

# Community, School, Environment



Andrea Déri\*

## Summary

This paper addresses the interdependence of community, school and environment. It argues that the stronger their relationship, the better their respective quality. Survey results presented in this paper of learning preferences of 539 primary school students of age 8-14 in Sendai, Japan confirm that students are keen to learn about their community and their environment. The top three learning preferences include active approaches such as eLearning, hands-on learning in the local science museum and visiting nature reserves. By offering successful examples of community-based learning for sustainable development from five countries (Hungary, Japan, Ukraine, USA, Poland), the author encourages educators to engage in community-based learning and consider students' learning preferences.

## I. Community<sup>2</sup> and learning

### In traditional communities

*"It takes a whole village to raise a child"*. This African saying perfectly captures the responsibility of the community in a successful education, the interdependence between good, relevant education and a dedicated local community.

There are, however, two important assumptions in this saying: the community knows the child's learning needs, and the community as a whole is dedicated to the learning process. These assumptions are inherent characteristics of a traditional, rural, self-sustaining community life. More importantly, these characteristics are vital to the survival of the community. The community not only knows what a child needs to learn to be able to participate in that community (work, family life, spirituality, culture etc.) but no other entity than that particular community knows exactly what the child — and ultimately the community — needs.

Therefore it is well understood that each community member has to contribute to the child's learning process as each member has something special to offer. Without taking this responsibility, the community's future is in jeopardy, as children are ill-equipped to produce food, fiber and shelter in that particular environment (climate, bio-geography, cultural norms). In this highly contextual learning, successful education means a composite of parallel, mostly hands-on learning processes that are essential to children's happy life in their community, and also to the sustenance of their community. As traditional communities are

---

\* Programme Manager, Capacity Building Programme, Institute for Global Environmental Strategies (IGES), JAPAN

dependent on their natural environment, education is inherently “environmental”: all aspects of the learning process include environmental and social considerations.

Helena Norberg-Hodge reflects on this process with astute clarity when she describes the traditional community-based learning in Ladakh, India: *“With the exception of religious training in the monasteries, the traditional culture had no separate process called ‘education’. Education was the product of an intimate relationship with the community and its environment. Children learned from grandparents, family, and friends.” “They learned about connections, process, and change, about the intricate web of fluctuating relationships in the natural world around them.”*<sup>3</sup>

### **In the globalizing era**

But how relevant is this practice of community-based learning in a rapidly globalizing world, in urban schools where teaching is isolated from the local community and indifferent to the immediate environment, where many children are actually commuters? To answer this question, let’s explore first what concern educators have about modern schools and then explore what benefits community involvement can provide.

There is a deep-felt concern, voiced by sustainable development minded educators that “modern” education, rooted in the XIX. century’s industrial paradigm<sup>4</sup>, does not raise children to become happy, creative, responsible people but only prepares students to become part of the labor force as an efficient supporter of economic growth without due consideration to social and environmental values.

What role can schools play in re-orienting “modern” education towards a more holistic learning process? What can schools really change within a system where education as an institution supports the status-quo of societies? Re-orienting the economic growth agenda towards sustainable development goes beyond the capacities of learning institutions but schools can spearhead the re-orientation of education towards sustainable development<sup>5</sup> by aiming for more<sup>6</sup> than academic achievement and/or career development<sup>7</sup>.

An important component of this re-orientation is the re-connection of education with real life issues in their complexity to learn about *“connections, process, and change, about the intricate web of fluctuating relationships in the natural, [social and economic<sup>8</sup>] world around”*. And this is where the involvement of the local community-be that community a village or an urban housing complex-, can offer opportunities of not only a more holistic education but enriched personal and community / societal development, and as a result, better environmental care and quality, and ultimately a more sustainable development.<sup>9</sup>

### **Benefits**

With the separation of education from real-life community issues, not only learning becomes more academic and thus less action oriented but the integrity of the local community also suffers from losing the young generation’s attention to social and environmental issues. By involving community members in the formal education, or complementing the formal education with informal community-based learning,

community and school are re-connected for both personal and social benefits, as it described in Figure 1.

Having compared the benefits in traditional and modern societies, there is a striking similarity: community-based learning is an immediate survival issue of traditional (self-sustaining) communities, and almost a pre-requisite for sustainable development of modern societies.

	<b>Traditional communities</b>	<b>Modern communities</b>
<b>Personal benefits</b>	<ul style="list-style-type: none"> <li>• Learning is useful and fun</li> <li>• Ability to fully and happily function in the community</li> <li>• Acknowledgement for contributing with special individual skills</li> <li>• Sense of identity</li> </ul>	<ul style="list-style-type: none"> <li>• Learning is useful and fun</li> <li>• Ability to better understand and participate in the local community, and the whole society</li> <li>• Better chances for more rewarding career choices</li> <li>• Sense of belongingness</li> </ul>
<b>Community /societal benefits</b>	<ul style="list-style-type: none"> <li>• Survival</li> <li>• Sustained identity</li> <li>• Sustained social capital</li> <li>• Adaptation to climate and societal changes generated by innovation inspired by trans-generational learning</li> <li>• Environmental, social and economic considerations are inherent part of learning</li> <li>• Tacit knowledge is passed on for the survival of future generations</li> </ul>	<ul style="list-style-type: none"> <li>• Sense of community</li> <li>• Enhanced identity</li> <li>• Increased social capital</li> <li>• Ability to solve problems, reach goals by innovations through trans-generational communication</li> <li>• Environmental, social and economic considerations integrated into learning</li> <li>• Tacit knowledge and improved knowledge management contributes to a sustainable development</li> </ul>

**Figure 1.** Benefits of community-based learning in traditional and modern societies.

The implication of knowledge management also highlights the significance of community-based learning. Interaction with other community members supports students' implicit learning<sup>10</sup> and the acquisition of tacit knowledge, the heritage of trans-generational experience related to that particular community in a given bio-geographical environment. Tacit knowledge can not be taught at school, can not be expressed by words, formulas or other explicit ways, but constructed only through direct, hands-on experience and social interaction. This is a critical point if we consider that environmental wisdom, or in other terminology local, indigenous knowledge, can only be acquired through implicit learning.

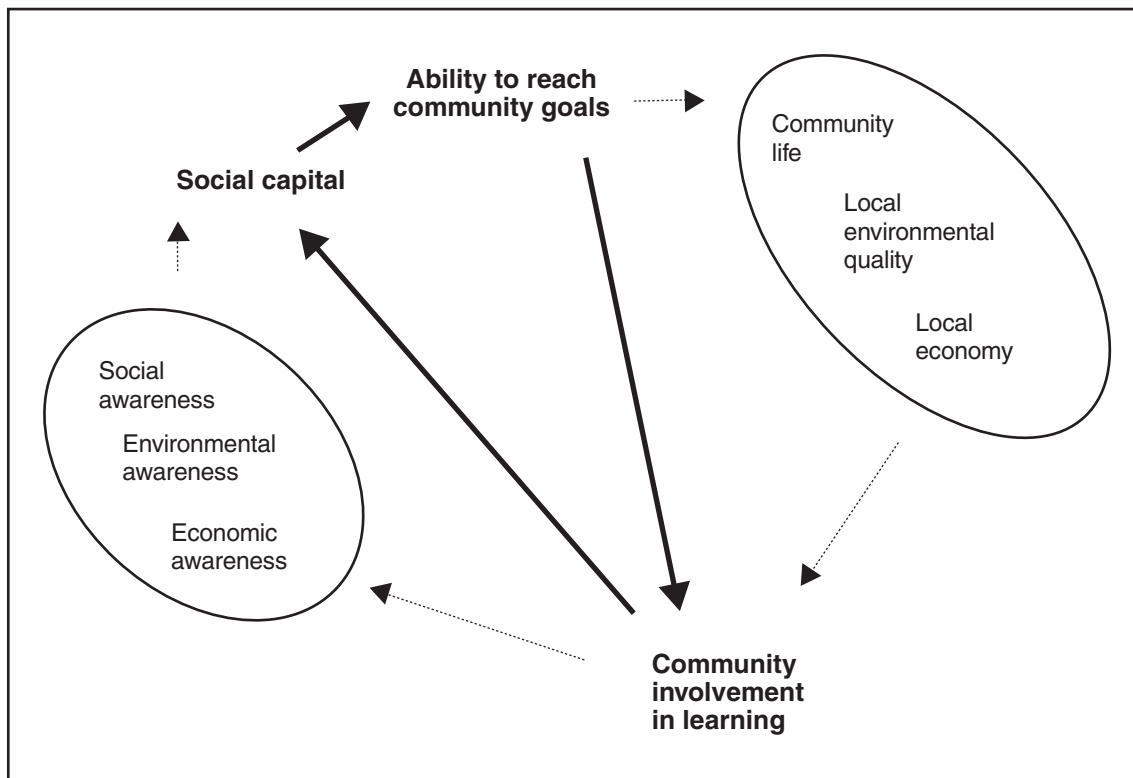
Opportunities for inter-generational interaction offer students with opportunities of implicit learning about their local environment (including nature conservation, farming, forestry etc.). It is, however, the educator's responsibility to make sure the learning leads to knowledge construction (tacit knowledge) which is indispensable for future decisions related to managing local environmental assets.

**How it works: System thinking and scenario analysis**

Increasing community involvement in learning (school-based, after-school and life-long learning) results in increased social capital<sup>11</sup> and thus increased ability to address community goals: a reinforcing cycle (Figure 2.) This cycle can go reverse as well: decreased community investment in education weakens the community’s ability to reach its goals. The same phenomenon is articulated at a different level by the laconic statement: “As the community goes, so goes the school”<sup>12</sup> and vica versa<sup>13</sup>.

Scenario analysis and scenario development conducted in the USA have also arrived at the same conclusion: community values exercise the driving forces in shaping public education<sup>14</sup>.

Applying a system thinking perspective of school-community interplay helps also better understand the strong link between the social capital and the quality of local environmental management<sup>15</sup>.



**Figure 2.** Reinforcing cycle of community involvement in learning.

## II. Community-based environmental education in practice

There are inspiring efforts all over the world to purposefully re-connect schools and their communities. A quick search on the internet by using Google as a search engine for “community, school, environment” resulted in 4,300,000 hits (September 28, 2003). This is a promising sign of realizing the connection of community life, school-based learning and the quality of the local environment, and making purposeful efforts to re-establish the traditionally strong links among young people’s learning, the activity of adult community members to sustain their bio-geographically, culturally and economically shaped local environment.

Improving science education with community-based projects in the USA<sup>16</sup> has been convincing. Although research data is not always available to assess the effectiveness of all community-based learning projects, schools with community-based learning integrated in their curriculum seem to have higher academic achievements, happier students who are also more willing to participate in their local community and take action for their environment.

Following are a few (just a very few) good examples of community-based environmental education and education for sustainability projects from five countries: Hungary, Japan, Poland, Ukraine, USA.

### **Hungary**

The Forest School<sup>17</sup> programme, supported uniquely by both the Ministry of Education and the Ministry of Environment, offers interdisciplinary hands-on learning that involves local communities in the exploration of real life issues. The Hungarian Eco-School Network<sup>18</sup> is part of the Environment and School Initiatives project of the OECD-CERI (Organisation for Economic Co-operation & Development-Centre for Educational Research & Innovation), with having roots in earlier community-based environmental education demonstration projects with the Institute for Sustainable Communities<sup>19</sup>. Eco-schools do not only learn about sustainable development but they are managed sustainably as well from the operation of the school to the catering and working closely with the local community: they walk their talk.

### **Japan**

The Learning Environment and Activity Foundation<sup>20</sup> in Nishinomyia, Japan trains community members to teach students about various aspects of their community, e.g. mothers teach young children about nature and art, businessmen introduce students to eco-products and eco-labeling, and government officials offer hands-on field studies on water quality assessment.<sup>21</sup>

### **Ukraine**

Parents, teachers, students, NGO members, farmers, business people and other interested members of the community discuss what and how they want to learn together about their environment. Students learn together with parents to map air pollution, to map illegal garbage dumping, to solve the community’s environmental problem - not only to learn for better grades.<sup>22</sup>

**USA: Environment as an Integrating Concept**

One of the best researched community-based environmental education initiatives is based on the concept of “Environment as an Integrating Context (EIC)”. US schools used the environment as the integrating concept not only in science but for all subjects including literature, history, math, social studies. The EIC Model™, developed by the State Education and Environment Roundtable” (SEER) improved students’ achievement by using local natural and community surroundings as a context for learning.<sup>23</sup> Integrating ecological principles into all subjects of education at school also included the adoption of system thinking which resulted in not only higher academic achievement but better use of higher order thinking skills and ability to grasp and solve complex problems creatively. “EIC didn’t teach me all the facts that every traditional English or history teacher thought I should know,” said one high school graduate. “What it did teach me was how to learn and how to process what I learned into my own facts.”<sup>24</sup>

**USA: Vermont**

The Vermont Education for Sustainability Program<sup>25</sup> is “learning that links knowledge, inquiry, and action to help students build a healthy future for their communities and the planet.” This initiative succeeded to integrate sustainable development in the education standards of Vermont! Community Mapping<sup>26</sup> helps young people to explore their landscape and discuss their local land-use planning. The Environmental Learning for the Future (ELF)<sup>27</sup> initiative trains community members, mostly parents, to teach elementary school age children about nature through hands-on explorations. The Linking Learning to Life<sup>28</sup> helps students to better understand the community and their career choices by giving students hands-on learning opportunities in various organizations including business in their community.

**USA: Georgia**

The Education for a Sustainable Future Project<sup>29</sup>, supported by the U.S. Department of Education developed and successfully implemented curricula and lessons plans on education for sustainable future with the involvement of local communities in Georgia, USA.

**Poland**

A country wide network of Community-based Environmental Education Centers has been established to strengthen the quality of community life, school-based and after-school education and their environment<sup>30</sup>. In-service teacher trainings support educators with well-tested, innovative methodology.

**III. Preferences in community-based learning : Survey in Sendai, Japan**

“Sendai is ranked the 5<sup>th</sup> most attractive city in terms of economic activity and living conditions by Hong Kong’s “Asia Week” magazine. “So no wonder,” the population growth rate is the highest of the 13 major cities in Japan. Daytime population exceeded one million two years ago.”<sup>31</sup> One of the factors in Sendai’s attraction is its high quality education system which pays special attention to link learning with real life issues, bringing schools, communities and their environment to close connection.

Students in Sendai regularly have enjoyable and meaningful learning experience outside of the school, in their larger community of Sendai, well integrated in their curriculum. Also, the pre-service teacher training programme of the Miyagi University of Education includes community-based field studies which prepare future teachers for designing and effectively offering students with real life, community-based learning experiences.<sup>32</sup>

### **Students learning preference: survey results**

#### **Rationale**

Having looked at the websites of Sendai's elementary schools, I was delighted to see that many schools had a strong environmental profile with vibrant community links. Schools must have a plethora of ideas, approaches and tools to make all this happens. What can other schools learn from Sendai?

#### **Research question**

Inspired by this motivation a simple research scheme was designed around the following research question: Given all the options, how students prefer learning about their community and their environment? In other words, what are the most motivating approaches?

There were two underlying agendas in this question: (1) To better involve students in their learning process by giving them an opportunity to share their voice, their preferences. (2) To help teachers adjust the curriculum according to students' preferred learning so learning can be more enjoyable, more motivating and eventually more effective in terms of raising environmental awareness.



**Figure 3.** Students of katahira elementary school in Sendai participate in an electronic survey about their learning preference.

#### **Methodology**

A survey was designed to assess the learning preferences of students in terms of the venue (at school or various out of school venues) and the generational composition (peer or mixed-generational learning) of their learning. The only choice which was more of a learning approach than an actual venue was the use of

the internet in learning. We wanted to include this option as we assumed many students enjoyed using the internet for learning not only at school where they had limited time but also at home and other venues e.g. in the science museum.

The survey asked students to select one, two or maximum three situations (out of the offered eight ones including their own additional choice) they would prefer learning in when they learn about their community, Sendai. Each option had two varieties: learning with friends (peer group), and learning with friends and adults (mixed generation group).<sup>33</sup>

An electronic survey<sup>34</sup> using single choice was designed in close consultation with the education authorities of Sendai. The survey's language used age-appropriate colloquial Japanese, without any unusual words, expressions for students of 8-14 years old. The electronic survey was hosted by the server of the United Nations University, Tokyo (UNU) using UNU's proprietary application designed for multi-language electronic surveys. Students could access the survey from the computer laboratory of their school for three days one week prior the conference. The Institute for Global Environmental Strategies (IGES) received the survey results and shared the analysis with the students and the education authorities in Sendai at the conference.

## Results

539 students from more than 120 primary and secondary schools from the larger metropolitan area of Sendai submitted their 1,498 choices in the eSurvey.<sup>35</sup> Not every student submitted three preferences, some did less. Students ranked the offered choices (14), did not use the opportunity to add their own, individually articulated, different choice.

The top four learning preferences include eLearning (ICT-assisted, computer/internet-based learning), hands-on learning in the local science museum, visiting nature reserves and learning in their school.

The results can be summarized in the following five figures.

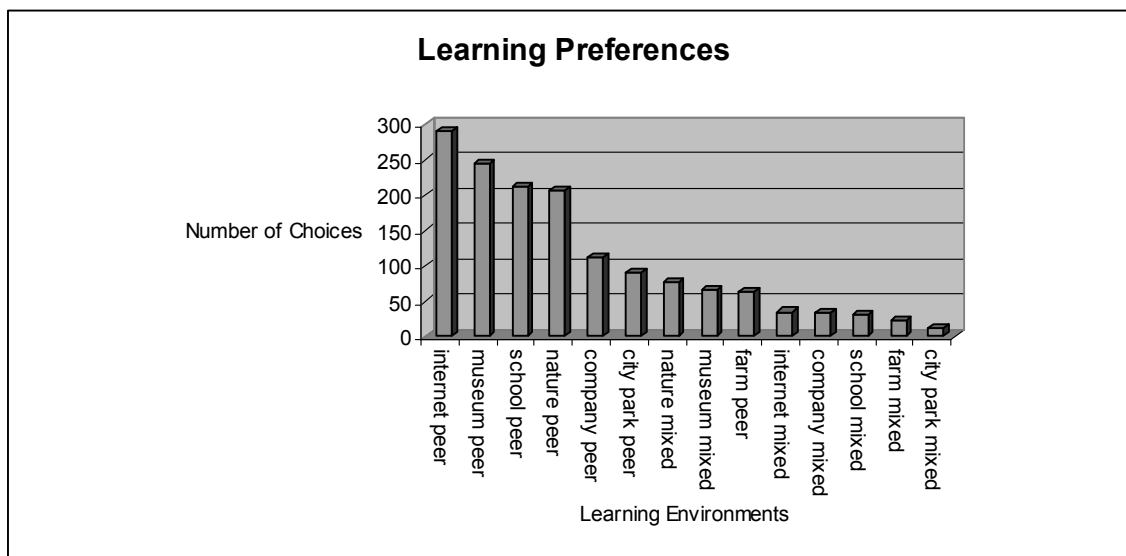
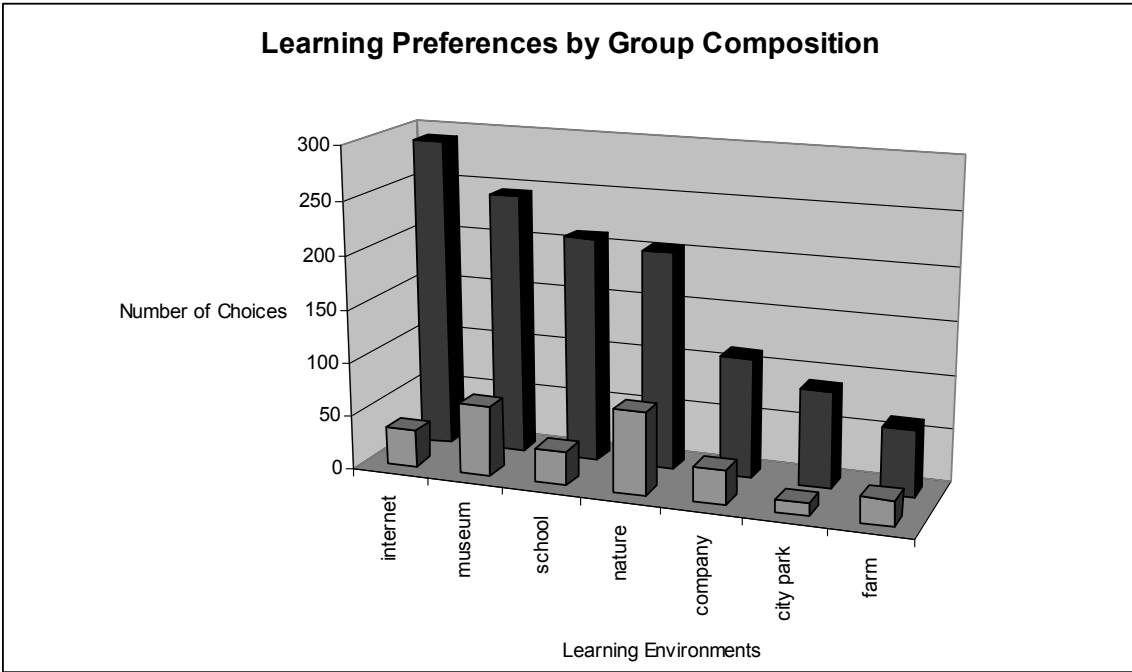


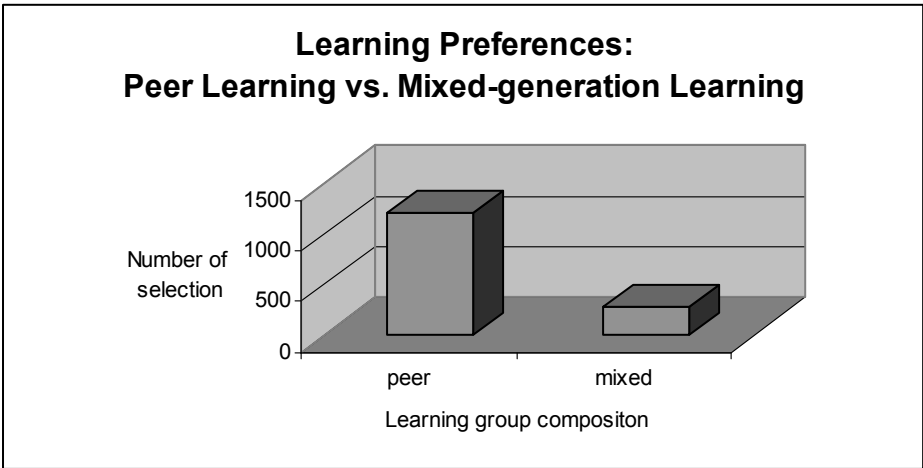
Figure 4. Learning preferences in all 14 categories.





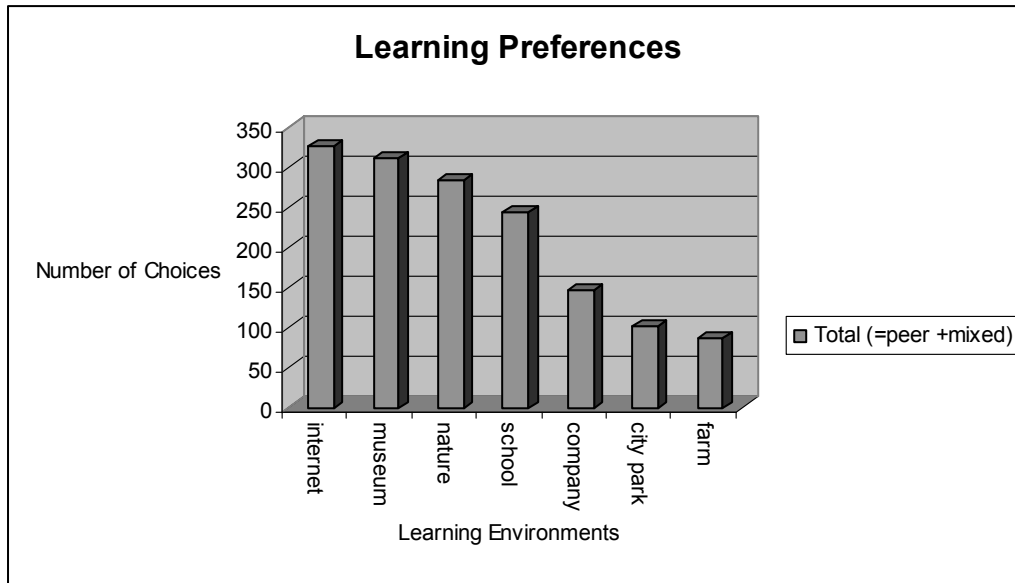
**Figure 5.** The same as Figure 1 but arranged in a way that the peer / mixed generational learning preferences are seen separately.

The ranking of peer-learning is different from the ranking of mixed-generation learning. Visiting nature reserves and the local science museum ranked highest in mixed-generation learning.



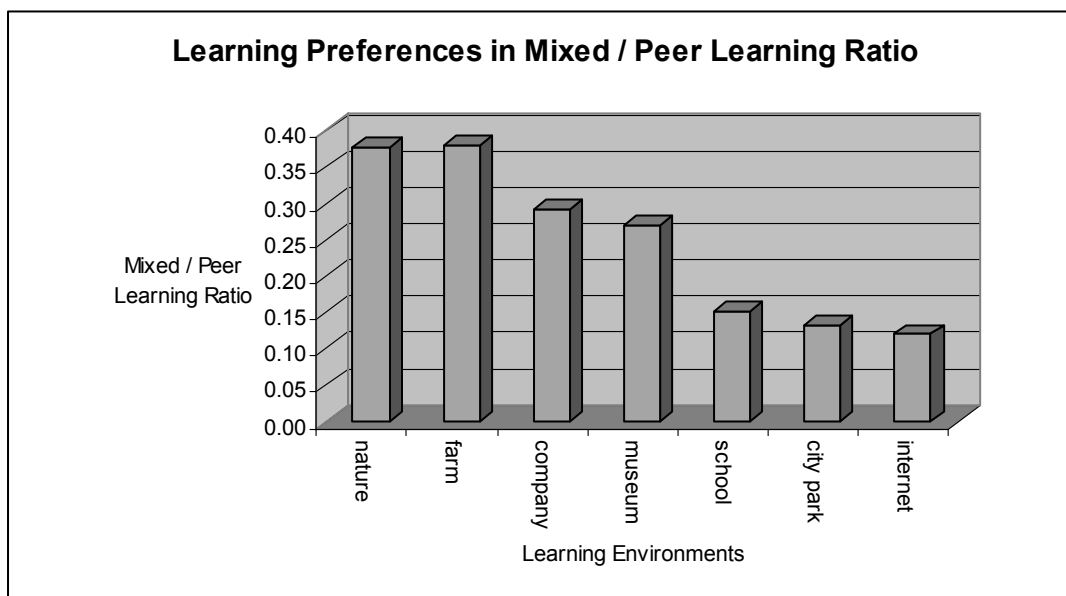
**Figure 6.** Learning Preferences according to learning group composition: peer-learning and mixed generational learning.

Peer learning was preferred (81%) to learning in a mixed-generation group (students, adults, grand-parents).



**Figure 7.** Learning Preferences with combined (peer learning and mixed generational learning) categories.

Electronic learning delivery systems (eLearning), like computer, internet-based learning, TV, radio etc. ranked first as students’ preference in learning about their community. Visiting museums, culture houses came very close as second, visiting nature reserves third, and learning in traditional school-based environment ranked fourth. Visiting companies, offices, hospitals, banks, or city park, and finally farms ranked relatively low.



**Figure 8.** Mixed/peer learning ratio for each category (nature, farm etc.).

The mixed/peer learning ratio for each category (nature, farm etc.) shows students’ relative preference to learn in mixed-generational environment.

Although students prefer learning with their friends in general, exploring nature and visiting farming activities are the most popular choice when students want to share learning with adults.

### **Interpretation**

Survey results presented in this paper of learning preferences of 539 primary school students of age 8-14 in Sendai, Japan confirm that students are keen to learn about their community and their environment. The high number of survey respondents in limited time and short notice reflects students' willingness and enthusiasm to participate in their community-based learning.

Students' overwhelming preference of learning in peer-groups versus mixed-generational ones is not surprising given the age of students, students' previous experience and the strong socialization (school-based learning socializes students to learn in peer-groups in sharp contrast with community-based learning where mixed-generational groups are more the norms). Providing young people with mixed-generational learning opportunities, however, continues to be important to re-dress the balance for trans-generational learning and inspiring innovation.

Although students prefer learning with their peers, exploring nature and visiting farming activities are the most popular choice when students want to share learning with adults. Learning about nature and farming in mixed-generation groups is perhaps the most critical areas for acquiring tacit knowledge, wisdom passed down from generation to generation. Although the ratio of mixed/peer-generational learning is the highest in these two categories-a sign of appreciation of trans-generational tacit knowledge which is more associated with mixed-generational learning-it is desirable to strengthen this trend with well-designed community-based learning programmes.

Students' top three choices constitute active learning approaches: eLearning, hands-on exploration in the local science museum and learning in nature reserves. This result confirms the often reported experience that active / interactive learning is the most motivational, most engaging<sup>36</sup>, and most effective especially for learning about the environment<sup>37</sup>. The local science museum in Sendai provides a formative, state-of-the-art learning experience to explore local and global environmental phenomena by using a wide range of tools including remote sensing, laboratory experiments etc. Applying active approaches to community-based learning is recommended not only for increased motivation but also for understanding that learning about fast changing local issues one should always take an active approach, a self-motivated initiative. By using active approaches young people ability and willingness to act for local environmental issues are greatly enhanced.

Given the fast development and forceful promotion of ICTs, it is not surprising that the favorite choice of learning is eLearning: 54% (in peer groups). One of the most attractive features of eLearning is its learner-centered design: students can immediately see, hear and evaluate the impact of the actions, decisions and this tight control with strong motivation keeps them engaged, motivated. The increasing amount of information about local issues can offer teachers, students and community-members a great resource for learning and informed cooperation. The threats of using eLearning often prevent teachers to even consider

it as a tool. Wisely designed and applied eLearning programmes that add value to other learning forms, however, can greatly enhance the effectiveness of community-based learning without falling in the trap of escaping into a virtual reality.

Although school-based learning ranked as the fourth in popularity, given the choice, students would spend less than a day per week (16 %) of their learning in classroom when it comes to learning about their community. This is a good evaluation of classroom-based learning methods in Sendai as otherwise students significantly preferred non-traditional learning setting which they associate with community-based learning.

When students learn together with their parents, neighbors, people from business and administration, farmers, craft men, etc. on a regular basis-as they do in community-based learning-they meet people they would otherwise not, and they become acquainted with parts of the community which would stay hidden in the regular school education. Through these interactions, the bonding among people, the “social capital”, thus the sense of belongingness and sense of community gets stronger, more diversified and deeper. To purposefully enhance this process, the current good policies on community-based learning need to be supported and further studies (e.g. gap analysis) are needed to prioritize action for improvement.

### Recommendations

- Keep involving the local community in education.
- Keep high profile of environmental issues across the whole curriculum.
- Strengthen educational programs understanding rural development (more on farms).
- Address more the social and economic aspect of community-development.
- Honor students’ learning preferences.

### IV. The “shin-do-fuji principle

In conclusion, let’s reflect on the “Shindofuji Principle, and old Japanese principle which has a message for us about community, environment and learning. Originally a Buddhist teaching, the shin-do-fuji(身土不二) principle literally means that our body and its environment are inseparable:

身 (shin) — our body

土 (do) — environment (Earth)

不二 (fuji) — inseparability (not two = one)

It sounds like a succinct articulation of system thinking or the precautionary principle: the interplay between the physical environment and ourselves warns us to learn more about this system, and beware of the limits of adaptability of these actors. The globalization-induced mobility and the emergence of mega-communities (mega-cities) pose a new challenge in (re) learning mobility and the opportunity of (re) defining our relationship with our environment. The key is learning the system. This is a lifelong learning process. The oneness of human kind (individuals, communities) and our local and global environment gives

us both responsibility and hope.

### **Acknowledgement**

Noriyoshi Sato, Sendai Board of Education

Professor Kazuyuki Mikami, EEC, Miyagi University of Education, Sendai

Dr. Yoshihiro Ugawa, EEC, Miyagi, University of Education, Sendai

Dr. Masahisha Sato, Reiko Koyama, Mami Takanarita, IGES, Hayama

Dr. Brendan Barrett, Ng S.T.Chong , UN University, Tokyo

Ms. Motoko Mezaki, interpreter, translator, Tokyo

### **Notes:**

<sup>1</sup> This paper summarizes the main points presented on 2 December, 2002 in Sendai, Japan Contacts: [deri@iges.or.jp](mailto:deri@iges.or.jp), <http://www.iges.or.jp/>, <http://iges.net>

<sup>2</sup> In this paper community is defined as a group of people with common geographical locality, common interest and common aspiration (goals).

<sup>3</sup> Norberg-Hodge, H. (1991). *Ancient Futures, Learning from Ladakh, Learning the Western Way*, P 110. Sierra Club Books. USA

<sup>4</sup> Senge, P. & Cambron-McCabe, N. & Lucas T. & Smith, B. & Dutton J. & Kleiner, A. (2000): *Schools That Learn. A Fifth Discipline Field-book for Parents, Educators, and Everyone Who Cares About Education*, Doubleday/Currency <http://www.fieldbook.com>

<sup>5</sup> Agenda 21, Chapter 36 (1992):  
<http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm>  
*Earth Summit: Agenda 21* (The United Nations Program of Actions From Rio), 1992. United Nations Department of Public Information, USA

<sup>6</sup> UNESCO “Educating for a Sustainable Future” (1994 - 2001)  
<http://www.unesco.org/education/esd/> ;

<sup>7</sup> It is important to acknowledge that community involvement ranks as the third of the five most important school-level factors that influences students’ academic achievements. In Marzano, J. Robert (2003) *What Works in Schools: Translating Research Into Action*. ASCD, USA

<sup>8</sup> Addition by the author.

<sup>9</sup> Community-based learning as a tool in education for sustainable development is promoted in several international educational initiatives, most recently: UNESCO Decade of Education for Sustainable

Development (2003)

<http://unesdoc.unesco.org/images/0013/001311/131163e.pdf>

<sup>10</sup> Implicit learning: complex learning in the absence of conscious recollection of what has been learned. It can be accessed more readily on implicit memory tests (e.g. performance) than on explicit memory tests (e.g. direct questioning). Source: Eysenck, M.W., Keane, M.T. (2001). *Cognitive Psychology*. Psychology Press, Taylor and Francis Group

<sup>11</sup> Social capital can be described as the relations between individuals and groups, often referred by sustainable development minded economist in addition to economic and environmental capitals. “Shared knowledge, understandings and patters of interactions that a group of people bring to any productive activity” in Roseland, M. (1998) *Toward Sustainable Communities: Resources for Citizens and Their Governments*, New Society Publishers, Gabriola Island BC, Canada and Stony Creek CT, USA

For further reading: Sustainable Measures: Community Capital

<http://www.sustainablemeasures.com/Training/Indicators/Capital.html>

<sup>12</sup> Senge, P. & Cambron-McCabe, N. & Lucas T. & Smith, B. & Dutton J. & Kleiner, A. (2000): *Schools That Learn. A Fifth Discipline Field-book for Parents, Educators, and Everyone Who Cares About Education*, Doubleday/Currency <http://www.fieldbook.com>

<sup>13</sup> See also: Deri, A. (2003) “Community-based Education for Sustainable Development.” (eCourse). <http://iges.net>

<sup>14</sup> Further readings:

GBN.org (1998). “Scenario Thinking: Education and Community.” *Scenario Planning* Global Business Network.

Chase, Bob. (1998b). “Welcome to Connecting Schools, Families, and Communities.” *National Education Association*

Ogilvy, J. (1995). “Education and Community: Four Scenarios for the Future of Public Education.” Global Business Network. <http://www.gbn.com/ArticleDisplayServlet.srv?aid=505>

<sup>15</sup> The benefits of system-thinking-based community management are described by Gwendolyn Hallsmith (2003) *The Key to Sustainable Cities, Meeting Human Needs, Transforming Community Systems*. New Society Publishers, USA

<sup>16</sup> Rapp, K.A., Lal, C. (ed.) ( 1996) *Improving science education with community-based projects*. National Science Teachers Association, USA

<sup>17</sup> Environmental Education and Communication Programme Office, Hungary, homepage:  
<http://www.prof.iif.hu/konkomp/indexa.htm>

<sup>18</sup> Hungarian Eco-School Network homepage: <http://www.okoiskola.hu/>

<sup>19</sup> Read more on the Institute for Sustainable Communities homepage: <http://www.iscvt.org/>

<sup>20</sup> Learning Environment and Activity Foundation's homepage: <http://www2.ocn.ne.jp/~leaf-j/>

<sup>21</sup> Read more on the Institute for Sustainable Communities homepage: <http://www.iscvt.org/>

<sup>22</sup> Read more on the Institute for Sustainable Communities homepage: <http://www.iscvt.org/>

<sup>23</sup> State Education and Environment Roundtable (SEER) homepage: <http://www.seer.org/>

<sup>24</sup> Sherman, P. (1998). Empowering Students to do Extraordinary Things:  
Environment as an Integrating Concept <http://www.rmc.sierraclub.org/pandp/1998-02/eic.html>

<sup>25</sup> Shelburne Farms' homepage: <http://www.shelburnefarms.org/>

<sup>26</sup> Orton Foundation's homepage: <http://www.orton.org/>

<sup>27</sup> Environmental Learning for the Future (ELF) <http://www.vinsweb.org/education/>

<sup>28</sup> Linking Learning to Life's homepage: <http://www.linkinglearningtolife.org/>

<sup>29</sup> Center for Education for a Sustainable Future's homepage: <http://csf.concord.org/esf/>

<sup>30</sup> Read more on the Institute for Sustainable Communities homepage: <http://www.iscvt.org/>

<sup>31</sup> Outline of Sendai City, Slide Show on Sendai City's Homepage:  
<http://www.city.sendai.jp/information/SlideShow/frame15.html>

<sup>32</sup> Environmental Education Center of the Miyagi University of Education:  
<http://www.eec.miyakyo-u.ac.jp/english/>

<sup>33</sup> The text of the eSurvey (original in Japanese):

“At school you will learn about Sendai in different ways. What would make you most excited, what are you

really looking forward to? Choose three.”

1. Classroom lesson in school
2. Visiting a factory, a bank, a hospital, an office etc in the city
3. Visiting a museum, a culture-centre in the city
4. Visiting a city-park
5. Visiting a farm, rice-paddies in rural areas
6. Visiting a nature reserve: mountains, seashore
7. Using computer/Internet, TV, radio
8. Other: Your ideas....

<sup>34</sup> Survey URL: [http://c3.unu.edu/sastrial/survey\\_statistics.cfm?id=229](http://c3.unu.edu/sastrial/survey_statistics.cfm?id=229)

<sup>35</sup> Total student population in Sendai: 539

Total number of primary and secondary schools in Sendai: 148

<sup>36</sup> Cooper, G.(1998): *Outdoors with Young People*. Russell House, U.K.

<sup>37</sup> Deri, A. Cooper, G. (1993) *Environmental Education - An Active Approach*. Regional Environmental Center for Central and Eastern Europe, Hungary