for handicapped children which are managed by nongovernmental organisations (recieving grants from MoE). Most of the religious institutions are Buddhist monastic schools known as Pirivenas (recieve grants from MoE). International schools are another category with no connection to MoE and they prepare children for British Examinations (UNESCO, 2008).

2.2.2.4.2 NON-FORMAL EDUCATION

Non-formal education is understood to be the form of centres for street children and literacy centres for adults (UNESCO, 2008). Non-formal education was created to fulfil needs and wants different from the formal concept. The educational programs are

constructed to vocational development. They run mostly during evenings, weekends and school vacations and do not cover the formal education classes (Ministry of education, 2012).

Among those belong for example functional literacy centres in areas where the children do not have great attendance, for imparting functional literacy. Another is Community learning centres created for target groups of children varying in the program, beginning with simple literacy, life enrichment courses and skills training. Non-formal education belongs to Vocational training centres running as afternoon classes for the children who want to improve their vocational skills (UNESCO, 2008).

Vocational education

Vocational training takes place in various training institutes and non-governmental organizations. Guiding the children to vocational education is a policy of general education. For the national level certificate, there is a common structure developed for vocational education. The vocational education programmes ensures students capability programmes are under supervision of the school principal and the core subjects of preliminary programme are simple management principles, simple accounting, enterpreneurship, practical English and communication technology. There is the possibility to make an internship to work in organizations to improve work experiences in the time when the students are away from school (Ministry of education, 2012).

Supplementary primary education is non-formal education, known as „tuition“, running along the formal education system. Tuition includes for example individual tuition at home, small group tuition at home or class tuition in a rented classroom. These tuitions are after school hours and at the weekends and they are not confined to the student education level (Little, 2000).

Pirivena education

Pirivena is the education provided by Buddhist priest in a monastic college. In ancient times were Pirivenas centres of secondary and higher education, now it is parallel to the policy of general education and is mantained by Ministry of Education. The aim of Pirivena education is to develop the religious knowledge, understanding and spiritual development. Another aim is the diagnosis of hidden aesthetic skills and improving social welfare and community services. There is priority of education for children who are insecure, poor, destitute, street, and orphaned. The assistance or patronage can be obtained from the private sector in case of need (Ministry of education, 2012).

The Pirivenas Mother Sri Lanka educational programme is a programme for developing good citizenship and patriotism by explaining the identity of Sri Lanka. It uses physical, mental and emotional development. The important content of the programme is appreciating other religions, protecting public assets, learning Tamil, programs to build mental happiness, taking care of the sick, training of leadership, resolutions of conflicts and disaster management skills (Mother Sri Lanka, 2014).

2.2.2.4.3 SPECIAL EDUCATION

Special education is for people with various kinds of disabilities and special needs. It is supported by MoE by providing special education materials for visualy or hearing impaired and learning aids for mentally retarded. Among these belong children with special needs, disadvantaged due to physical or mental impairment, who have suffered abuse in the home or community, who have faced discontinuity in care due to loss of parents or care givers and those faced with deficiencies in health and psychosocial stimulation (UNESCO, 2008). Providing education for these children is essential for equality of education for all (Ministry of education, 2012).

Special schools are private schools funded by the Government, serving the severely disabled. Special Education Units in schools, where trained instructors give special attention of improving skills of needed children for possible redirection to normal classes. Inclusive Education with disabled children is in normal classes and the teachers have special training in taking care of them (UNESCO, 2008).

2.2.2.5 FINANCING

Rising oil prices meant that education funding suffered. Other reasons include greater investment on infrastructure development and internal conflicts. The share of education in the GDP is about 2.8 %. And share of the annual budget 8 - 9 %. Therefore, external aid is important. Among the major donors of education is the World Bank, UNESCO, UNICEF, Asian Development Bank and some others (UNESCO, 2008).

2.2.2.6 PROBLEMS IN EDUCATION

Many children do not live and develop in a protective and supportive environment with family or parental care. Over 680 children lost both primary care givers. Child abuse and neglect is prevalent, child labour and exploitation is prevalent, need for psychosocial interventions and child recruitment remains a great concern. Health situation is poor and the access to health care is difficult due to massive destruction of health facilities by tsunami (UNICEF, 2006). About one fifth of households are at the risk of death (World Food Programme, 2009).

Almost all negatively affected schools have been re-established by collective work of the government, national voluntary organizations, NGOs and development partners, multilateral and bilateral (Epstein, Limage, 2008).

The main problems are that the children often face the pressure of poverty. The infrastructure is under-developed and there is lack of sufficiently qualified teachers. Parents lack money to buy school uniforms, books and other learning materials. There is difficulty in accessing schools for students and teachers. Other problems are absenteeism, under-achievement of education and low awareness of the importance of education (UNICEF, 2013).

The issue of child soldiers should be closed since the end of the war of LTTE (Liberation Tigers of Tamil Eelam) and the military, but still there are about 2000 children who were involved in armed conflict. More than 926,000 children are economically active and from those there are more than 26% working without attending any school. Many children who work in agricultural sector are only children helping parents in their plantations during harvesting season and trying to attend school as well. According to UNICEF statistics there were found about 40.000 child prostitutes in Sri Lanka, which is caused by Western pedophile tourists. There are organized crime groups providing the children from rural areas (Epstein and Limage, 2008).

2.2.2.7 PROTECTED AREAS

Conservation of nature belongs in ancient traditions of Sri Lanka (Green, 1990). About 23 % of Sri Lanka land is protected for biodiversity conservation and natural forest reserves (Chape *et al.*, 2008). Sri Lanka has more than 430 protected areas, which are well known for their high biodiversity and endemic species. The protected areas (Figure 9) are influenced by human activities such as cardamom cultivation (Nation, 2013). The marine

protected areas are threatened as well by water pollution from human wastes, coconut husk retting and over-using of coastal resources, which are economically important for tourism and fisheries. The coastal areas have a high density population with the small landowners of coconut and rice cultivation. The marine resources are highly threatened by many activities like overfishing, coral reef fish are sold for aquarium trade export, corals are mined and exported, sand is mined and mangroves are exploited. Therefore, the need for awareness and environmental education became one of the priorities of marine issues (Pernetta, 1993). There is a number of programs focusing on forest and wildlife conservation and also conservation of marine environment and coral reefs (Chape *et al.*, 2008).

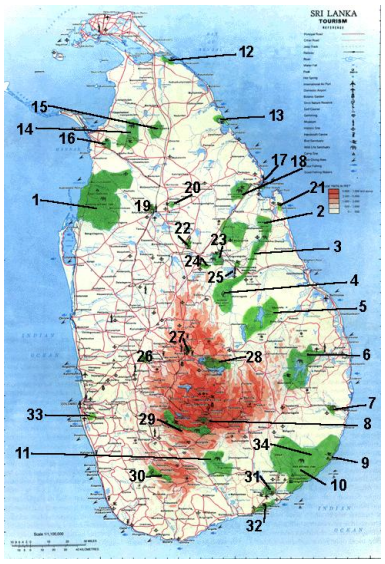


Figure 9: Map of protected areas in Sri Lanka

(Sriwildlife, 2014)

2.2.2.8 WASTE MANAGEMENT

There were significant negative results of the tsunami debris on the environment and contamination of natural resources. Many of the affected areas had the waste disposal sites close to the shore and the water influx replaced this waste somewhere else. The other factor is arsenic contamination of water and crops. The biggest impact was not the tsunami itself but the post tsunami reconstruction activity. The correct disposal of tsunami related waste is estimated to cost about USD 5 million (Pilapitiya *et al.*, 2006).

Sri Lanka does not have any fee for waste collection and disposal. The costs are paid from quarterly property taxes. The average value of waste per capita is approximately 0.26 kg per one day. Household waste is mostly organic matter. The content of plastics and paper is moderate and glass and metal content is low. Most of the collection vehicles need repair or to be replaced because many of them are inadequate for the purpose. The collected waste is often placed in open dumps which cause a negative influence on environment and human health. More than 13 % of households undertake home composting. But the majority of households dump the kitchen waste in the backyard or backyard pit. Then they burn the waste in their gardens or by the roadside, most of them do

it weekly. The households also use the paper and plastics burning as an igniting agent for firewood in the kitchen. The public awareness of the impact of burning plastics is very poor. There are also lots of dumpsites while approximately half of them are in the environmentally sensitive areas like wetlands, marches or beaches, close to water bodies and close to residential houses or public institutions. The practice of collecting waste and composting is first sorting for composting, plastic and glass is cleaned for recycling, hard organic waste just like coconut shells and tree branches are sun-dried and sold as firewood. After these there is a 5 % residue of no value which is openly dumped (Vidanaarachchi *et al.*, 2006).

2.2.3 DEMOCRATIC REPUBLIC OF THE CONGO

Figure 10: DR Congo on the map of Africa

(Maps Google, 2013)

Figure 11: Flag of Democratic Republic of the Congo

(Encyclopædia Britannica, 2014)

The Democratic Republic of the Congo, also known as Zaire (Figure 10), with the capital Kinshasa, belongs to the countries with the largest rain forests and richest mineral reserves of Central Africa (Heale and Yong, 2010). The star on the flag (Figure 11) symbolizes a shining light in the "Dark Continent" (Encyclopædia Britannica, 2014). There are more than 250 ethnic groups and dialects with different cultural traditions in the Democratic Republic of the Congo (UNICEF, 2012).

One-tenth of the country is unihabitated. DR Congo is rich in vegetation and wildlife and contains a valuable hardwood timbers, rubber and fruit trees like bannanas and coconut palms. There are many rivers with a lot of fish (Heale and Yong, 2010). Congo is home to many endangered species such as forest elephants, Congo peacocks or gorillas (Oppong and Woodruff, 2007).

The climate is tropical, characterized by being hot and humid. Forests and woodlands cover more than 50 percent of the territory, 10 percent is devoted to pasture but only 3 percent of the land is devoted to crop cultivation. The soils of the Congo River Basin area are moderately fertile and poor for agriculture but rich in game and fish potential. The most fertile are the soils of the highland and savannas. Among the greatest natural resources are cobalt, diamond (Kisangani and Bobb, 2010), gold and silver. Others are energy sources like petroleum, coal and uranium. Agriculture is still the largest contributor to the Congolese gross domestic product. Despite the abundance of natural resources, the country is poor and belongs to life-support programs, caused by colonial exploitation in history and Africa's wars with neighboring countries causing plundering a

natural wealth of the Congolese. The natural environment has to face the problems of deforestation, water pollution, poaching and mineral resources stripping (Oppong and Woodruff, 2007).

2.2.3.1 EDUCATION

The education is governed by the framework law on national education from 22th September 1986. Under this framework law, education is compulsory at the primary level. Because repetition is allowed once during a given level of education and that primary education has three degrees, compulsory education covers the period from 6 to 15 years. The legal framework also includes some important regulations governing the national education (UNESCO-IBE, 2010).

The primary education is compulsory for children from 6 to 12 years and is finished by Certificat d'Etudes primaires which allows access to secondary education. Secondary education takes five to six years. The technical education lasts six years and is finished by Diplôme d'Etat which allows access to higher education. The five years cycle of secondary education is technical or vocational training of trade and craft (Sarua, 2014).

2.2.3.2 STATISTICS OF EDUCATION

The statistics from the years 2006 to 2007 have shown that the net enrolment in primary education was 76.6% of boys and 75.7% of girls. That means that 48% of children in the age of compulsory enrolment do not attend any school. Less then 25% of children reach the fifth grade. The average repetiton rate is about 15.9%. The completion rate is 67.8%. Illiteracy of Congolese adults was 33.3% percent in 2000 and it affected more women then men (Afrimap, 2010).

According to data from 1999, 64% of primary age children were out of school. The data from 2011 shows that enrolment of children in pre-primary education was 18%, 105% in primary education, but only 43% in secondary education and 8% in tertiary education. The percentage of repeaters in primary school was 12% and survival to grade 5 was 74% of children. The pupil teacher ratio in the primary stage was 37:1. The literacy rates were 61.2% in adults and 65.8% in youth from 15 to 24 years in 2007 (UNESCO Institute for Statistics, 2011).

The primary completion rate (Figure 12) are all new entrants in the last grade of primary education. The numbers above the line is a percentage of children which may exceed 100 % because of over and under-aged children (World Bank, 2011).

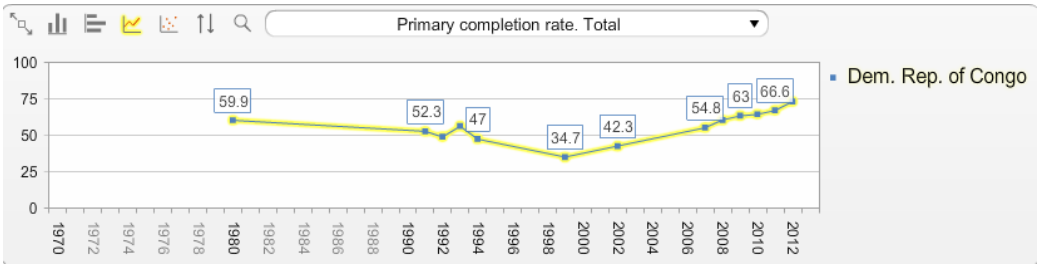


Figure 12: Primary completion rate in Democratic Republic of Congo

(World Bank, 2011)

2.2.3.3 HISTORY OF EDUCATION

There are two historical periods of the education: the colonial and the post-colonial period.

I. COLONIAL PERIOD - BEFORE INDEPENDENCE

The Belgian colony brought the education system in the form of mass education shortly after entering Congo around 1906. It was a form of Evangelization established by the Belgian missionaries to teach blacks to read and write. The interest of the gospel was to remove the diversity of small statuettes of gods found in Africa and believe in one God, Jesus Christ (Ministère de l'Enseignement Primaire Secondaire et Professionnel, 2014).

In 1926, the education system became slowly transformed into learning centers.There are on one side women for home education and on the other men for training of profesionalization. Around 1930, the first convention appeared, between the Belgian State and the Protestant and Catholic Churches, missions have already acquired a great impact on the field of indigenous education. The province of Bas - Congo had the largest number of learning centers and businesses, because the explorers and settlers entered the Belgian Congo by the mouth of the Congo River over there by canoe missions. Between 1935 and 1940, several centers, homes and businesses were transformed into craft trade and higher education schools. Some of the schools have a low number of attendants and therefore were allowed to implement Congolese youth with free education. Congo became independent in 1960 (Ministère de l'Enseignement Primaire Secondaire et Professionnel, 2014).

II . POST-COLONIAL PERIOD - AFTER INDEPENDENCE

From 1960 to 1971, the policy of education was almost the same with a common characteristic, the subdivision of the state schools and the education of children and teachers in full charge of the State. As a result, the credibility of the teacher and the quality

of teaching were very good. During these years there were many changes in management of education (Ministère de l'Enseignement Primaire Secondaire et Professionnel, 2014).

In the years 1960-1961 there was transformation in the fundamental teaching of primary education and the average degree in secondary education, tuition fees for Congolese youth and teachers in charge of the State, all schools were subsidized by the state and there were many pilot schools constructed. In the years 1961-1971 there was already free education for young Congolese and teachers paid by government. Since 1972 free education was provided to Congolese children at the primary level and parents paid for the education at the secondary level, the teachers were still supported by State. In 1986 a new framework law on education was enacted. Its primary goal was to ensure a National Education which aims to address both the concerns of parents and the state. It is a tool and a legal framework valid in the present day (Ministère de l'Enseignement Primaire Secondaire et Professionnel, 2014).

School reform in 1991 resulted professionalization of teaching by introducing new techniques in the national curriculum: Food industry and clothing, joinery, Cold, Forestry, Masonry , Carpentry, Agricultural Educational, Agricultural Veterinary and others. And the following year lead to rising numbers of private and public schools in the national territory. Between the years 1994-1996 started supporting of education by UNESCO programmes, education became top priority and began education to human and moral values. In the years 2001-2003 were implemented state exams and the fund of social assistance for National Education was created (Ministère de l'Enseignement Primaire Secondaire et Professionnel, 2014).

2.2.3.4 SYSTEM OF EDUCATION

2.2.3.4.1 Pre-primary education

The pre-primary education is organized in a three-year cycle (levels 1, 2 and 3). It is optional. It is run largely by the private sector and include children of age 3 to 5 years. The school year lasts 210 days. This level of education is for ensuring the development of the child´s personality in harmony with the family and social environment. It substantially contributes sensory, motor and social education of the child. There are two types of pre-primary education: formal type of education in nursery schools and non-formal education promoting the holistic development of the child, taking into account all its dimensions: cognitive, psychological, nutritional, health and welfare. Organisation and operation of

pre-primary education is based on community cohesion and traditional practices, especially in matters of health care in early childhood, which is useful to a good start in life and dealing with other levels of primary education with a high chance to succeed. The national program for nursery education, levels 1, 2 and 3, is for young children from 3, 4 and 5 years old and includes concepts related to education about health, nutrition, the protection of hygiene, water and sanitation. It is skill-based approach foccusin on mobilization of knowledges, know-how and using of external resources to effectively solve problems. It also includes developing childhood social and interpersonal skills (UNESCO-IBE, 2010).

The children in pre-primary education learn to exchange information with others in communication situations, to take care of their body by the activities of hygiene, nutrition and disease prevention, to develop intellectual skills like imagination, judgment or creativity by individual and collective activities, to manipulate objects in specific situations of everyday life and to show the aesthetic and rhytmic skills through musical and visual activities (UNESCO-IBE, 2010).

2.2.3.4.2 Primary education

Primary education has the objective to prepare the child for life by providing a first level of general education, physical, civic, moral, intellectual and social. About two-thirds of public education institutions run by religious denominations (Catholic, Protestant, Kimbanguists or Islamic schools). This level of education is organized in a cycle of six years divided into three stages of two years each. The school year lasts 210 days. The age of admission is 6 years, the children older then 9 yeare cannot be admited to the first grade. Primary education is finished by an examination test at the end of primary schooling. At the end of primary school, the children acquire basic education such as writing, reading, calculating, understanding and expressing themselves in the Congolese and French language, the behaviour and attitudes that develop intellectual, moral, social and physical skills. The languages used at primary level include national languages such as Lingala, Kikingo, Kiswahili and Tshiluba as well as the local language and French. The national curriculum determine national and native language medium from the first to the fourth grade and French medium in the fift and sixth year with national or native language is taught as a branch (UNESCO-IBE, 2010).

The knowledges and skill that students acquire in primary education are devided into three groups. Group 1 is instrumental field building knowledges of Congolese and

French language, reasoning, memory and math. Group 2 includes scientific activities with moral, civic, health and environemental education but also history, geography and natural sciences. Group 3 containing aesthetic activities, drawing, calligraphy, singing and music, sport and physical education and handwork (UNESCO-IBE, 2010).

2.2.3.4.3 Secondary education

In secondary education children acquire the general knowledges, develop critical thinking, creativity and intellectual curiosity. The school year lasts 220 days and all the courses are in French only. There are four cycles of the secondary education. The long cycle also called humanities takes six years and gives access to higher and university education. This cycle offers three types of education, the first is general education, which includes the first two years of undergraduate school, as well as scientific and literary sections, the second is teacher training and education physical, and the third is technical education which includes industrial, commercial and social sections. The general education, technical and teaching is finished by the state examination and diploma, which include oral and written tests with a French essay. The cycle of Vocational Specialization takes one or two years. The cycle of arts and crafts lasts for a period of one to three years. Professional cycle lasts four to five years leading to certificate of professional competence (UNESCO-IBE, 2010).

2.2.3.4.4 Higher education

Higher education includes technical and pedagogical institutes and universities. Training duration is three years at the first cycle and two years (three for medicine students) at the sekond cycle finished by diploma licence. The third cycle of training leads to a diploma of higher education after two years of study. The duration of postgraduate training culminating in a doctorate normally varies between five and seven years. Academic year duration is thirty weeks of classes divided into two equal semesters (UNESCO-IBE, 2010).

2.2.3.5 FINANCING

There is an extreme disparity between financial resources and employed personnel in educational system of DR Congo. The education sector recently represents only about 6% of total expenditure and the financing is getting more and more difficult. The Central

Bank of the Congo indicated that the spenging on education was over 20% in 1960s and 1970s but it was rarely 1% in 1990s. The expenditures vere drastically reduced and is still decreasing. The disparity leads to higher finance comsumption in primary and secondary education then in higher and university education because almost all expenditure is devoted to salaries of the increasing number of teachers (Afrimap, 2010).

2.2.3.6 PROBLEMS IN EDUCATION

Due to the the poor sanitation and disrupted health services, the people face the threat of a serious diseases such as AIDS, hepatitis, typhoid fever, malaria, plague or African sleeping sickness.(Oppong and Woodruff, 2007).

There is an inequitable access to quality eduction in conflict and post-conflict communities. Also inequity in access to land and natural resources negatively impacts parents' ability to handle the direct and indirect costs of education of their children and to access other basic social services. There is a lack of social cohesion due to the inter-ethnic and tribal conflicts. There are many other problems just like poor governance, ignorance of laws and many conflicts between the local authorities and land owners. These conflicts are closely linked to poverty and unemployment. The children are often exploited and even sexually abused. The lack of equity education is caused by poor access to quality education and school fees. Major barrier remains the inadequacies in policy on local languages (UNICEF, 2012).

2.2.3.7 PROTECTED AREAS

DRC has a great biodiversity and wide range of ecosysems such as Congo Basin, where is the second lagest tropical forest, just after Amazon. Protected areas cover 8% land of the country. There are seven National Parks (Figure 13), Reserves and Hunting Reserves (Parks, 2014). Among the World Heritage Site belong Garamba National Park with extensive grasslands where are found mostly elephants and giraffes. National Park garamba belongs to conservation program as well as National Parks Kahuzi-Biega and Maiko which are foccussed on gorrillas conservation (Fauna & Flora International, 2014).

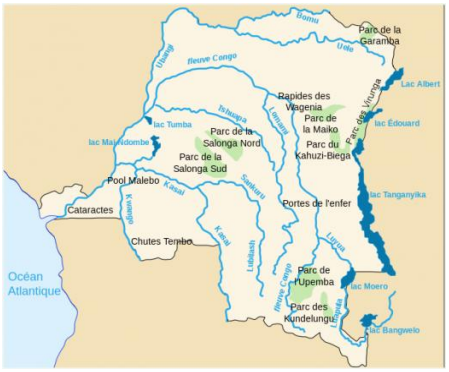


Figure 13: Map of protected areas in DR Congo

(The Observers, 2012)

2.2.3.8 WASTE MANAGEMENT

There are no functioning systems for sewage in DR Congo and the waste often block the rainwater channels. The big problem are agricultural waste such as waste products from sugar production. Most of the waste is disposed or destroyed by uncontrolled burning in the fields. The amount of recycled agricultural waste is low as much as the knowledge about the impact of disposal or even burning of hazardous wastes. Waste from the small household livestock units is often left unutilized and by that it is harmful to the environment and has impact to the health of people (UNEP, 2013).

3 AIMS

The aim of this thesis was to assess the level of environmental education and the differences of knowledge and attitudes in the selected countries, and between individual schools within those countries.

Particular aims were:

1) to evaluate the effect of following factors on the children environmental knowledge:

a) age
b) gender
c) grade
d) favourite natural science subject
e) school
f) village

2) to analyze differences in the level of environmental knowledge and attitudes amongst the individual countries.

a) influence of the country on the overall result
b) influence of the country on each question

4 METHODOLOGY

4.1 Creating of questionnaires

The questionnaires were originally created within project supporting national parks and nature reserves in Senegal and conservation of critically endangered Western Derby eland (*Taurotragus derbianus derbianus*) (Vavroušová, 2009). After that survey of environmental knowledge spread out to many countries in Africa, Asia, and South America

The questionnaires were created to determine the environmental knowledge of children. The questionnaires were translated into the language of the respondents. Each questionnaire contains a table to fill in their name, gender, age, school, class and habitation. Eight simple questions with a place to fill in the answer were then created. An example of the filled in questionnaire is in Appendix 1.

4.2 Description of questions

Question number 1:

Write 4-5 wild animals which live in your country

The correct answer was every animal which lives or has lived in the country and is not domestic (livestock). Domestic animals were considered as a wrong answer. Domesticated animals were also considered as domestic animals. The following animals answered in the questionnaires were considered domestic:

Guinea pig, horse, dog, cat, donkey, hen, cock, llama, alpaca, sheep, cow, pig, and chicken

Question number 2:

Do you know what protected areas are in your country? Write the names.

Protected areas are considered all National Parks, Nature Reserves, Sanctuaries, Reservations etc. If an answer was a correct name of the location without the name of the protected area, the answer was considered as correct. If the answered place has protection meaning for local people, the answer was considered as correct. All others were considered as not correct.

Question number 3:

Which endangered animals live in reservations?

The correct answer was every animal which is listed in the IUCN Red list as Critically endangered (CR), Endangered (EN), Vulnerable (VU) or Near threatened (NT) and lives in at least one of the reservations or National parks of the country. Animals were evaluated individualy according to actual Red List of Threatened Species and then the animals with CR, EN, VU or NT status were searched in reservations and national parks of the particular country.

Question number 4:

Why protect nature?

Evaluation of this question was meaningful or not (Yes/No). The answers which were not possible to read or did not relate to the question were considered as uncertain.

Question number 5:

Why keep the animals in reservations?

The purpose of this question was to detect if the respondent finds the animals in rezervation dangerous or endangered. The further reading of the answers in this question meant that the answers were evaluated and divided into opinions of dangerous, endangered, for love to animals and for agricultural use. If the answer did not correlate with any of those or did not make sense, was considered as uncertain. NB: This question was not asked in DR Congo.

Question number 6:

Is it good to have a forest close to the village? Why?

Evaluation was in two parts – positive or negative and if positive, why the forest can be good, what does it give us. We have chosen the most popular answers to include in the evaluation of the data statistics. Amongst the most frequent answers belong the reasons related to water, air, other sources (such as harvesting some plants etc.), wood and other reasons. The answers with arguments about both positive and negative were considered both together (Yes/No). The answers to questions with no definitive positive or negative opinion or no answers were considered as uncertain.

Question number 7:

What should we do with the garbage?

The correct answer was "to put in the bin, to put in its place, recycle or reuse". The answers saying what we should not do (such as – we should not put in the street) were considered with regard to sense and trueness of the answer as correct or not. The answers containing both correct and incorrect were evaluated as uncertain.

All other answers were considered as not correct.

Question number 8:

Do you like school? What is your favourite subject?

Evaluated in two categories - positive or negative attitude and if positive, what is the favourite subject. The favourite subject was evaluated as natural science (Yes or No).

No answers were considered as uncertain.

4.3 Countries/ Localities and selected schools

The study was conducted in three countries: Peru, Srí Lanka and Republic Democratic of Congo. These countries were chosen randomly, as the opportunity to conduct there such a study, because another working programme had been running there and Czech cooperating people had the access to local schools to collect data (to distribute and sample questionnaires).

4.3.1 Characteristics of selected schools in Peru

Questionnaires were translated into Spanish language by Ing. Karolína Brandlová, Ph.D. and collected by Ing. Dominika Drmelová from all four schools in four villages - Chivay, San Alejandro, Humboldt and San Francisco. Total number of respondents was 105 in age 9 – 13. The numbers of children in individual schools are seen in Table 1 below.

Table 1: Basic information about respondents from Peru

School	Maria Auxiliadora	Juan Edinson Bordoy Ruiz	Alexander von Humboldt	64098-B San Francisco	Total
Number of children	25	30	27	23	105
Average age ± SD	11.1 ± 0.5	10.3 ± 0.9	10.4 ± 0.9	10.7 ± 0.7	10.6 ± 0.8
Median age	11	10	10	11	11
Number of males	11	10	17	16	54
Number of females	14	20	10	7	51

4.3.1.1 Chivay

Figure 14: Chivay on the map of Peru
(Maps Google, 2013)

Chivay – The Maria Auxiliadora School

The school is located in the Ica region (Figure 14) which was affected by a big earthquake in 2007 and the school was heavily damaged. Because of the humanity program the environment of the school and education state could be improved more than before. The school (Figure 15) became bigger and got better equipment, mostly donated by Japan´s embassy (Architecture for humanity, 2010).

There are approximately 71 students in 4 classrooms with 4 teachers. Two grades are in one classroom what makes cca 18 children. Number of grades in the school is 6. Children attend school for 6 hours a day. They do not have any IT lessons because the equipment does not contain computers. There are interschool tournaments in football and volleyball, daytrips, plant gardening classes and afterschool activities. Academic activities include preparing for a national school tests (Architecture for humanity, 2010).

Figure 15: A girl in front of the school
(Architecture for humanity, 2010)

4.3.1.2 San Alejandro

Figure 16: Emblem of San Alejandro

(Municipalidad Distrital, 2011)

Figure 17: San Alejandro on the map of Peru

(Maps Google, 2013)

San Alejandro a city is located in the Irazola district, region of Ucayali (Figure 16 and 17). There is also a similarly named river San Alejandro with sandy beaches and natural pools with calm water. The colourful landscape has multicultural use and together with the mountains provides possibilities of agricultural production, especially cocoa, oil palm and livestock. The whole district is populated by various indigenous ethnic groups (Municipalidad Distrital, 2011).

San Alejandro - N 64027 JUAN EDINSON BORDOY RUIZ

Juan Edinson Bordoy Ruiz School underwent extensive renovation (Figure 18 and 19) this year and now it is a modern educational facility in San Alejandro, the capital of the Irazola district. It is a large complex owned by the Educational Institution No. 64027 "Juan Edinson Bordoy Ruiz", and consists of two buildings, 29 classrooms, laboratory physics, biology and chemistry, computer lab, administrative rooms, dining room, elevated tank, 2 bathrooms, courtyard, perimeter fence and these all conditioned on 40 thousand square meters (Municipalidad Distrital, 2011).

Figure 18: Renovation of the school

(Facebook, 2014)

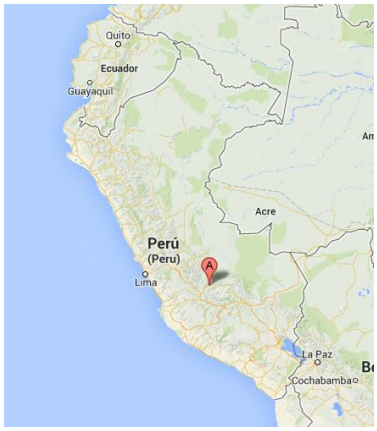
Figure 19: Renovated school

(Facebook, 2014)

4.3.1.3 Humboldt – 64723 Alexander von Humboldt

Alexander von Humboldt is a public elementary school in the urban area for both, girls and boys (DePeru, 2014).

4.3.1.4 San Francisco



64098 – B School

San Francisco (Figure 20) is a capital of the province of Ayacucho. It is also known as eyebrow of Ayacucho rainforest or like the city of churches. It is famous for the rich fauna and flora which reveals to the tropical area (Voces de Ayacucho, 2014).

Figure 20: San Francisco on the map of Peru

(Maps Google, 2014)

4.3.2 Characteristics of selected schools in Sri Lanka

Questionnaires were in English language collected by Ing. Pavlína Kozelková from all four schools in village Batticaloa. Total number of respondents was 40 in age 10 – 12. The numbers of children in individual schools are seen in Table 2 below.

Table 2: Basic information about respondents from Sri Lanka

School	St. Anne's Tamil school	Hindu College	St. Cecilia´s Girls School	Vipulananda Vidyalayam Kallady	Total
Number of children	10	10	10	10	40
Average age ± SD	10 ± 0.0	11 ± 0.5	10 ± 0.0	10 ± 0.0	10.3 ± 0.5
Median age	10	11	10	10	10
Grade	5	6	5	5	
Number of males	7	10	0	3	20
Number of females	3	0	10	7	20

4.3.2.1 Batticaloa

Figure 21: Batticaloa district in the map of Sri Lanka
(Wikimedia, 2013)

Batticaloa is a coastal district (Figure 21) with the same named capital city. The majority of people are of the Tamil ethnic group. There are about 323 primary and secondary schools. Most of the area was highly affected by the tsunami in 2004. 12 schools were destroyed and 25 were severely damaged. It had a high impact on the lives of the people. The wells were contaminated, toilets destroyed and people lost their homes or even lives (UNICEF, 2006). Climate disaster like this has a high negative impact on the agriculture, fishing and tourism (World Food Programme, 2009).

Batticaloa consists of plains and alluvial flats watered by rivers from the mountain zone but it is a dry zone district without river really flowing through, all streams are just welling in the dry zone flowing to lagoons or sea. The livelihood in Batticaloa is based mainly on Agriculture and Fishing. The only higher education centre in the district is The University of Eastern with faculties of Agriculture, Science, Commerce and Arts (Consortium of Humanitarian Agencies, 2004).

Hindu College

Figure 22: Hindu College
(Batticaloa Information Directory, 2013)

Hindu College (Figure 22) is a famous school with a long history in Batticaloa. There are classes of Grade 1 to Grade 13, containing streams of Arts, Commerce and Science & Maths. There is about 1200 students, 63 teachers and 7 supporting staff (Batticaloa Information Directory, 2013). Hindu College has Tamil medium of instruction. The college offers also bilingual classes beginning from the Grade 6 to Grade 11. The school is provincial and follows government educational policy. There are admissions of students at 3 levels, for the Grade 1 is selected about 90 students, next admissions are for the Grade 6 to 11 and the last at Grade 12 (Hindu College, 2013).

St. Anne's Tamil school is a provincial school in Batticaloa district.

St. Vipulananda Vithiyalayam Kallady is a national school in Batticaloa district.

St. Cecilia´s Girls School

Figure 23: St. Cecilia's school
(Abdf, 2014)

St. Cecilia's School (Figure 23) is the oldest girls' school in Batticaloa District. The capacity is about 2100 students. The school is run by nuns under the auspices of the Catholic Church, but it accepts students of any religion and offers them religious instruction according to their confessions and there is no attempt of converting the students. The school celebrates all attendant´s religious holidays. Classes are given in Tamil medium instruction until 2003, then the government mandated providing the option of English medium instruction (Abdf, 2014).

4.3.3 Characteristics of selected schools in DR Congo

Questionnaires were translated into French language by Doc. RNDr. Pavla Hejcmanová, Ph.D. and collected by Ing. Markéta Antonínova, PhD. from all five schools in five villages of Orientale province, Nasala, Gangala, Faradje, Djabir and Aba. Total number of respondents was 50 in age 10 – 12. The numbers of children in individual schools are seen in Table 3 below.

Table 3: Basic information about respondents from DR Congo

Village	Nasala	Gangala	Faradje	Djabir	Aba	Total
Number of children	10	10	10	10	10	50
Average age ± SD	11.7 ± 0.5	11.2 ± 0.9	11 ± 0.9	11 ± 0.8	11 ± 0.8	11.2 ± 0.8
Median age	12	11.5	11	11	11	11
Grade	4, 5, 6	4, 5, 6	4, 5, 6	4, 5, 6	4, 5, 6	

4.3.3.1 Orientale province

Half of the area of Orientale province (Figure 24) is occupied by equatorial forest, which is characterized by its remoteness, low population density and the presence of four national parks on its territory. The most famous is Garamba Park and Park Maiko. Province was indeed among the provinces worst affected by the armed conflicts that have devastated the country between 1998 and 2003. (Tourisme, 2014).

Figure 24: Province Orientale on the map of DR Congo
(Wikipedia, 2011)

4.4 Questionnaires collection

In all schools, the same procedure was used. Questionnaires were distributed to children by the project partner in cooperation with teacher. Teachers could help but could not give examples. Project partner was present within the period of filling and then collected filled questionnaires. The time for filling the questionnaires was not limited. Children were informed about participation in survey and the fact that it is not classified test but they may write what they consider correct even if it was not learned at school.

There were in total 40 questionnaires from Sri Lanka evaluated, 105 from Peru and 50 from Democratic Republic of the Congo.

4.5 Evaluation of questionnaires using a scoring system

All the data from the questionnaires was written into the Excel program and for better comparison of the respondent's answers following scoring system evaluating each question and each pupil individually was created.

Question n. 1:

Write 4-5 wild animals which live in your country

In this question the pupils could get 0 – 5 points according to a number of correctly answered animals.

Question n. 2:

Do you know what protected areas are in your country? Write the names.

In this question the pupils could get 0 – x points according to a number of correctly written places.

Question n. 3:

Which endangered animals live in reservations?

In this question the pupils could get 0 – x points according to a number of correct answers.

Question n. 4:

Why protect nature?

All true statements were accepted. Accepted was noted as Yes – correct (1 point), No (0 point), and the uncertain or no answers (0 point).

Question n. 5:

Why keep the animals in reservations?

The dividing of answers into dangerous (2 points), endangered (3 points), loved animals (2 points), other reasons and uncertain answers (1 point) and no answer (0 point).

Question n. 6:

Is it good to have a forest close to the village? Why?

Firstly it was evaluated wheather it is good or not to have the forest close to the village. If the answer was positive (3 points), negative (1 point), both positive and negative (Yes/No ment 2 points), uncertain answer (0 point). If the respondent mentioned as reason wood (1 point), other source (1 point), water (1 point), air (1 point). If there was another reason (1 point), no other reason (0 point). Maximum possible reach was 8 points.

Question n. 7:

What should we do with the garbage?

The correct answers were evaluated by 2 points, uncertain answers 1 point and incorrect answers 0 points.

Question n. 8:

Do you like school? What is your favourite subject?

Positive answer for the first part of the question meant 1 point, negative 0 point. The favourite subject was evaluated in the second part of the question. The natural science subject was evaluated by 1 point, other subjects as 0 point. Natural science subjects include subjects related with biology, chemistry, physics and earth sciences.

4.6 Data analyses

For the statistical data evaluation the program Statistica 12 was used.

Every single question from the questionnaires was evaluated separately. Answers which had no sense, did not relate to question or were not possible to read were defined as uncertain and eliminated from the analyses.

The data were in the form of numerical scores on a small scale, hence the non parametric tests were used for statiscital analyses. The effect of age, gender, particular school and countries were analysed by non parametric Kruskal-Wallis test followed by multiple range comparisons of mean ranks, or by non parametric Mann-Whitney U test where applicable. All these analyses were performed separately.

5 RESULTS

5.1 PERU

Peru questionnaires were answered by respondents from four different schools. The average points per student were 16.0 ± 3.9 SD and median 16 with the fifth question included and 13.9 ± 3.5 SD and median 14 without the fifth question.

Question n. 1: Write 4-5 wild animals which live in your country

The average points per one student from Peru for this question were 2.7 ± 1.3 SD. Number of points was not influenced by age, gender and favourite natural science subject of children (in all analyses $p>0.05$) but the difference among four studied schools in number of points in question 1 was statistically significant ($H_{(3,N=105)}=17.37$, $p< 0.0007$), see the Figure 25.

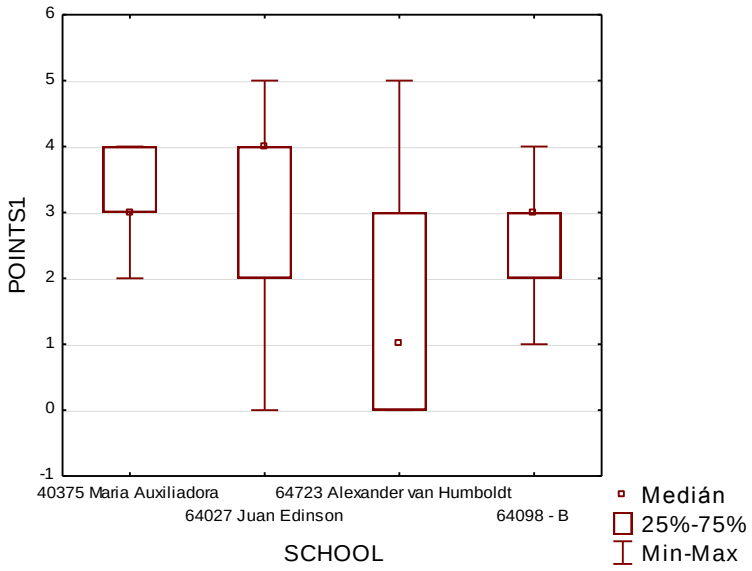


Figure 25: Influence of school on points in the first question

Maria Auxiliadora school answers contained in total 16 different animals. The most frequent correct answers were viscacha (23), fox (22) and condor (16). Total points of Maria Auxiliadora school for this question were 81 which is 64.8 % of maximum possible points. From all the answers were as domestic animals considered domestic animals like horse and sheep but also domesticated animals like llama and alpaca.

Juan Edinson Bordoy Ruiz school answers cointained in total 36 different animals and 3 answers were uncertain. The most frequent correct answers were deer (9) and puma

(9). Total points of Juan Edinson Bordoy Ruiz school for this question was 96 which is 20 % of maximum possible points. As domestic animals were considered domestic animals like cow, dog and cock but also domesticated animals like llama and alpaca.

Alexander von Humboldt school answers contained in total 28 different animals and 2 respondents did not answer. The most frequent correctly answered animals were collared peccary (9), parrot (7) and deer (7). Total points of Alexander von Humboldt school for this question was 49 which is 20 % of maximum possible points. As domestic animals were considered domestic animals like dog, cat, cow, sheep, cock, pig, chicken, hen and donkey but also domesticated animals like guinea pig.

64098 – B school in San Francisco contained in total 17 different animals in the answers. The most frequent correctly answered animals were deer (14), snake (12) and capybara (11). Total points of 64098 – B school in San Francisco for this question was 61 which is 20 % of maximum possible points. As domestic animals were considered animals such as cow, horse, donkey, cat and dog.

Question n. 2: Do you know what protected areas are in your country?

The average points per one student from Peru for this question were 1.1 ± 1.3 SD. Number of points was not influenced by age, gender and favourite natural science subject of children (in all analyses $p>0.05$) but the difference among four studied schools in number of points in question 2 was statistically significant ($H_{(3,N=105)}=52.28$, $p < 0.00001$), in Figure 26.

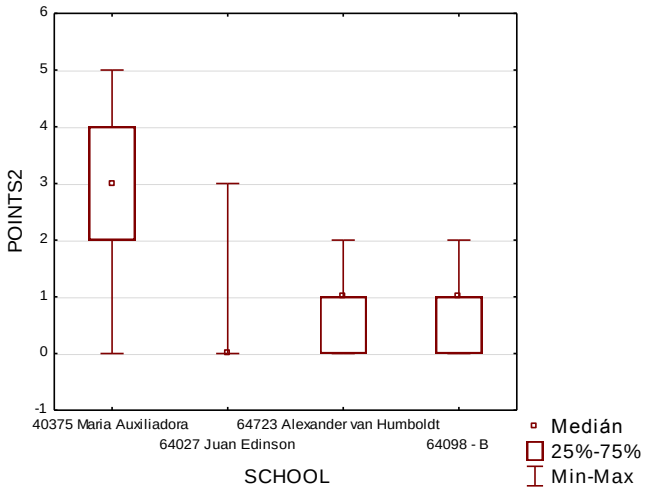


Figure 26: Influence of school on points in the second question

The respondents in Maria Auxiliadora school answered 9 different protected areas and two answers were uncertain. The most frequently answered protected areas were Patahuasi (16), Pampa Canahuas (15) and Parque Nacional del Manu (13). The average points per one student of Maria Auxiliadora school in this question was 2.8 ± 1.2 SD.

In answers of Juan Edinson Bordoy Ruiz school there were 5 different protected areas, 9 answers were uncertain and 15 questioned did not answer. The most frequently answered protected areas were Parque Nacional del Manu (4), Tingo Maria (3) and Pacaya – Samiria (2). The average points per one student of Juan Edinson Bordoy Ruiz school in this question were 0.4 ± 0.9 SD.

Alexander von Humboldt school respondents had in their answers 4 different protected areas, 7 answers were uncertain and 5 children did not answer. The most frequent correct answer was Parque Nacional del Manu (12). The average points per one student of Alexander von Humboldt school in this question were 0.6 ± 0.6 SD.

In answers of students from 64098 – B school in San Francisco was 2 different protected areas, 4 answers were uncertain or not correct. The correct answers were Reserva Nacional de Tambopata Vandami (9) and Parque Nacional del Manu (5). The average points per one student of 64098 – B school in San Francisco for this question were 0.6 ± 0.7 SD.

Question n. 3: Which endangered animals live in reservations?

The average points per one student from Peru for this question were 2.1 ± 1.7 SD. Number of points was not influenced by age, gender and favourite natural science subject of children (in all analyses $p>0.05$) but the difference among four studied schools (Figure 27) in number of points in question 3 was statistically significant ($H_{(3,N=105)}=62.62$, $p < 0.00001$).

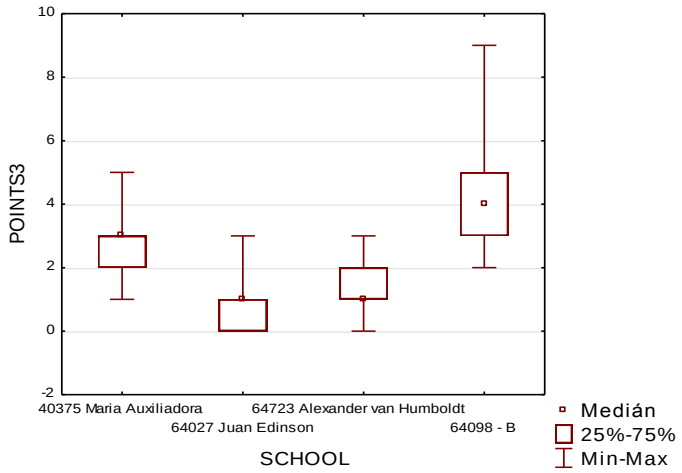


Figure 27: Influence of school on points in the third question

The correct answers in Maria Auxiliadora school contained 15 different animals but only 7 of them with IUCN CR, EN, VU or NT status. The most frequent correct answers were toad (24), deer (17) and fox (9). The average points per one student of Maria Auxiliadora school in this question were 2.7 ± 1.1 SD.

The correct answers in Juan Edinson Bordoy Ruiz school contained 20 different animals but only 10 of them with IUCN CR, EN, VU or NT status. The most frequent correct answers were deer (7) and armadillo (6). The average points per one student of Juan Edinson Bordoy Ruiz school in this question were 0.8 ±0.9 SD.

The correct answers in Alexander von Humboldt school contained 26 animals but only 6 of them with IUCN CR, EN, VU or NT status. The most frequent correct answers were deer (9), macaw (8) and parrot (6). Total points of Alexander von Humboldt school for this question was 1.4 ± 0.9 SD.

The correct answers in 64098 – B school in San Francisco contained 35 different animals but only 18 of them with IUCN CR, EN, VU or NT status. The most frequent correct answers were dog (19), cat (18) and fox (11).). Total points of 64098 – B school in San Francisco for this question was 4 ± 1.6 SD.

Question n. 4: Why protect nature?

The average points per one student from Peru for this question were 0.9 ± 0.3 SD. Number of points was not influenced by age, gender, favourite natural science subject and by school (in all analyses $p>0.05$). The differences were not statisficaly significant.

Correct and sensible answers made up 24 respondents from Maria Auxiliadora school (96%) with various reasons (such as animals gives us joy and food, nature gives us

life, to care more about animals, 1 respondent – global warming), 29 respondents from Juan Edinson Bordoy Ruiz school (96.6%) with the most frequen answer of clean purified air, 25 respondents from Alexander von Humboldt school (92.6%) with the most frequent answers were about water, air and 2 children wrote about ozon layer, and 20 respondents from 64098 – B school in San Francisco (86.96%) with the most frequent answer – prevention and facing to diseases.

Question n. 5: Why keep the animals in reservations?

The average points per one student from Peru for this question were 2.1 ± 0.98 SD. Number of points was not influenced by age, gender and favourite natural science subject of children (in all analyses $p>0.05$) but the difference among four studied schools (Figure 28) in number of points in question 5 was statistically significant ($H_{(3,N=105)}=36.50$, $p< 0.00001$).

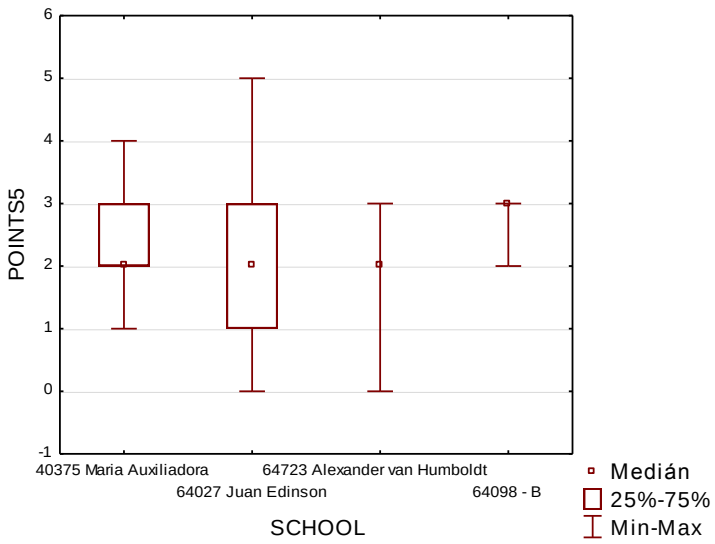


Figure 28: Influence of school on points in the fifth question

There was no respondent from Maria Auxiliara school who think that animals are dangerous. 12 children found the best reason is the agriculture use of animals, 6 children like the animals as living beings and 5 children thinks the reason is that the animals are endangered. The average points per one student were 2.3 ± 0.7 SD.

Juan Edinson school had a children who mostly love the animals or they thing they have the right to live (9), 8 children answered that the reason are the endangered animals, for 2 children the animals might be dangerous and 1 child answered the agricultural use of

the animal. 7 children did not answer and 6 answers were uncertain. The average points per one student were 1.7 ± 1.3 SD.

Majority of the children in Alexander von Humboldt school answered as reason a love to animals or right to live for them (16). 2 children answed that the animals are dangerous, 1 child anwered endangered situation of the animals and 2 children agricultural use. 3 children did not answer this question and 3 answers were uncertain. The average points per one student were 1.7 ± 0.7 SD.

21 children from the school 64098 – B school in San Francisco answered that the animals are endangered, 1 child answered the right to live and 1 child agricultural use of the animals. The average points per one student were 2.9 ± 0.3 SD.

The reasons of all respondents from Peru were 33.3% of anwers for keeping endangered animals, 30.48% of answers for a good relationship to animals and right to live for them, 18.1% of answers for agricultural use and 3.81% of answers for dangerousness of animals.

Question n. 6: Is it good to have a forest close to the village? Why?

The average points per one student from Peru for this question were 3.6 ± 1.1 SD. Number of points was not influenced by age, gender and favourite natural science subject of children (in all analyses $p>0.05$) but the difference among four studied schools in number of points in question 6 was statistically significant ($H_{(3,N=105)}=8.94$, $p < 0.05$), see the figure 29.

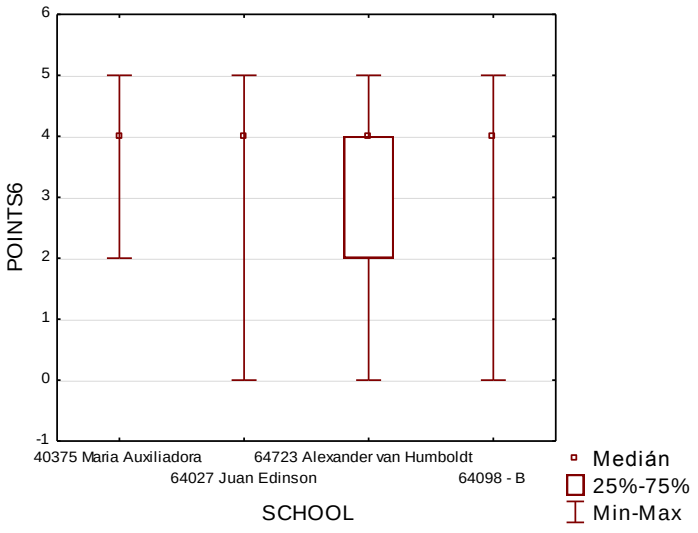


Figure 29: Influence of school on points in the sixth question

The positive sensfull answers had 20 respondents from Maria Auxiliadora school (80%) where half of all children had the reason of trees producing oxygen, 25 respondents from Juan Edinson Bordoy Ruiz school (83.3%) where most often answer was reason of fresh unpolluted air, 20 respondents from Alexander von Humboldt school (74.07%) where the most frequent answer was again fresh air, and 22 respondents from 64098 – B school in San Francisco (95.65%) with the most frequent reason of sun and disease protection.

The negative sensfull answers had 3 responents from Maria Auxiliadora school (2.86%) with the reason that the cities around pollute the forests by emisions and garbage, 3 respondents from Juan Edinson Bordoy Ruiz school (10%) for the reason of danger for the livestock, 3 respondents from Alexander von Humboldt school (11.1%) for the reason of dangerous wild animals and because it is dangerous to get lost. There were no respondents from 64098 – B school in San Francisco with negative sensfull answer.

Two respondents from Maria Auxiliadora school answered both positive and negative with a meaningfull sense. The uncertain answers had 2 respondents from Juan Edinson Bordoy Ruiz school, 4 respondents from Alexander von Humboldt school and 1 respondents from 64098 – B school in San Francisco.

Question n. 7: What should we do with the garbage?

The average points per one student from Peru for this question were 1.8 ± 0.7 SD. Number of points was not influenced by age, gender, favourite natural science subject and by school (in all analyses $p>0.05$). The differences were not statisficaly significant.

All the children from Maria Auxiliadora school answered correct. 17 (68%) of 25 answered recycle and the rest 8 (32%) answered to put in the bin. 26 children from Juan Edinson Bordoy Ruiz school answered correctly (86.7%) where 21 (70%) answered to throw in the trash and just 2 (6.7%) would recycle and 3 children had wrong answers (10%) and one answer was uncertain. The answers in Alexander von Humboldt school were correct in 22 respondents (81.5%), 13 (48%) of 27 answered to put in the bin and 4 (14.8%) would recycle, wrong answer had 4 respondents (14.8%) and one answer was uncertain. The respondents from 64098 – B school in San Francisco were correct in 18 answers (78.3%) where 13 (56.5%) answered to put in its place and 5 (21.7%) to not put on the street and wrong in 5 answers (21.7%).

Question n. 8: Do you like school? What is your favourite subject?

The average points per one student from Peru for this question were 1.8 ± 0.5 SD. Number of total points was not influenced by gender, age, school and favourite natural science subject of children (in all analyses $p>0.05$).

All the respondents in Peru like the school except one child who did not fill the answer. The favourite natural science subject had 20 respondents from Maria Auxiliadora school (80%), 21 respondents from Juan Edinson Bordoy Ruiz school (70%), 22 respondents from Alexander von Humboldt school (81.48%) and 18 respondents from 64098 – B school in San Francisco (78.26%).

Total points

Number of total points in Peru was not influenced by gender and age (in all analyses $p>0.05$) but was influenced by village ($H_{(3,N=105)}=64.68$, $p < 0.05$) and by school ($H_{(3,N=105)}= 64.68$, $p < 0.0001$) where the results shown the same results as with villages. Children from Chivay (Maria Auxiliadora school) reached significantly higher number of points then children from San Alejandro (Juan Edinson school) and Humboldt (Alexander van Humboldt), while Chivay (Maria Auxiliadora school) and San Francisco (64098 – B school) did not differ as well as San Alejandro (Juan Edinson school) and Humboldt (Alexander van Humboldt school) did not differ, see the Figure 30 (here schools fully correspond with villages).

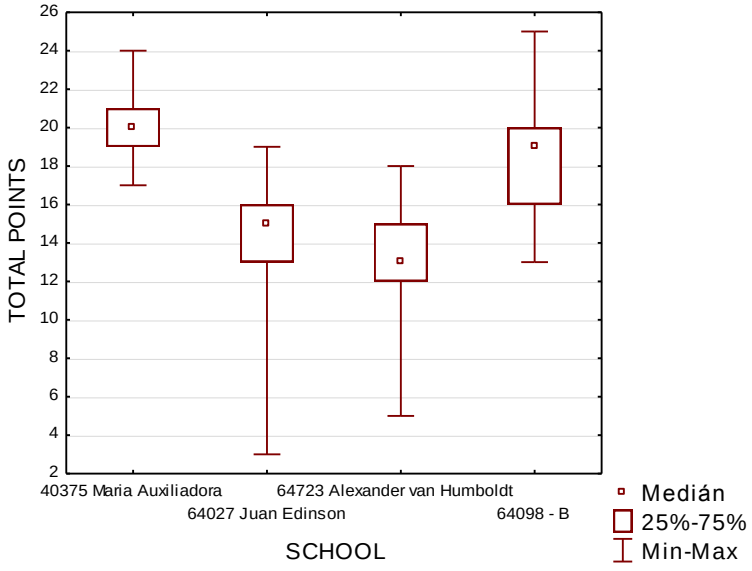


Figure 30: Influence of school on total points

5.2 SRI LANKA

In Sri Lanka, questionnaires were answered by respondents from four different schools. Average points per one student were 17.28 ± 2.6 SD and median 17 with the question 5 and 15.1 ± 2.2 SD and median 15 without the results of fifth question.

Question n. 1: Write 4-5 wild animals which live in your country

The average points per one student of Sri Lanka for this question were 3.4 ± 0.8 SD. Number of points in question 1 was not influenced by age, gender, grade, favourite natural science subject and school (in all analyses $p>0.05$).

Answers of respondents from St. Anne's Tamil school contained in total 8 different animals. The most frequent correct answers were monkey (9), fox (9) and elephant (5). Total points of St. Anne's Tamil school for this question was 31 which is 62 % of maximum possible points. The animals considered from the answers like domestic were horse, cat, dog and cow.

There were 9 different animals in all the answers of respondents from Hindu College. The most frequent correct answers were bear (9), elephant (8) and leopard (5). Total points of Hindu College for this question were 36 which is 72 % of maximum possible points. As domestic animals were considered horse, cat, dog and cow.

St. Cecilia´s Girls School answers contained in total 11 different animals. The most frequent correct answers were monkey (8), deer (7), elephant (6) and tiger (6). Total points of St. Cecilia´s Girls School for this question were 35 which is 70 % of maximum possible points. As domestic animals were considered horse, cat, dog and cow.

The answers of Vipulananda Vidyalayam Kallady school contained in total 8 different animals. The most frequent answers were elephant (9), lion (8), tiger (8) and bear (7). Total points of Vipulananda Vidyalayam Kallady school for this question were 34 which is 68 % of maximum possible points. As domestic animals were considered horse, cat, dog and cow.

Question n. 2: Do you know what protected areas are in your country?

The average points per one student of Sri Lanka for this question were 2.6 ± 1.01 SD. Number of points in question 2 was not influenced by favourite natural science subject ($p>0.05$), but it was influenced by age of children ($H_{(2,N=40)}= 11.42$, $p < 0.05$) - 10 years old children obtained significantly higher number of points then 11 years old while 10 years

old children did not differ in obtained points from 12 years old and 11 years old did not differ from 12 years old, see the Figure 31. Number of points was also influenced by gender (U = 101, Z = -2.66, $p < 0.05$) where females obtained significantly higher number of points (Figure 32), by grade (U = 43, Z = 3.33, $p < 0.05$) where the children from 5th grade optained more points then children from 6th grade (Figure 33), and by school ($H_{(3,N=40)}$= 19.08, $p < 0.05$), where children from St. Cecilia´s Girls school and St. Anne's Tamil school obtained significantly higher number of points then Hindu College while St. Anne's Tamil school and St. Cecilia´s Girls school did not differ as well as Vipulananda Vidyalayam Kallady school and Hindu College (Figure 34).

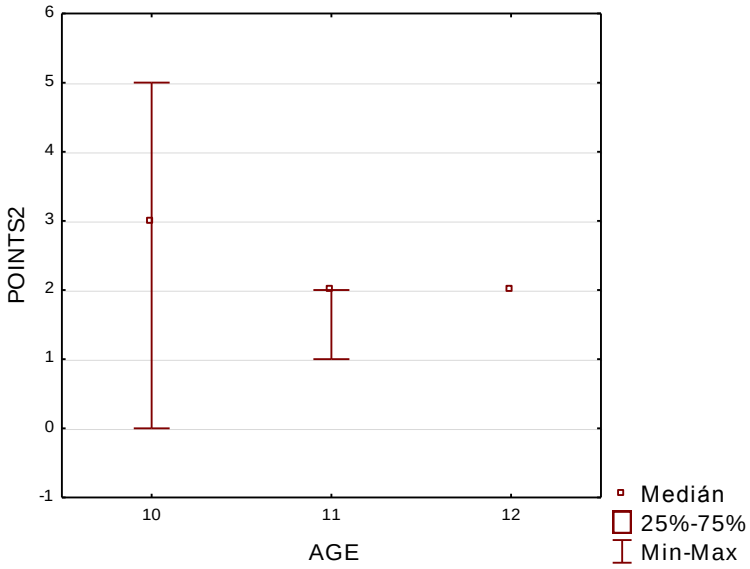


Figure 31: Influence of age on second question

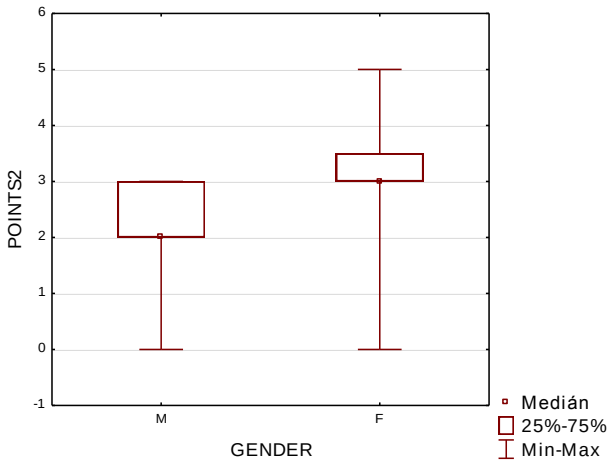


Figure 32: Influence of gender on points in the second question

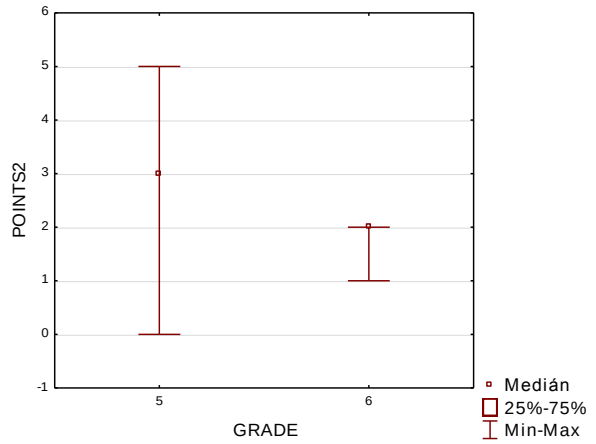


Figure 33: Influence of grade on points in the second question

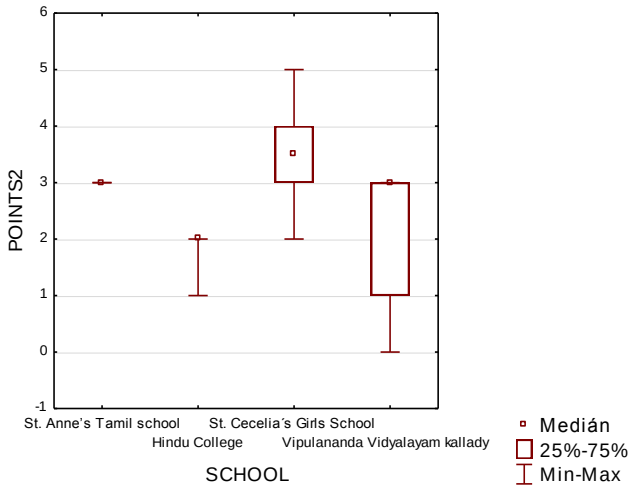


Figure 34: Influence of school on points in the second question

The respondents in St. Anne's Tamil school answered 3 different protected areas. All the respondents had the same answer Yala, Kumana and Wilpattu, so each of them was named 10 times. The average points per one student of St. Anne's Tamil school in this question were 3 ± 0.0 SD.

The answers of respondents from Hindu College contained 5 different protected areas. The most frequent answers were Sinharaja forest (7) and Pinnawala (7). The average points per one student of Hindu College in this question were 1.9 ± 0.3 SD.

The respondents from St. Cecilia´s Girls School answered in total 7 different protected areas. The most frequent answers were Wilpattu (10), Yala (9) and Kumana (7). The average points per one student of St. Cecilia´s Girls School in this question were 3.4 ± 0.97 SD.

The answers of Vipulananda Vidyalayam Kallady school contained 7 different protected areas. The most frequent answers were Kumana (8), Yala (7) and Wilpattu (6). The average points per one student of Vipulananda Vidyalayam Kallady school in this question were 2.1 ± 1.3 SD.

Question n. 3: Which endangered animals live in reservations?

The average points per one student of Sri Lanka for this question were 0.9 ± 0.4 SD. Number of points in question 3 was not influenced by gender, grade, favourite natural science subject and school (in all analyses $p>0.05$) but was influenced by age of children ($H_{(2,N=40)}= 9.07$, $p < 0.05$) (Figure 35).

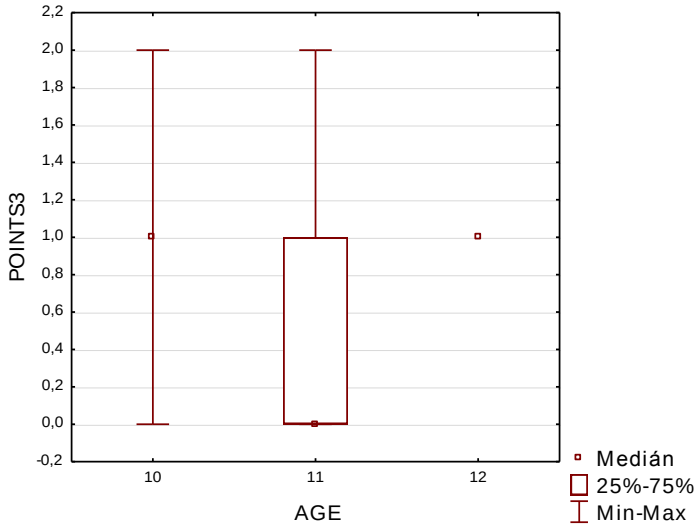


Figure 35: Influence of age on points in third question

The correct answers in St. Anne's Tamil school contained 2 animals and both with some of IUCN CR, EN, VU or NT status. The most frequent correctly answered animals were snake (7) and elephant (2). The average points per one student of St. Anne's Tamil school in this question were 0.9 ± 0.3 SD. One respondent did not answer.

The answers in Hindu College contained 3 different animals but only two of them with IUCN CR, EN, VU or NT status. The most frequent correct answers were crocodile (4) and elephant (3). The average points per one student of Hindu College in this question were 0.7 ± 0.8 SD.

The answers in St. Cecilia´s Girls School contained 4 different animals but only three of them with IUCN CR, EN, VU or NT status. The most frequent correct answers

were elephant (4), snake (3) and monkey (3). The avetage points per one student of St. Cecilia´s Girls School in this question were 1 ± 0.0 SD.

The respondents from Vipulananda Vidyalayam Kallady school answered two animals and both with some IUCN CR, EN, VU or NT status. The answered animals were elephant (9) and crocodile (1). The average points per one student of Vipulananda Vidyalayam Kallady school in this question were 1 ± 0.0 SD.

Question n. 4: Why protect nature?

The average points per one student of Sri Lanka for this question were 0.98 ± 0.2 SD. Number of points in question 4 was not influenced by age, gender, grade, favourite natural science subject and school (in all analyses $p>0.05$).

All respondents in Sri Lanka had true sensfull answers except one respondent from Vipulananda Vidyalayam Kallady school who had uncertain answer.

The children from St. Anne's Tamil school answered in 40% to live without disease, 40% to keep our environment clean and 20% to prevent from Dengue mosquitoes.

All the children from Hindu College answered to live healthy and avoid diseases.

The children from St. Cecilia´s Girls School answered in 40% to avoid diseases, 30% to live healthy and protect environment, 20% to have pure air and 1 child (10%) answered that protecting of nature provides lot of benefits.

90% of Children from Vipulananda Vidyalayam Kallady school answered that protecting nature can avoid diseases while 1 child (10%) would put the garbage there.

Question n. 5: Why keep the animals in reservations?

The average points per one student of Sri Lanka for this question were 2.2 ± 0.6 SD. Number of points in question 5 was not influenced by age, gender, grade and favourite natural science subject (in all analyses $p>0.05$) but the difference among the four studied schools in number of points was statistically significant ($H_{(3,N=40)}= 10.16$, $p < 0.05$), the point reach differed in St. Anne´s Tamil school and Vipulananda Vidyalam kallady while other schools did not differ (Figure 36).

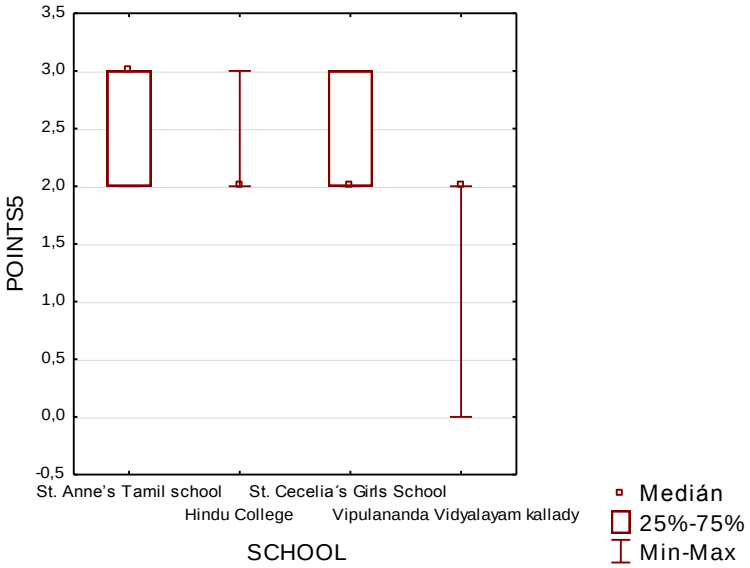


Figure 36: Influence of school on points in the fifth question

The reasons of all respondents from Sri Lanka were 55% of anwers for agricultural use, 27% of answers for keeping endangered animals, 12.5% of answers for dangerousness of animals and 2.5% of answers for the right to live of the animals.

There was 6 children answered that the animals are endangered, 4 children had a reason of agricultural use of the animals and no respondent from St. Anne's Tamil school answering the reason of dangerous animals. The average points per one student were 2.6 ± 0.5 SD.

Two respondents from Hindu College answered that the animals might be dangerous, 2 because they are endangered and 6 because of agricultural use. The average points per one student were 2.2 ± 0.4 SD.

St. Cecilia´s Girls School answers contained 2 respondents with the reason of dangerous animals, 3 respondents with the reason of endangered animals, 1 respondent with love to animals and 4 respondents with a reason of agricultural use. The average points per one student were 2.3 ± 0.48.

There was 1 respondent from Vipulananda Vidyalayam Kallady school who answered the reason of dangerous animals and 8 with a reason of agricultural use. The average points per one student were 1.8 ± 0.6 SD.

Question n. 6: Is it good to have a forest close to the village? Why?

The average points per one student of Sri Lanka for this question were 3.7 ± 1.1 SD. Number of points in question 6 was not influenced by age of children, gender, grade, favourite natural science subject and by school (in all analyses $p>0.05$).

The positive sensfull answers had 6 respondents from St. Anne's Tamil school (60%) from which 45% had the reason of having rainfalls and 15% reason to have rainfalls. 8 respondents from Hindu College (80%) had positive sensfull answer where 55% of that had reason to have rainfalls, 10% to get fire wood, 10% for soil erosion and 5% to get food. 9 respondents from St. Cecilia´s Girls School (90%) with positive sensfull asnwer had reason to have rainfalls (75%), to get oxygen (10%) and to get food (5%). And 9 respondents from Vipulananda Vidyalayam Kallady school (90%) from which 45% answered to restrict soil erosion, 15% to have rainfalls, 10% to get firewood and 10% to have shadow. One respondent did not write the reason.

The negative sensfull answers had 4 respondents from St. Anne's Tamil school (40%) because of danger of wild animals living in forest, 2 respondents from Hindu College (20%) because of danger of wild animals living in forest and 1 respondent from St. Cecilia´s Girls School (10%) because of danger when strong wind comes. One answer of respondents from Vipulananda Vidyalayam Kallady school was uncertain.

Question n. 7: What should we do with the garbage?

The average points per one student of Sri Lanka for this question were 1.85 ± 0.43 SD. Number of points in question 7 was not influenced by gender, age, grade, favourite natural science subject and by school (in all analyses $p>0.05$)

All children from St. Anne's Tamil school had correct answer from which 50% would make fertilizers from garbage and 50% wrote they would bury or burn. Correct answer had also all respondents from Hindu College, where 50% would make fertilizers, 30% would recycle and 20% would reuse it. 80% of respondents from St. Cecilia´s Girls School had correct answers from which 60% would make fertilizers from garbage and 20% would recycle. Correct was also 7 respondents from Vipulananda Vidyalayam Kallady school (70%) where 60% of children would make fertilizers and 1 child (10%) would throw garbage into the bin. There was one wrong (10%) and 2 uncertain answers (20%) of respondents from Vipulananda Vidyalayam Kallady school and 2 uncertain answers of respondents from St. Cecilia´s Girls School (20%).

Question n. 8: Do you like school? What is your favourite subject?

The average points per one student of Sri Lanka for this question were 1.6 ± 0.5 SD. Total number of points was not influenced by age of children, by gender, by grade, by favourite natural science subject and by school (in all analyses $p>0.05$).

All the respondents in Sri Lanka like the school. The favourite natural science subject had 2 respondents from St. Anne's Tamil school (20%) and 1 respondent from Hindu College (10%). Respondents from St. Cecilia´s Girls School and Vipulananda Vidyalayam Kallady school did not answer any natural science subject as favourite.

Total points

Number of total points in Sri Lanka was not influenced by school, age, gender, grade and favourite natural science subject (in all analyses $p>0.05$).

5.3 DEMOCRATIC REPUBLIC OF THE CONGO

In Democratic Republic of the Congo questionnaires were answered by respondents from five different villages. Average points per one student were 13.5 ± 2.8 SD and median 14.

Question n. 1: Write 4-5 wild animals which live in your country

The average points per one student of DR Congo for this question were 3.4 ± 0.8 SD. Number of points in question 1 was not influenced by grade, village and favourite natural science subject (in all analyses $p>0.05$) but was influenced by age of children ($H_{(2,N=50)}= 7.81$, $p < 0.05$), twelwe years old children obtained significantly higher points than ten years old children, while ten and eleven years old children did not differ in points (Figure 37).

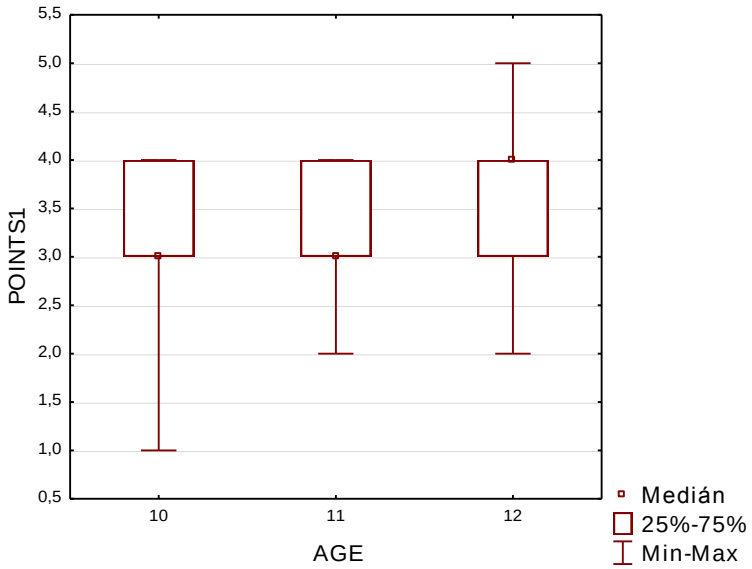


Figure 37: Influence of age on points in the first question

Answers of respondents from school in Nasala contained in total 9 different animals. The most frequent correct answers were giraffe (7), buffalo (6) and elephant (6). Total points of Nasala school for this question were 36 which is 72 % of maximum possible points. There were no animals considered from the answers like domestic.

Answers of respondents from school in Gangala contained in total 10 different animals. The most frequent correct answers were lion (7), hippopotamus (6) and elephant (4). Total points of school in Gangala for this question were 34 which is 68 % of maximum possible points. There were no animals considered from the answers like domestic.

Answers of respondents from school in Faradje contained in total 13 different animals. The most frequent correct answers were elephant (9), bonobo (5) and lion (4). Total points of school in Faradje for this question were 37 which is 74 % of maximum possible points. There were no animals considered from the answers like domestic.

Answers of respondents from school in Djabir contained in total 17 different animals. The most frequent correct answers were elephant (4), giraffe (3), buffalo (3) and antelope (3). Total points of school in Djabir for this question were 29 which is 58 % of maximum possible points. The animal considered from the answers like domestic was horse.

Answers of respondents from school in Aba contained in total 12 different animals. The most frequent correct answers were hippopotamus (7) and lion (7). Total points of school in Aba for this question were 33 which is 66 % of maximum possible points. There were no animals considered from the answers like domestic.

Question n. 2: Do you know what protected areas are in your country?

The average points per one student of DR Congo for this question were 2.0 ± 0.9 SD. Number of points in question 2 was not influenced by age, by grade, by natural science subject and by village (in all analyses $p>0.05$).

The respondents from school in Nasala answered 7 different protected areas. The most frequent correct answers were Garamba (10) and Virunga (7). The average points per one student of school in Nasala in this question were 2.4 ± 0.8 SD.

Answers of respondents from school in Gangala contained in total 3 different protected areas. One respondent did not answer. The most frequent answer was Garamba (9). The average points per one student of school in Gangala in this question were 1.3 ± 0.7 SD.

Answers of respondents from school in Faradje contained in total 5 different protected areas. The most frequent answer was Garamba (8). The average points per one student of school in Faradje in this question were 2.2 ± 0.9 SD.

Answers of respondents from school in Djabir contained in total 6 different protected areas. The most frequent answers were Garamba (9) and Virunga (5). The average points per one student of school in Djabir in this question were 2.2 ± 0.8 SD.

Answers of respondents from school in Aba contained in total 7 different protected areas. One respondent did not answer. The most frequent answer was Garamba (5),

Virunga (4) and Salonga (4). The average points per one student of school in Aba in this question were 1.9 ± 0.99 SD.

Question n. 3: Which endangered animals live in reservations?

The average points per one student of DR Congo for this question were 0.9 ± 0.4 SD. Number of points in question 3 was not influenced by grade, by favourite natural science subject, by age and by village (in all analyses $p>0.05$).

The respondents from school in Nasala had correct answers containing 2 animals – White Rhinoceros and Elephant. The mostly answered was White Rhinoceros (9). The average points per one student of school in Nasala for this question were 1 ± 0.5 SD. One respondent did not answer this question.

The respondents from school in Gangala had answers containing also 2 animals – White Rhinoceros and Elephant. The mostly answered was White Rhinoceros (7). The average points per one student of school in Gangala for this question were 0.8 ± 0.4 SD. Two respondents did not answer this question.

The respondents from school in Faradje had aswers containing 3 animals – White Rhinoceros, Elephant and Hippopotamus. The mostly answered animal was White Rhinoceros. The average points per one student of school in Faradje for this question were 0.9 ± 0.3 SD. . One respondent did not answer this question.

The respondents from school in Djabir answered only one animal – White Rhinoceros, three respondents did not answer this question. The average points per one student of school in Djabir for this question were 0.7 ± 0.5 SD.

The respondents from school in Aba answered only one animal – White Rhinoceros, one respondent did not answer this question. The average points per one student of school in Aba for this question were 0.9 ± 0.3 SD.

Question n. 4: Why protect nature?

The average points per one student of DR Congo for this question were 0.9 ± 0.3 SD. Number of points in question 4 was not influenced by favourite natural science subject, age, grade and village (in all analyses $p>0.05$).

True sensfull answers had 9 respondents from the school in Nasala (90%) from which 70% answered that protect nature is for their good and it protects them, 10% answered that it protect animals and 10% that their life depends on it. Correct answer had

also 9 respondents from the school in Gangala (90%) from which 60% had the reason of protecting animals or forests and 30% for the life of people. 9 respondents from the school in Faradje (90%) answered correctly, 50% of them answered that it is good for protecting and conservation of animals or forests, 30% for the life of people and 10% for sustainable development. Correct answers of all 10 respondents from the school in Djabir contained 50% of reason to protect animals and help them to survive, 20% for life of people, 10% for sustainable development, 10% for development of the village and 10% to appreciate the beauty of nature.9 correct answers of respondents from the school in Aba (90%) contained 40% of reasons for human survival, 30% to protect animals and 20% to maintain the balance of nature.

Question n. 6: Is it good to have a forest close to the village? Why?

The average points per one student of DR Congo for this question were 3.5 ± 1.2 SD. Number of points in question 6 was not influenced by favourite natural science subject, age, grade and by village (in both analyses $p>0.05$).

The positive sensfull answers had 7 respondents from the school in Nasala (70%) with various reasons such as forest gives flowers, medicinal products, protects animals, purifies and protect water sources and is a power source, 8 respondents from the school in Gangala (80%) with protection reasons like protection against storms, against pollution, protection of waterways or the reason of fresh breathing and giving freshness. Among all correct answers of respondents from the school in Faradje were 40% with the reason of protecting animals and rest 60% with various reasons like source of flowers, muschrooms and fruits, better air or protection of rivers. Children from Djabir had all positive attitude to forest close to the village with reasons 20% source of oxygen and rest 80% with various reasons like power of source, source of construction material, protection against diseases, protection againts pollution. All children from Aba answered that it is good to have forest close to the village with various reasons like source of wood, development of village, protection of animals, keeping water streams, it is an ecological barrier or because their survival depends on it.

The negative answer had 1 respondent from the school in Nasala (10%) without giving a reason. Two respondents in the school in Nasala and Gangala did not answer the question.

Question n. 7: What should we do with the garbage?

The average points per one student of DR Congo for this question were 1.6 ± 0.7 SD. Number of points in question 7 was not influenced by age of children, by grades, by favourite natural science subject and by village (in all analyses $p>0.05$).

The correct answer to put the garbage into the bin had 6 respondents from school in Nasala (60%), 8 respondents from school in Gangala (80%), 6 respondents from school in Faradje (60%), 9 respondents from school in Djabir (90%) and 8 respondents from school in Aba (80%). There was one wrong (10%) – to burn all, 2 uncertain answers of respondents from school in Nasala and 1 respondent did not answer. There was also 1 uncertain answer and 1 not answered of respondents from school in Gangala, 1 uncertain and 3 not answered of respondents from school in Faradje, 1 uncertain answer of respondent from the school in Djabir and 2 uncertain answers of respondent from the school in Aba.

Question n. 8: Do you like school? What is your favourite subject?

The average points per one student of DR Congo for this question were 1.3 ± 0.5 SD. Number of points in question 8 was not influenced by age, grade and by village (in both analyses $p>0.05$).

All the respondents from Democratic Republic of the Congo like school, 3 respondents did not answer the question. The favourite natural science subject had 1 respondent from school in Nasala (10%), 4 respondents from school in Gangala (40%), 1 respondent from school in Faradje (10%), 2 respondents from school in Djabir (20%) and 5 respondents from school in Aba. The favourite subject was not filled by 1 respondent of school in Nasala, 4 respondents of school in Gangala and 2 respondents of school in Faradje, Djabir and Aba.

Total points

The number of total points in DR Congo was not influenced by the village ($p>0.05$) but was influenced by age of children ($H_{(2,N=50)}= 7.79$, $p < 0.05$). 12 years old children obtain significantly higher number of points then 10 years old while 10 and 11 years old children did not differ in number of points as well as 11 and 12 years old (Figure 38).

Total points were also influenced by grade ($H_{(4,N=50)}= 13.16$, $p < 0.05$). Children from 4th grade obtain significantly lower number of points then children from 5th and 6th grade

while children from 5th and 6th grade did not differ in number of total points (Figure 39). Number of total points was also influenced by favourite natural science subject (U = 98.5, Z = -1.95, p > 0.05) where is seen that children with favourite natural science subject reached higher number of points (Figure 40).

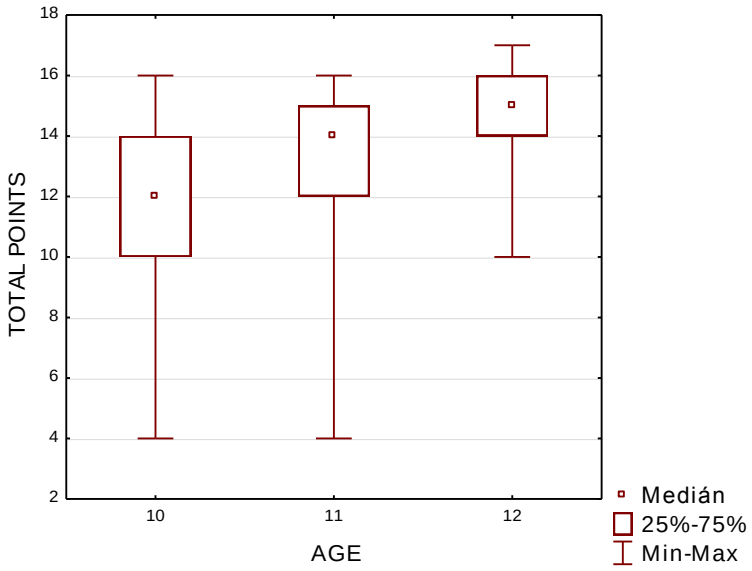


Figure 38: Influence of age on total points

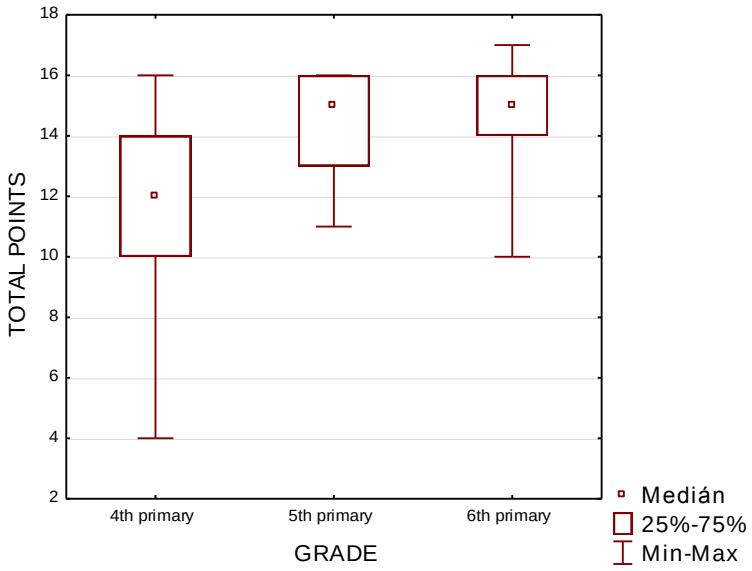


Figure 39: Influence of grade on total points

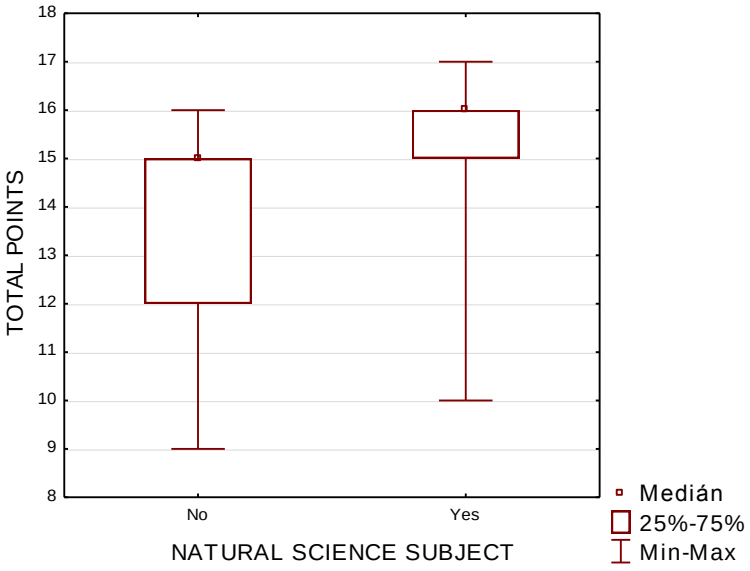


Figure 40: Influence of favourite natural science subject on total points

5.4 Comparing countries

The difference among three studied countries in total number of points was not statistically significant ($H_{(2,N=195)} = 5.96$, $p>0.05$).

Children in Peru obtained in the question 1 (Write 4-5 wild animals which live in your country) significantly lower number of points than in Sri Lanka and Congo (Figure 41), while these two countries did not differ ($H_{(2,N=195)} = 12.68$, $p < 0.05$).

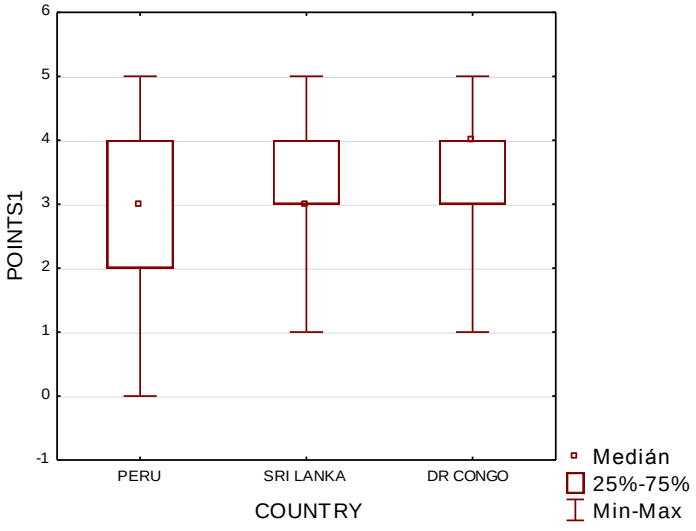


Figure 41: Influence of country on the results of question 1

The results of question 2 (Do you know what protected areas are in your country?) were influenced by country ($H_{(2,N=195)} = 50.26$, $p < 0.00001$). Peru obtained significantly lower number of points then Sri Lanka and Congo while these two countries did not differ (Figure 42).

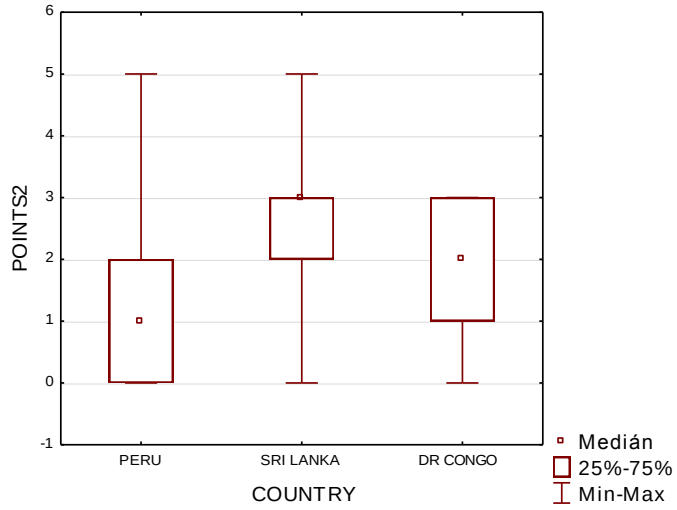


Figure 42: Influence of country on the results of question 2

The results of question 3 (Which endangered animals live in reservations?) were also influenced by the country ($H_{(2,N=195)} = 38.32$, $p < 0.00001$). Peru obtained significantly higher number of points then Sri Lanka and Congo while these two countries did not differ, (Figure 43).

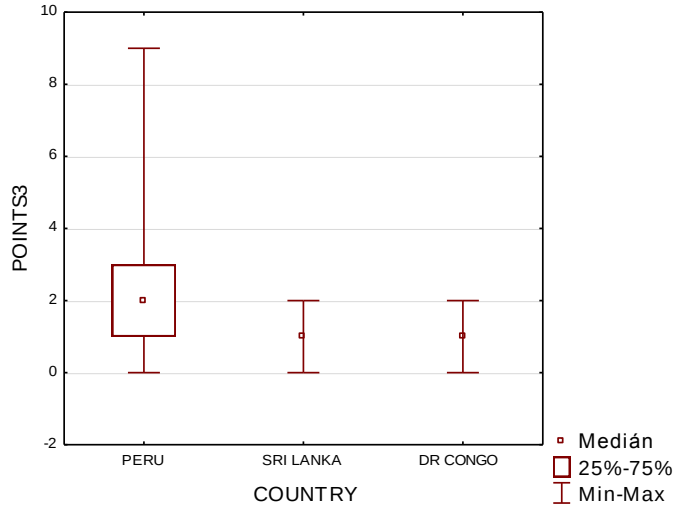


Figure 43: Influence of country on the results of question 3

The differences among the studied countries in number of points in question 4 (Why protect nature?) were not statistically significant ($H_{(2,N=195)} = 1.26$, $p>0.05$).

The results of question 5 (Why keep the animals in reservations?**)** was not influenced by country. The differences among Peru and Sri Lanka in number of points were not statistically significant ($p>0.05$) and questionnaires from DR Congo did not contain this question.

Question 6 (Is it good to have a forest close to the village? Why?) and question 7 (What should we do with the garbage?) were not influenced by country ($H_{(2,N=195)} = 1.37$, $p> 0.05$) and ($H_{(2,N=195)} = 4.04$, $p> 0.05$).

The points of question 8 (Do you like school? What is your favourite subject?) were influenced by the country ($H_{(2,N=195)} = 32.68$, $p < 0.00001$). Children from DR Congo obtained significantly lower number of points then children from Peru and Sri Lanka, while these two countries did not differ (Figure 44).

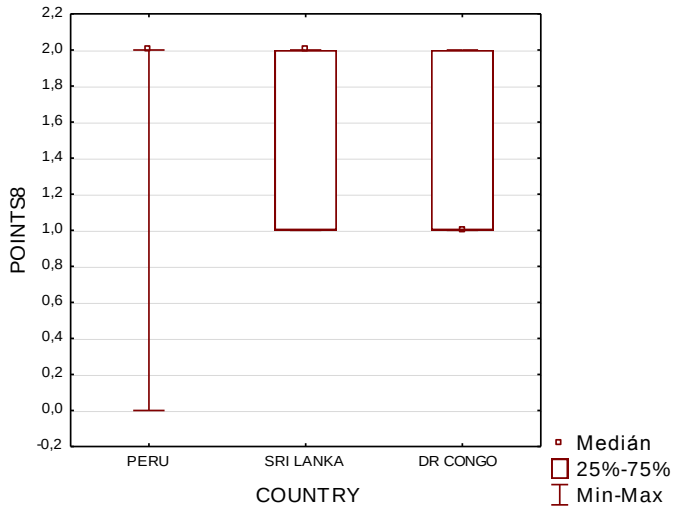


Figure 44: Influence of country on the results of question 8

5.5 Another factors influencing total points

Into those analyses could not be included gender (not filled by Congolese), grade (some Peruvians L1, L2…) and school (Congolese did not fill). For evaluation of the fifth question was used double total points number – with the fifth question and without for possibility of comparing total points with DR Congo which did not have this question.

Another analyzes shown that there was no influence of the age on total points but there was an influence of village on total points. The difference among ten villages (Figure 45) in number of points was statistically significant ($H_{(9,N=195)}$= 80.36, p < 0.00001).

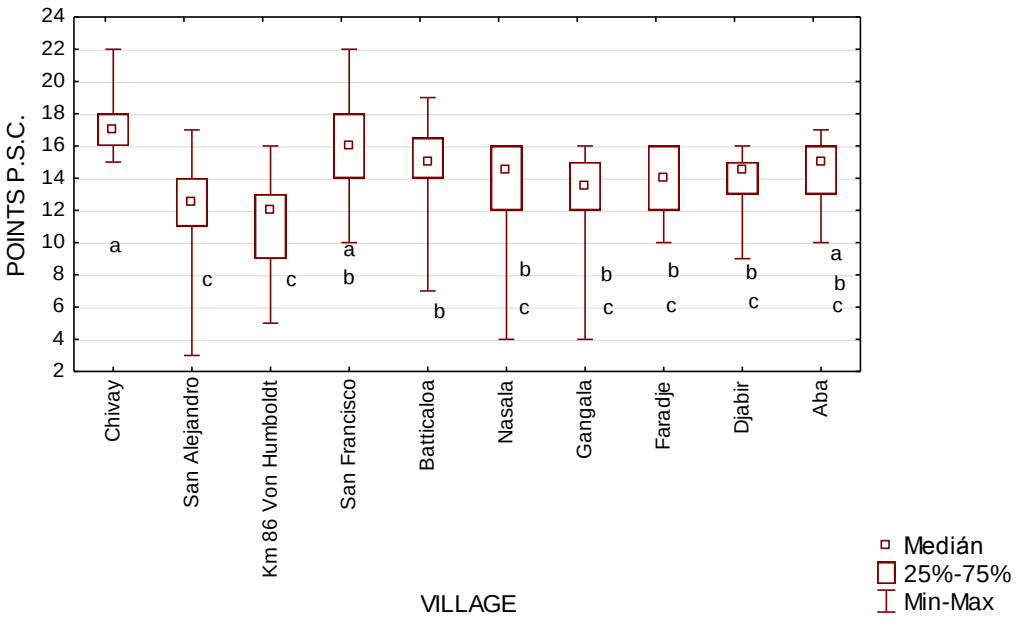


Figure 45: Influence of village on overall results
(Different letters indicate significant differences among villages tested by multiple range comparison of mean ranks test)

There was also an influence of village on results of question 2 (Do you know what protected areas are in your country?). The difference among ten villages (Figure 46) in number of points was statistically significant ($H_{(9,N=195)}$= 111.65, p < 0.00001).

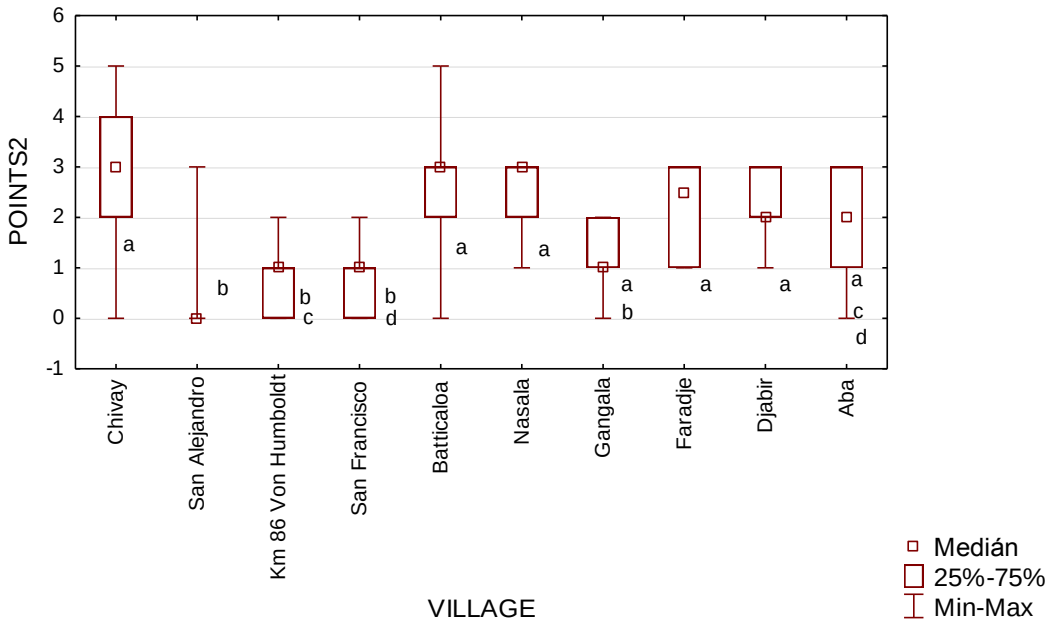


Figure 46: Influence of village on points of question 2
(Different letters indicate significant differences among villages tested by multiple range comparison of mean ranks test)

6 DISCUSSION

The educational systems in studied countries are very similar and the children from all the studied countries have absolved similar level of natural history/environmental education (Ministerio de Educacion, 2010; Ministry of Education, 2004; UNESCO-IBE, 2010). The results, as expected, essentially did not differ in overall comparison of countries but differed in various fields and in personal preferences of children which are described below.

Children make their opinion regarding to environment which influence them. The environment in this sense does not mean only natural environment but also societies where they live and people they meet such as family, neighbours, friends, schoolmates, and also teachers (Yunus and Dahlan, 2013). There is seen some basic overview of attitudes of children from different places in these questionnaires. Children from individual regions shown some similarities in sense of their answers which may show some common curricula of education just like children from all school have answered that forest is good for producing fresh air, local habbits like eating bushmeat in schools in DR Congo (de Merode, 2004) or family behavior pattern like having a little farm in Peru. Educational projects in these countries are mainly focused on knowledge important for future employment of children (UNESCO, 2006). From the answers is seen that some localities, just like Chivay in Peru or Hindu College in Sri Lanka probably take care more about protection of environment and know the value of nature then others which probably did not have as foccused environmental education as children in Maria Auxiliadora (Chivay) and Hindu College (Batticaloa).

The first question about known wild animals shown that in DR Congo was writing 4-5 wild animals little bit problematic while children in Peru did not have constraints to write even six animals but despite this had Peru the the lowest number of wild animals, significantly lower than Congo and Sri Lanka. This was partly due to the fact that children's answers from Peru had a lot of wrong answers and also included most of the domestic animals of all observed countries. Significantly less children from school in San Alejandro answered some domestic animal (10%) then children from three other schools (44-68%). Respondents from school in San Alejandro had also the most correct answers. Which leads to the fact of possible influence of school locality. San Alejandro lies in

Amazonia region of Peru where soils are not much fertile (Marquez, 2004) but it has great environment for wild animal species (Encyclopædia Britannica, 2014) while the three other schools belong to Costa region with rich soils for agriculture and number of farms with livestock (Encyclopædia Britannica, 2014) what lead to the higher probability that families of the respondents in this locality own some domestic animal or livestock and the children are thou in a closer contact with these animals.

The reason of many given answers of respondents in Peru could be affected by, for example, poor understanding of the task or probability that children did not know the difference between domestic and wild animal. They could also have different motivational factors which have different effects on quality and quantity of knowledge contribution. There are three sources of human motivation which are external regulation, often related with reward possibility, internalized extrinsic meaning internalized values comming from external sources such as learning and intristic motivation which is inherent satisfaction of behaviour such as enjoy helping. The learning motive can lead to contribution of more knowledge, answering to others mean to involve some level of information processing and requires search and use of knowledge pool or other sources to get a solution which is practising critical thinking and may lead to curiosity and thou high quality knowledge. Also higher intristic motivation lead to perform better quality and higher number of quality responses by spending higher cognitive effort because of joy from helping others. Interesting is that there is an influence of rewards for quantity increasing number of responses but rewards for quality did not lead to high quality knowledge contribution (Lou et al, 2011).

On the contrary, children in DR Congo responded markedly less different animals, but their answers did not contain any domestic animal. These children also reached best results which may be influenced by motivation mentioned above, by foccusing of education on critical thinking (UNESCO-IBE, 2010) which is not included in curriculum of other two countries. Or it could be due to the location of school near the Garamba National Park (Tourisme, 2014), or by the fact that the children in the DR Congo are more connected to wildlife because it is actually the source of their livelihood. Bushmeat is main source of available animal protein and often is a matter of survival especially in rural areas. In DR Congo is bushmeat cheaper than other protein sources or even the fact that they can get bushmeat by capturing and not by purchasing (Nasi et al, 2011). Wild foods contain about 3.1% of bushmeat, 6.2% of fishes and 9.6% of wild plants. Using the wildfood to

sale is much greater then consumption (de Merode, 2004). In Sri Lanka, children reached the highest average number of points per pupil, which could be caused by the high biodiversity in the country and the fact that the majority of children are actualy living „with“ the wildlife (Peebles, 2006).

Peruvian answers contained surprisingly often tiger and lion which might be inattention and combining the animals that they know from their surrounding and animals generally known as wild animals but which unfortunately did not fit into their country. Another reason might be missunderstanding sea lion with lion (león marino and león) or the fact that as well as many Central and South American countries, Peruvian people also call jaguars „el tigre“(Manu National Park, 2012). The other reason might be historical. Lion (*Panthera leo atrox*) has been reported in range from Mexico to Peru in Pleistocene Epoch about 10 000 years ago (Harington, 1969; Burger et al, 2004) and there were found fossils of Smilodon, known as "saber tooth tiger" from the same epoch (Guerra, 2009).

In the second question which was asking the protected areas, children from Sri Lanka had significantly better results then other two countries, which could be due to the fact that about 23% of Sri Lanka land is protected for biodiversity conservation and natural forest reserves (Chape *et al.*, 2008). Sri Lanka has more than 430 protected areas, which are well known for their high biodiversity and endemic species (Nation, 2013) so the awareness might be higher. A big role in this question probably played the location of schools, which could significantly affect also the results of children from DR Congo whose schools are located near Garamba National Park, which occurred in almost all the answers. Likewise, the children of Peru were affected by the locality (Solano, 2009), which was evident from the differences in responses of children from different schools. Children from 64098 – B school in San Francisco had the closest Parque de las Leyendas which appear in almost all the answers but not in answers of children from other Peruvian schools as well as Patahuasi, Colca Canyon Pampas Cañahuas and Reserva de Salinas y Aguada Blanca in responses of children from Maria Auxiliadora school in Chivay. On the contrary children from Juan Edinson school in San Alejandro had problem to name some protected areas, 50% of respondents did not answer and other 30% had non sense answer. The fact that Peru reached lowest result in this question could be due to the fact that, in comparison with the other two countries, a large number of respondents did not answer to this question.

It is interesting that 31% of children from Czech Republic did not remember any protected area, which was even more then children from Senegal. Children from both, Czech Republic and Senegal, did not mention protected areas close to their homes what was supposed (Vavroušová, 2009). On the contrary children from Peru, Sri Lanka and DR Congo mentioned firstly the protected areas geographicaly close to their village. It is possible that in these countries is more important the direct experience while in Czech Republic and Senegal might be children influenced by education or the fact that the reservation close to the children from Senegal is fenced and children understand it like private zone rather than protected area, they do not have direct contact (Vavroušová, 2009) in contrast of children in DR Congo who simply live in the protected area (Solano, 2009).

In the third question children were supposed to answer which endangered animal live in reservation in their country. Children from Peru scored the best, which is most likely the result of a large number of answered animals and maybe just happens that some of the responses fit. Another factor influencing this question can be a quantity and quality motivation same like mentioned in the first question. Congolese children had the lowest result, their responses contained in most cases only one animal, but all answers were correct. From the responses it is clear that the presense of the northern white rhinoceros in the Garamba National Park in their vicinity might have influenced the children. Unfortunately it can not be assessed whether children realize the threat status of this species or not because of a missed fifth question, from which it would be noticeable. Almost all answers from the children of Sri Lanka contained one to two animals, and it was evident that children from Vipulananda Vidyalayam Kallady school are more aware of the topic of elephant conservation due to the same answer from most of the pupils. It is possible that wild elephants have visited this school and children were deeper informed about conservation of this species or there might be some electric fence close to the school which was built to avoid human – elephant conflict (Elephants Sri Lanka, 2009).

Results of the fourth question, why should we protect nature, were balanced for children of all countries. Despite that the answers differed in meaning, which could indicate that environmental education about the negative impacts of bad environment is quite good at schools. Children in Sri Lanka most frequently corresponded in terms of its impact to human health and to environment protection in terms of prevention against

diseases. While the answers of children from Peru have shown their knowledge about the vulnerability of animals and natural resources. The answers from the children of DR Congo were mixed and it seems that there is no special education about protection of environment. Although the curricula for all schools within a country are the same, there are seen differences among the schools within a country. Children in Peruvian schools answered in the sense of getting fresh air and importance of nature for animals and people except children from 64098 – B school where were the children answering the reason of prevention and confronting diseases. The reason of prevention against diseases might be the same like in Sri Lanka where wildlife diseases are important to people, levestock and trade- rabies, leptospirosis, bovine tuberculosis, foot and mouth disease, fowl choler, haemorrhagic septicaemia. Eco-tourism is very important and therefore safe food and healthy wild animal populations together with high standards of public health lead to public safety (Valeix et al, 2011).

Results of the fifth question (Why keep the animals in reservations?) showed children's relationship to animals. The answers from children of Peru have shown that school 64098 - B in San Francisco deals with this topic in its educational plan (Ministerio de Educacion, 2010), because the reasons of all the children from this school were related to threats of the animals. 33.3% of anwers for keeping endangered animals, 30.48% of answers for a good relationship to animals and right to live for them and 18.1% of answers for agricultural use. Answers given by other children were mixed and there was no significant difference in responses between individual schools. It is possible that other schools simply do not have a very effective system of environmental education. Majority of children answered in sense of helping agriculture and possible use of animals and protecting the livestock but also for keeping endangered animals. Answers of children from Sri Lanka have shown that agriculture is a matter of history as well as present day concern (Peebles, 2006). 12.5% of children from Sri Lanka thinks that dangerous animals should be kept in reservations but the same opinion have only 3.8% of children from Peru. From this is seen that Sri Lankan people meet wildlife more then people in Peru and they need to be protected by fences (Elephants Sri Lanka, 2009).

The results of the sixth question (Is it good to have a forest close to the village? Why?) have not shown any difference in points of individual countries but have shown the

differences in reasons of having forest near the village. While the most common reason of respondents from Peru was clean air, for the respondents from Sri Lanka more important was the impact of forest on rainfall.It is described that forested regions generate large-scale flows in atmospheric water evaporation and localized forest loss can sometimes turn a wet continent to arid conditions (Sheil and Murdiyarso, 2009). Exception was 95.65% of children from San Francisco in Peru answered in sense of sun and disease protection. Negative sensful answers in Peru contained reason that the cities around pollute the forests by emisions and garbage, possible danger of wild animals for the livestock. The reasons of children from DR Congo were very mixed and did not show clear uniform influence. Interesting is also the result showing that as well as 55% of children in Senegal, 46% of children in Czech Republic are afraid of wild animals in the forest (Vavroušová, 2009) even they do not have such dangerous wild animals, while in Sri Lanka 10% of children,in Peru it was only 2.86% and in DR Congo no children answered about wild animals in the forest.

The answers to the seventh question showed differences in the attitudes of waste management. It is important to mention that the composition of waste in these countries is much different from composition of Czech garbage. Most of the garbage is biological matter and there are recycling markets for plastics and paper, glass and metal content which is low (Chang, 2005). In all the studied countries can be found open dumps or even burning of the waste in gardens (Vidanaarachchi *et al.*, 2006). There is no functioning systems for sewage in DR Congo, most of the waste is disposed or destroyed by uncontrolled burning in the fields (UNEP, 2013). The highest environmental education, as expected, was seen in Sri Lanka where most of the children answered that the garbage can be recycled and fertilizers can be made out of it. This is an example of positive influence of environmental education at the primary level (Ministry of Education, 2004). And even all the countries have environmental studies in their curriculum, Sri Lanka´s teachers might pay more attention to this topic. It could be also related with a frequent composting in Sri Lanka´s households and the relationship with agriculture (Peebles, 2006). The children from DR Congo answered simply “to put the garbage in the trash“ while a number of children in Peru were diverse and the answers of putting the garbage in the bin were almost balanced with recycling. This can be caused by a high concern on recycling in Peru (Chang, 2005). The reason for the answers of the Congolese children could be caused by having no idea about other ways to deal with the garbage. Positive is that no children were

about creating open dumps but it still shows that the knowledge of waste impact is low. The curriculum contains environmental science (UNESCO-IBE, 2010) but the level is probably much lower then in the other two countries.

The answers to the eighth question have shown that, except of few unanswered, all respondents like school. This could be affected by the fact that those who do not like school, do not usually attend school and thus were probably absent when the questionnaires were filled-out. Or the children who did not answer simply do not like school even the noticeable positive influences it has on their knowledge.

The influence of the village on overall points and on the points of the second question (protected areas) were, as expected significant. The significantly highest points reached Chivay in Peru. The possible reason of this higher overview of environmental issues of the school in Chivay is the increase in the quality of equipment after reconstruction (Architecture for humanity, 2010). The lowest results reached respondents from Humboldt in Peru. Which could be caused by a different preferences of the school in this area. It is interesting that the best and the worst results have shown villages, both in Peru. This means that the location of school played a big role when talking about protected areas.

In the studied countries would the level of education be significantly different or worse in the places where no educational projects are (UNESCO, 2006). It does not have to be by balanced knowledge in the countries but by the positive influence of those developing projects which operate in these localities (UNESCO, 2006). That is something that is common for all the studied localities, not for the countries which are very different.

The results of this research could be affected by many different factors. Primarily it could be unconsciously influenced by the person who commissioned questionnaires to the children, because in every country questionnaires were commissioned by different persons. The people who were commissioning the questionnaires were in the countries within the framework of another project but they were living in the country and knew the environment. This person could also influence respondents by interpretation of the questions. Possible influence could have the translation of the questionnaires by non-native speakers (Granas et al, 2014) and also the way how the question is built. Results of 3th

question in Sri Lanka and 1st question in DR Congo did not have credible value because of the lack of respondents, so the results would be better evaluated if there are more respondents. Another factor that could influence children was the questionnaire itself, which contained pictures of several animals. How much were children affected by these images is not known, but the truth is that animals of images were also found in the responses of children. The questions were another influencing factor. It could be possible that children are led to answer some type of question or the way of learning is to remember word by word text and then theirworking with information might not be so effective. The probability that the children could copy from each other was seen also from the wrong answers so how many of them copied or how many wrote correct answers by themself is not clear

7 CONCLUSION

Although the point results did not show any significant difference, when individual questions and individual countries are assessed, in Sri Lanka, as in the most developed country, are better knowledge in environmental education and the answers are comparable to Czech Republic while in DR Congo was reached the same point value because children knew more wild animals but did not have idea about protection of environment and waste handling. It means that the knowledge in DR Congo are not obviously as much influenced by official education but more likely by the direct life experience.

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