

Bilingual Environmental Education (Green Immersion)



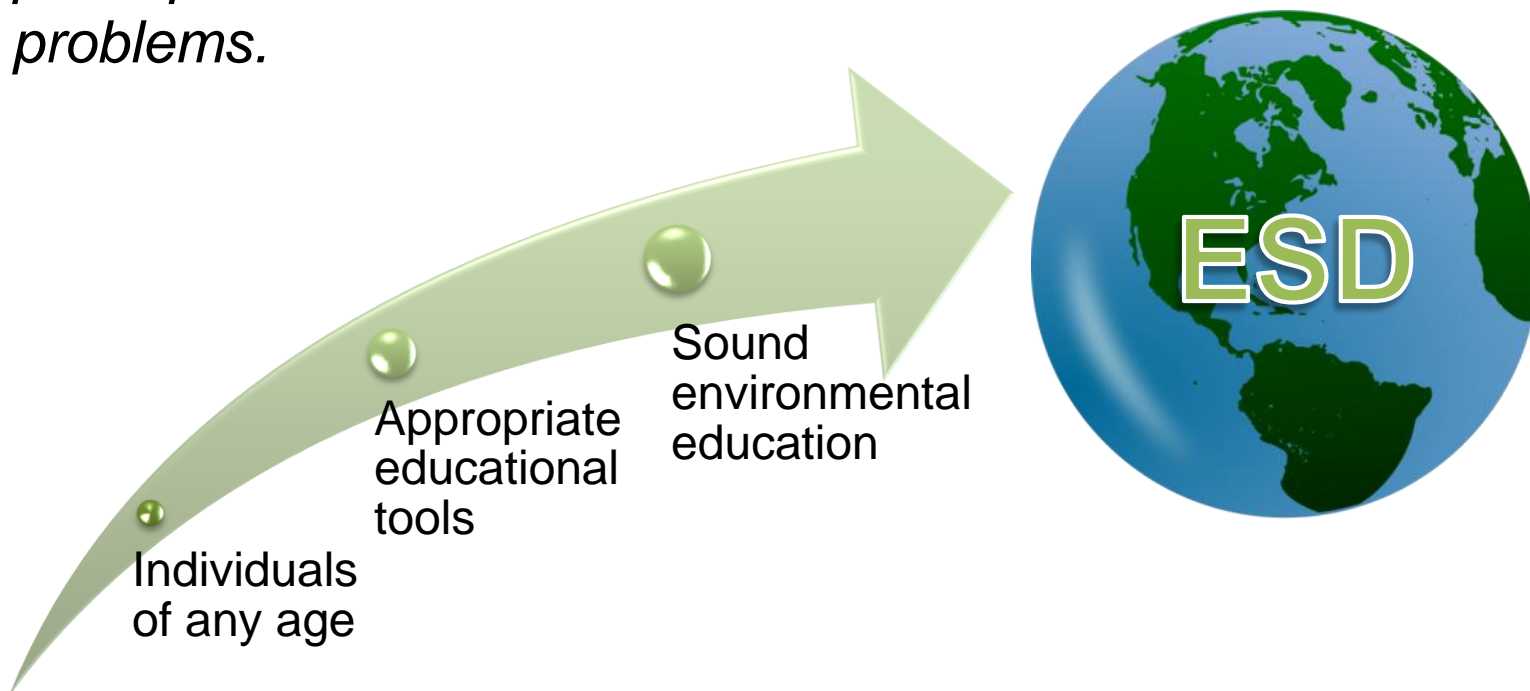
E·L·I·A·S

Early Language and Intercultural Acquisition Studies
Multilateral Comenius Project funded by the European Commission

What is environmental education (ESD)?



*Environmental education for **Sustainable Development** is the preparing of individuals with the appropriate educational tools so that they become positive participants in current and future environmental problems.*



What is ESD?

Why is ESD important?



Ecophobia

...is the “callused or fearful attitude towards nature” resulting from improper environmental education (Haskin 1999).



Accountability

Our actions produce consequences. We must learn how to minimise the negative consequences (Breiting 1999).



Sustainability

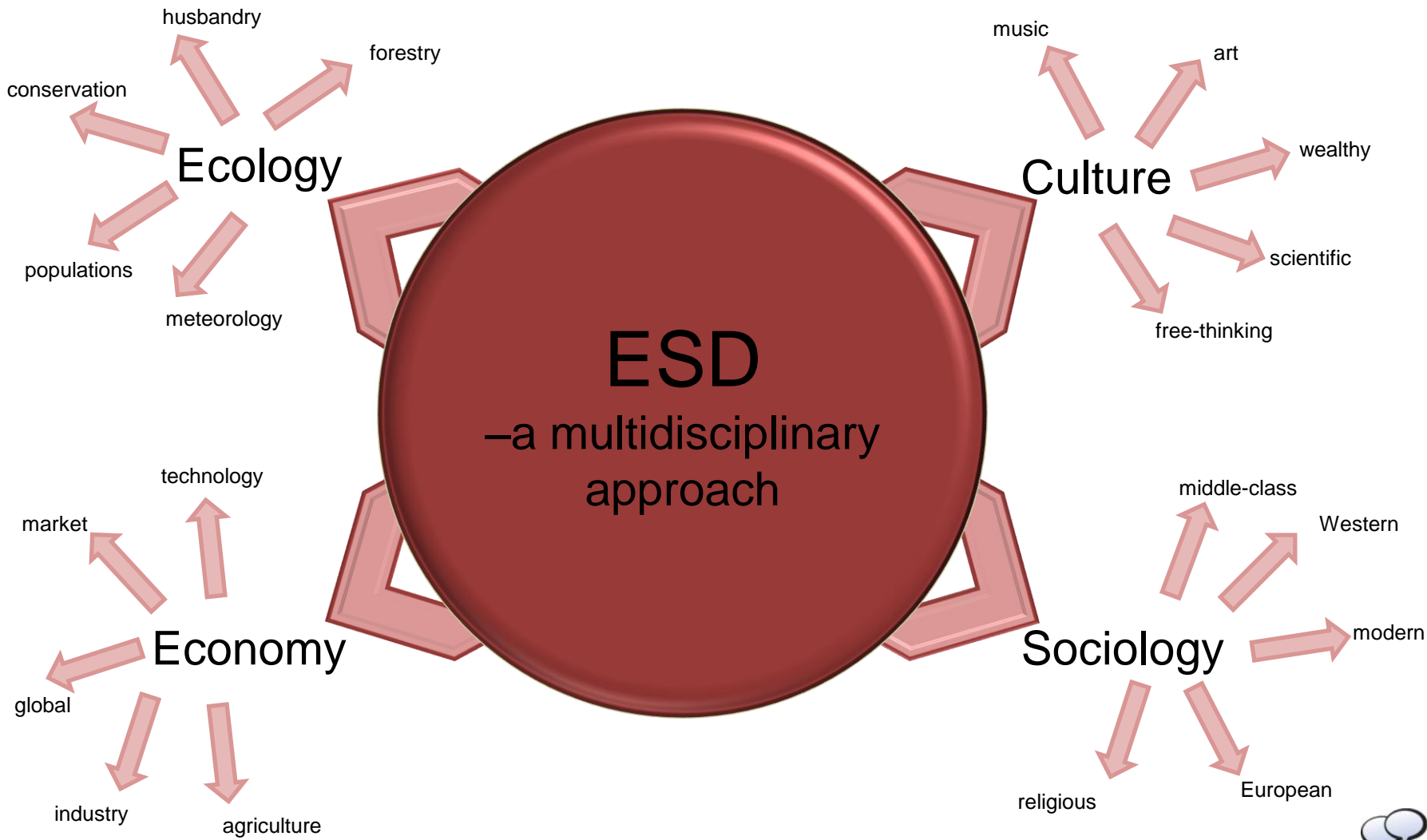
With 6.6 billion people in the world and natural resources diminishing, we must learn how to be ‘future conscious’ (UN Earth Summit Conference 1992).





What is ESD?

The complexities of ESD.



What is ESD?

The goals of ESD.

- to organise the complexities of ESD into understandable and relevant environmental educational programmes
- to emotionally and physically prepare individuals for participation in environmental problems
- to ensure the future sustainability of the environment



What is ESD?

Where to find out more about ESD.

WAZA/EAZA websites

- World Association of Zoos and Aquariums / European Association of Zoos and Aquariums
- online publications
- conservation strategies

UNESCO website

- United Nations Educational, Scientific and Cultural Organization
- governmental conferences
- 41 Recommendations for Tiflis
- UNESCDOC database

ESD

all links are provided
in 'references'

UN website

- United Nations
- governmental conferences
- publications on environment and urban issues
- Earth Summit Conference 1992

Research studies

- independent research studies
- governmental research studies
- Haskin 1999, Breiting et al. 1999, etc.



What is Green Immersion?



The origins of Green Immersion.

- with the opening of the Zoo Kindergarten in Magdeburg, Germany there was a desire to create an educational concept to include foreign language acquisition and environmental education
- the title “Green Immersion” was coined by leaders from two of the ELIAS project partners, Dr. Kristin Kersten and Dr. Kai Perret
- Green Immersion is bilingual environmental education (using the ‘immersion’ language method)
- the Green Immersion programme began in October 2008 in the Zoo Kindergarten
- a research study, observing child growth and materials effectiveness in the GI programme, ran from October 2008 to May 2010



What is Green Immersion?



The Green Immersion programme

Green Immersion (GI) is an environmental education programme that assists children in their understanding of environmental topics, by presenting the children with a weekly, two-part activity, carried out all in English, the children's foreign language.

Monday with older children: smells in a forest and fire safety	Tuesday with younger children: what a plant, tree, flower and soil smells like	Wednesday older children: forest animal – N.A. Porcupine	Thursday younger children: forest animal – N.A. porcupine	Friday both groups: free day or trip to the forest for older children
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1st sessions = learning

2nd sessions = practical experience

continued GI



What is Green Immersion?



The Green Immersion programme

1st sessions = learning

- resulting from GI being a bilingual programme with a complex content matter, the first session of the activity is where the children learn the new vocabulary and/or topics

2nd sessions =
practical experience

- by introducing the topics in a previous session, the children are able to follow the practical application of the topic with more ease; therefore, more is appreciated by the children



What is Green Immersion?



The Green Immersion programme

The sessions in the programme are tailored to the ages of the children; the programme has two levels of learning.

**1st sessions =
learning**

Level 1

➤ the first level is more of an introductory to the environment and foreign language

Level 2

➤ the second level explores deeper into environmental and language topics

**2nd sessions =
practical experience**

Both

➤ the practical application experiences, or 'zoo visits', are the same for both groups, because of organisational reasons



Creating GI Sessions



Topics for Green Immersion



Relevant world environmental issues

- animal, habitat and plant conservation
- climate control
- soil and erosion
- water as a precious resource
- desertification and deforestation
- pollution



Themes the children have interest in

- animal young
- experiments/investigations and their results
- underwater creatures
- planting/caring for a garden
- very large animals or very small animals
- weather



Creating GI Sessions



Where to find the topics?



Relevant world environmental issues

- WAZA or EAZA handbooks
 - available online on the respective websites
- UNESCO publications or website
- research studies or research organisations
 - often scientific papers are available via the internet
- school text books



Themes the children have interest in

- ask the parents for their input
- ask other educators for their input
- objects a child interacts with daily
- what you find interesting
 - when an educator is interested, they pass that enthusiasm on to the children

* see further on in this presentation for website links



Creating GI Sessions



Age appropriate topics

- **complex topics** (deforestation, erosion):
 - to help children understand complex topics, begin by encouraging appreciation for the topics

- **fearful topics** ('creepy-crawly' animals or severe weather)
 - ensure the learning environment is safe while leading these kinds of topics and *invite* the children to learn instead of forcing them

- **skill-building topics** (fine motor skills or quiet observations)
 - while conducting these topics have other similarly-themed activities which the children can change to when they become distracted, eventually returning to the original activity



Creating GI Sessions



Considering group ages and size

➤ **appropriate topics can depend on age of group**

- topics which require independent work can be appropriate for older groups
- topics with guidance can be appropriate for younger groups

➤ **large groups of children and few educators**

- set up work stations regarding the environmental theme, which the children rotate between
- while the children rotate between the groups encourage in-depth learning, either by guided questions or personal exploration

➤ **zoo visits or environmental explorations**

- remember to consider the space available within the zoo and the impact a large group of children will have on the animals



Creating the tools

Choose a topic and brainstorm

- keeping in mind the criteria of age and group size, think of as many sub-topics as possible
- the sub-topics can be very specific or more general topics
- too many sub-topics is better than too few



Creating the tools



Choose one sub-topic and create a lesson plan
(either a single session or a multi-week module)

- divide the sub-topic into weekly session themes, for both the 'learning' and 'practical'
- think of the topics within that theme to cover in one weekly session; plan session goals
- take note of how many 'new' words and environmental topics will be introduced in one session; for toddlers, minimise the 'new' topics or split the week session into two



- single out all the very new words and complex topics, include in the introduction
- plan the session to 'build' from the simpler ideas to the more complex: i.e.: to introduce textures, plan to introduce multiple well-known examples of textures (rough/carpet, soft/teddy bear, hard/table, smooth/floor) and then move on to the same textures found in a forest



- for younger children, plan activities which repeat and re-cast the new words and topics until the children are comfortable with the new words
- for older children, spend on as much time as needed on introducing the new words and topics, then progress further into the more complex ideas and topics



Creating the tools



Example of how ‘basic’ a session may be

- early on in the GI programme a module was planned to introduce the animals of a basic food chain = plant → rabbit → fox
- BUT at the centre of a food chain is the concept of ‘eating’, which the children did not understand in the foreign language at that point in time
- THEREFORE, the module had to begin by introducing the concept of ‘eating’; first as applied to the children, second as applied to animals

➤ Remember:

GI is a bilingual programme where language is a major part of a child’s understanding and growth in environmental education; therefore, the first few sessions in a module should introduce important words (which are then re-enforced throughout the entire module) which may provide a richer learning experience.



Creating the tools



The issue of copyright

➤ websites which help clarify copyright issues for educators

- <http://www.templetons.com/brad/copymyths.html>
- <http://home.earthlink.net/~cnew/research.htm#Purpose%20of%20use>
- <http://www.eucopyright.com/en/copyright-and-related-rights>
- <http://www.copyright.gov/title17/>

➤ if the copyright is not certain, it's better to not use it than be caught in a legal lawsuit

➤ if the material is definitely needed for the GI session, contact the copyright holder and negotiate terms



Disclaimer: the ELIAS project, and the creators of this presentation are not liable for any legal issues users of this presentation might encounter



Creating the tools



The sessions are outlined, now materials

- if there is time to create your own materials (crafts, worksheets, games) please do so
 - you know what you want to convey, and can create the materials to fit your requirements
- however, most likely there will be very little time to prepare, so the next few slides provide good internet resources and tips on collecting the 'real thing'
 - please remember to consider copyright issues



If you would like completed environmental modules, please visit the ELIAS website for a variety of modules and sessions

Link: <http://www.elias.bilikita.org/>



Creating the tools



Websites

General Information

- **Wikipedia:** http://en.wikipedia.org/wiki/Main_Page
 - please cross-check the information for accuracy
- **NASA:** <http://www.nasa.gov/>
- **Dave's ESL Cafe:** <http://www.eslcafe.com/>
- **WAZA:** <http://www.waza.org/en/site/home>
 - see also EAZA website
- **UNESCO:** <http://www.unesco.org/new/en/unesco/>

Animal Information

- **The Animal Files:** <http://www.theanimalfiles.com/>
- **Defenders of Wildlife:**
 - <http://www.defenders.org/index.php>
- **Animal Diversity Web:**
 - <http://animaldiversity.ummz.umich.edu/site/index.html>
- **ARKive:** <http://www.arkive.org/>
- **African Wildlife Foundation:** <http://www.awf.org/>
- **Zoo and Aquarium websites**



Creating the tools



Websites

Crafts / Songs / Games

- **DLTK's Craft for Kids:** <http://www.dltk-kids.com/>
- **Enchanted Learning:**
 - <http://www.enchantedlearning.com/Home.html>
- **KIDiddles:** <http://www.kididdles.com/>
- **Kids Games:** <http://www.gameskidsplay.net/>

Reading / Miscellaneous

- **Soundboard.com:**
 - <http://www.soundboard.com/category/Science-Nature.aspx>
- **Project Gutenberg:**
 - http://www.gutenberg.org/wiki/Main_Page
- **The Rosetta Project:**
 - <http://www.childrensbooksonline.org/library.htm>
- **Science Dictionary:**
 - <http://www.sciencedictionary.org/>



Creating the tools



Websites

Experiments / Investigations

- **Home Experiments:**
 - <http://scifun.chem.wisc.edu/HomeExpts/HOMEEXPTS.HTML>
- **Fun Science Gallery:**
 - http://www.funsci.com/texts/index_en.htm

Pictures / Drawings

- **Open Clip Art:** <http://www.openclipart.org/>
- **Wikipedia Commons:**
 - http://commons.wikimedia.org/wiki/Main_Page



Creating the tools

Collecting animals

Insects / Invertebrates

- insect hotels can be good educational tools
- ask local zoo regarding animal care
- prepare the animal's habitat before the animal is collected
- handle the animal as little as possible to minimise stress
- **handle no animals which are poisonous or unknown**
- allow the animal to enter the habitat on its own accord, instead of catching them by hand
- most insects are sluggish in cooler places, and more active in warmer places
- if releasing, release into the same location as found

Plants / Inanimate

- try and collect plants which have fallen to the ground
- collecting new samples: cut with sharp scissors, instead of pulling off
- discuss with the children the importance of not plucking every plant
- when collecting samples, please ask the owners of the land before taking
- store various samples in sealed, separate containers



Creating the tools

Collecting animals



Frogs / Toads / Tadpoles

- before capturing any tadpoles/frogs/toads please check with local authorities first
- frogs and toads are highly susceptible to environmental toxicities and also easily spread diseases to other amphibians; therefore, catching and releasing may cause serious problems
- keeping tadpoles requires a lot of care, be prepared to attend to tadpole needs everyday
- while keeping tadpoles which are intended for release, keep all handling materials exclusively for the tadpoles
- frogs/toads can live for an extended amount of years (40-50)
- literature: please see “Considerations and Recommendations for Raising Live Amphibians in Classrooms” (Mendelson et al. n.d.)



Applying GI



Very young or very new language learners

Contextualise, contextualise, contextualise!

- with each new word or topic use facial expressions, gestures, or other objects to help give reference to the topic

Speak clearly

- with new words properly pronounce the word and repeat

Watch the children for understanding

- with each new topic or theme, watch the children's eyes and facial expressions for understanding
- if the children show confusion, re-cast or re-phrase the word/sentence



Applying GI



Older children or advanced language learners

Contextualise, contextualise, contextualise!

- with each new word or topic use facial expressions, gestures, or other objects to help give reference to the topic (*with older children contextualisation can be reduced*)
- encourage the children to contextualise their responses to ensure understanding

Speak clearly

- with new words properly pronounce the word
- use the word in a couple of sentences
- encourage the learners to use the words or speak about the topic

Watch the children for understanding

- with each new topic or theme, watch the children's eyes and facial expressions for understanding
- if the children show confusion, re-cast or re-phrase the word/sentence



Applying GI



All learning groups

DIURNAL?

Babies?

AMPHIBIANS?

➤ proper name use of themes/topics

- juvenile animal names (see “Enchanted Learning” website)
- animal groupings

➤ honest answers

- when a question is asked, feel free to say “I don’t know” when you don’t!
- a great sentence to follow is: “But let’s find out together.”

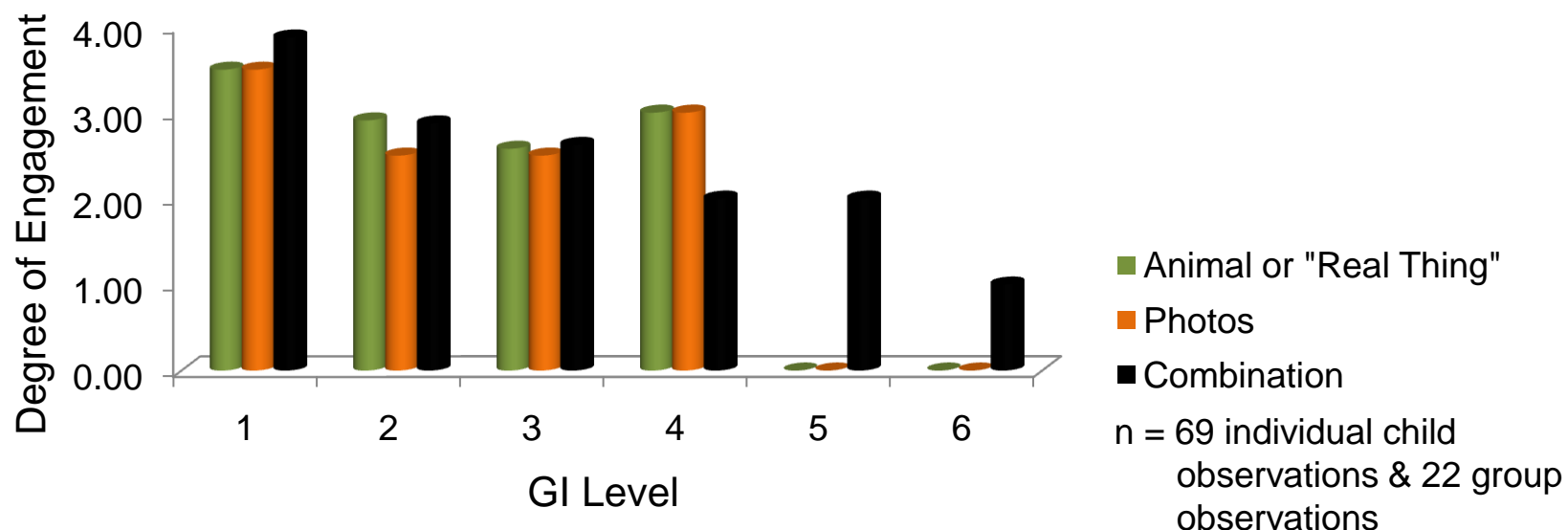
➤ reduce bad language habits

- Remember that it is easier to begin with proper language, than to try and remedy bad habits!



Results from the Research Study on Materials

Effectiveness of Materials on GI Learning



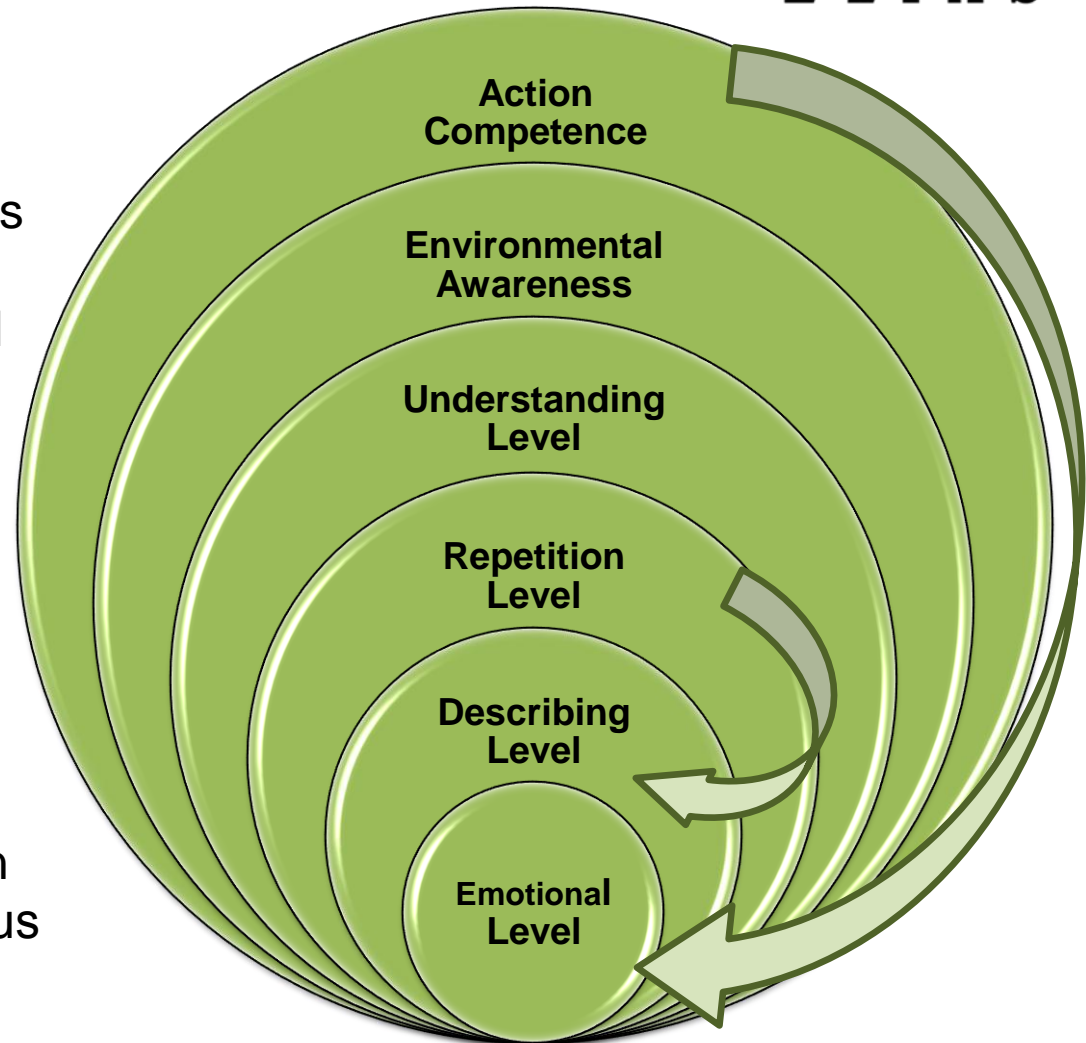
- all three categories of materials attracted the children to a high degree of engagement in the beginning levels of GI learning
- it was the combination of materials which was observed to be used when Action Competence was reached



Children's GI Growth



- no matter the age of the individual, the beginning level of GI environmental learning is to engage at the Emotional Level (no language is needed for this level)
- the Describing Level and Repetition Level are learning and processing factual information (language is needed)
- last three levels concern an individual's response to various environmental themes



model is adapted from Janßen (1988)
“Encounters with Nature”



GI Levels



Emotional Level:

➤ for the children to acknowledge the nature/environment presented to them

Describing Level:

➤ for the children to use their own words to describe what they see presented in the activity

Repetition Level:

➤ to have the children accurately repeat back the new concepts/ideas introduced, preferably in English

Understanding Level:

➤ to begin to understand the connections of environmental topics

Environmental Awareness:

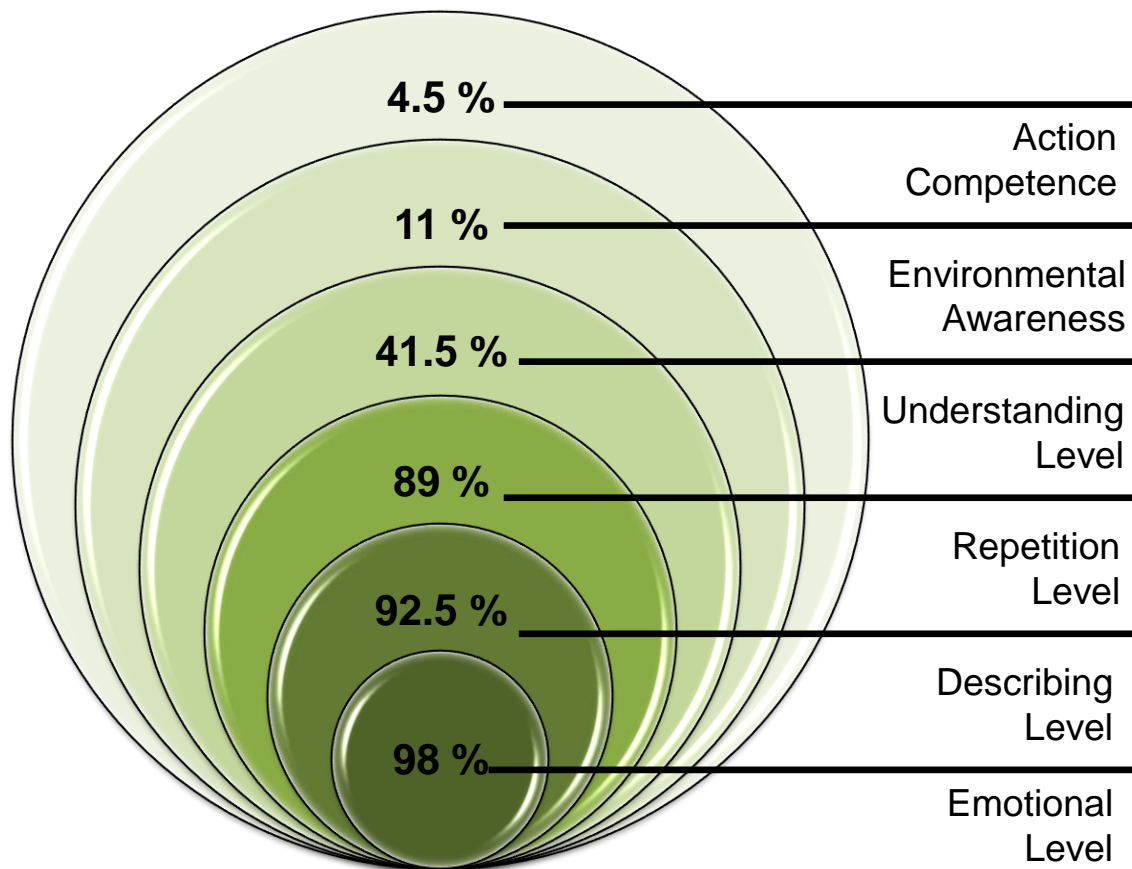
➤ to take those connections and apply them on a personal level

Action Competence:

➤ apply those connections on a “societal” level



Zoo Kindergarten Children's GI Growth



The Percentage of Children from Zoo Kindergarten, Magdeburg Who Progressed Through the Levels of GI

➤ majority of children progress through the first three levels of GI

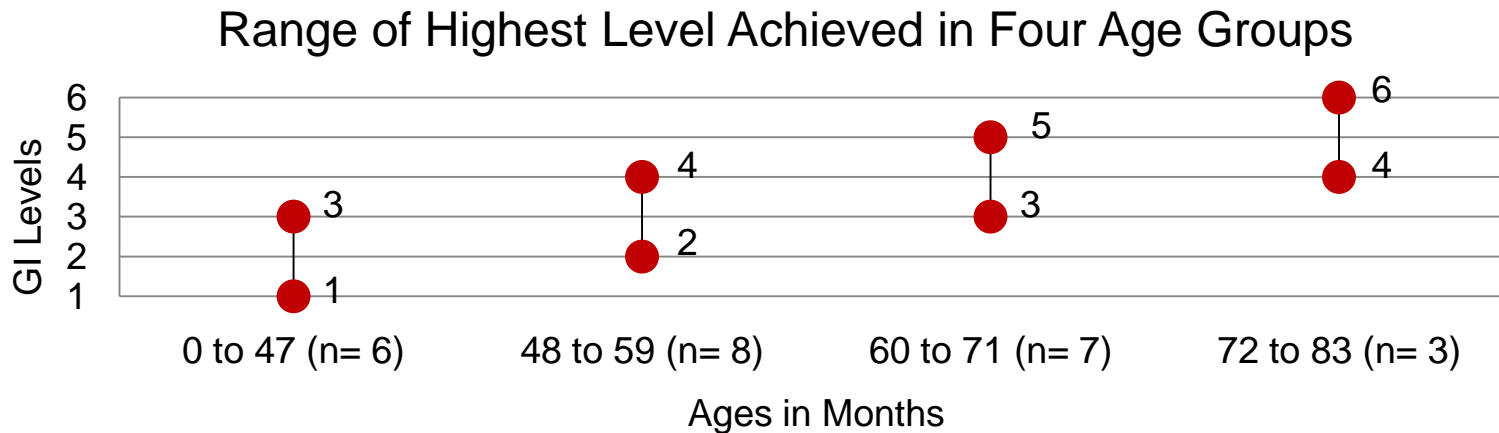
➤ the drop between the 3rd and 4th level results from the increase in GI complexity

➤ very positive results to observe that children can progress into the last levels of GI

22=group observations
69=individual observations



Zoo Kindergarten Children's GI Growth



- these results help to explain the drop in child progression
- the graph gives indication of the need for age appropriate materials and themes, since the age groups were observed to have different levels of progression
- for a more in depth look at this research study and the research studies on language immersion and intercultural acquisition please visit the ELIAS website



ELIAS online Materials



- each module has a “General Information” section containing animal information, goals, links, etc.
- most weekly sessions have a plan for two levels of GI learning and the corresponding “Environmental Exploration”
- each session is detailed, useable for those educators whose English is not fluent
- each session comes with a corresponding materials download, including flash cards, worksheets and craft layouts

The Lemur Nose Session 3 Level 2

Materials:

- a large world map (*not included*)
- a large cut-out of the African continent (*not included*)
 - using the world map, trace the continent onto cardstock or coloured construction paper
- all animal flash cards (*F.C. pages 1-9*)
- Explorer Hats
- a variety of artificial baking extracts (vanilla, almond, lemon, etc.)
- small strips of paper ~3" (7.5cm) long
- popside sticks
- scarf
- plastic zipper baggies

Words:

- WORLD, AFRICA, CONTINENT, ANIMALS, GOLIATH BEETLE, AFRICAN LION, AFRICAN HORNBILL, RINGTAILED LEMUR, NILE CROCODILE
- smell, explore, scent, paper, popside stick, game, play

Activity:

- **in preparation for the lesson**
 - an hour or two before the lesson label the small strips of paper with the names of the different baking extracts
 - poke 2 holes through each strip of paper and weave the popside stick through the holes
 - saturate the strips of paper with their baking extracts and place individually in a sealed container (such as the plastic zipper baggies)
- **review of the previous continents**
 - bring out the large world map and quickly review world features
- **Africa**
 - using the large world map leave one finger on either Australia or Antarctica and with the other hand point out Africa
 - introduce the cut-out of Africa
 - ensure the children again understand the cut-out is a representation of Africa, not a different continent
 - lay the cut-out face up in the middle of the circle
 - they can get a lot of information through one scent marking



References



- African Wildlife Foundation. (2010). African Wildlife Foundation Homepage. Web. Retrieved August 13, 2010 from <http://www.awf.org/>
- Andy (Graphic illustrator). (2006). Trash Can [trash can icon], Retrieved August 12, 2010 from <http://www.openclipart.org/detail/68>
- Breiting, Soren, et al.. (2009). *Action Competence, Conflicting interests and Environmental Education*. Research Programme for Environmental and Health Education, Department of Curriculum Research DPU (Danish School of Education). Aarhus University: Denmark. Col, Jeananda. (1996).
- Enchanted Learning Homepage. Web. Retrieved August 13, 2010 from <http://www.enchantedlearning.com/Home.html>
- DLTK's Sites Growing Together. (2010). DLTK's Craft for Kids Homepage. Web. Retrieved August 13, 2010 from <http://www.dltk-kids.com/>
- Defenders of Wildlife. (2010). Defenders of Wildlife Homepage. Web Retrieved August 13, 2010 from <http://www.defenders.org/index.php>
- EAZA. (2010). EAZA Homepage. Web. Retrieved August 13, 2010 from <http://www.eaza.net/Pages/European%20Association%20of%20Zoos%20and%20Aquaria.aspx>
- EU Copyright Office. (2010). "Copyright and Related Rights". Web. Retrieved August 13, 2010 from <http://www.eucopyright.com/en/copyright-and-related-rights>
- Fun Science Gallery. (1995). Fun Science Gallery: Science Experiments. Web. Retrieved August 13, 2010 from http://www.funsci.com/texts/index_en.htm
- gustavorezende (Graphic illustrator). (2010). Kids 3 [girl jumping], Retrieved August 12, 2010 from <http://www.openclipart.org/detail/74479>
- gustavorezende (Graphic illustrator). (2010). Kids 4 [boy standing], Retrieved August 12, 2010 from <http://www.openclipart.org/detail/74485>
- Haskin, John. (1999). *Environmental Education in the United States: Teaching in the Present, Preparing Students for the Future*. New Horizons. Web. Retrieved 7 July 2009.
<<http://www.newhorizons.org/strategies/environmental/haskin.htm>>
- Janßen, W. (1988). *Naturerleben*. Unterricht Biologie 12(137), 2-7.
- Kersten, K., Rohde, A., Schelletter, C., Steinlen, A. (2010). *Bilingual Preschools*. Vol I: Learning and Development. Vol II: Best Practices. Trier: WVT.



References



- Kersten, K., Perret, K. (2008). "Erster deutsch-englischsprachiger Zoo-Kindergarten in Magdeburg eröffnet." *Begegnung Zoo: Zoopädagogik Aktuell*, Köln: VZP, 4-5.
- Kluytmans, Terry. (2010). KIDiddles Homepage. Web. Retrieved August 13, 2010 from <http://www.kididdles.com/>
- kuba (Graphic illustrator). (2006). crystal earth recycle [earth icon with green arrows], Retrieved August 12, 2010 from <http://www.openclipart.org/detail/2213>
- MajinCline (Graphic illustrator). (2010). Globe [globe], Retrieved August 12, 2010 from <http://www.openclipart.org/detail/29188>
- Mendelson, J. et. al. (n.d.). Considerations and Recommendations for Raising Live Amphibians in Classrooms. Web. Retrieved August 13, 2010 from http://docs.google.com/viewer?a=v&q=cache:pgtmGHbQ_0QJ:www.ssarherps.org/documents/amphibians_in_classroom.pdf+JOSEPH+R.+MENDELSON&hl=en&pid=bl&srcid=ADGEESgTPiKntUnGIJNnEzX1THDmxoQ_CBDB9QUFBTTMFG8fIGHGrTpiLwzfdRjJqkkaNZO3s50rj_Bafz7voGO-hrESWhYL0am0u79EdUNqMNHsCJBS4FxXqYTSz_IMIE_ye-DCJXN&sig=AHIEtbSdTGg8SoocaZxZFcazn4h_tDTjsQ
- NASA. (2010). NASA Homepage. Web. Retrieved August 13, 2010 from <http://www.nasa.gov/>
- Newsome, Cathy. (1997). "A Teacher's Guide to Fair Use and Copyright". Web. Retrieved August 13, 2010 from <http://home.earthlink.net/~cnew/research.htm#Purpose%20of%20use>
- Nieboer, Geof. (2009). Kids Games Homepage. Web. Retrieved August 13, 2010 from <http://www.gameskidsplay.net/>
- Open Clip Art Library. (2010). Open Clip Art Library Homepage. Web. Retrieved August 13, 2010 from <http://www.openclipart.org/>
- Project Gutenberg. (2010). Free eBooks by Project Gutenberg Homepage. Web. Retrieved August 13, 2010 from http://www.gutenberg.org/wiki/Main_Page
- Population Reference Bureau. (2010). *Population Reference Bureau: Features*. Retrieved 29 June 2010 from <<http://www.prb.org/>>
- Rosetta Project. (2010). Children's Books Online: the Rosetta Project Homepage. Web. Retrieved August 13, 2010 from <http://www.childrensbooksonline.org/library.htm>
- ryanlerch (Graphic illustrator). (2006). thinkingboy outline [black and white boy], Retrieved August 12, 2010 from <http://www.openclipart.org/detail/630>



References



- Science Dictionary – Scientific Definitions. (2006). Science Dictionary – Glossary of Terms and Scientific Definitions. Web. Retrieved August 13, 2010 from <http://www.sciencedictionary.org/>
- scifun.org. (n.d.). Home Experiments Homepage. Web. Retrieved August 13, 2010 from <http://scifun.chem.wisc.edu/HomeExpts/HOMEEXPTS.HTML>
- Sperling, Dave. (2010). Dave’s ESL Cafe Homepage. Web. Retrieved August 13, 2010 from <http://www.eslcafe.com/>
- Soundboard.com. (2010). Science and Nature: Soundboard.com. Web. Retrieved August 13, 2010 from <http://www.soundboard.com/category/Science-Nature.aspx>
- Steinlen, A and J. Wettlaufer. (2010). ELIAS Homepage. Web. Retrieved August 13, 2010 from <http://www.elias.bilikita.org/>
- Templeton, Brad. (2008). “10 Big Myths About Copyright explained”. Web. Retrieved August 13, 2010 from <http://www.templetons.com/brad/copymyths.html>
- The Animal Files.com. (2010). The Animal Files.com Homepage. Web. Retrieved August 13, 2010 from <http://www.theanimalfiles.com/>
- U.S. Copyright Office. (2010). “Copyright Law of the United States”. Web. Retrieved August 13, 2010 from <http://www.copyright.gov/title17/>
- UNESCO. (2010). UNESCO Homepage. Web. Retrieved August 13, 2010 from <http://www.unesco.org/new/en/unesco/>
- United Nations. (1992). General Assembly. *Earth Summit Conference 1992*. Brazil. Web. Retrieved 7 July 2010 from <http://www.un.org/esa/earthsummit/>
- University of Michigan. (2008). Animal Diversity Web Homepage. Web. Retrieved August 13, 2010 from <http://animaldiversity.ummz.umich.edu/site/index.html>
- WAZA. (2010). WAZA Homepage. Web. Retrieved August 13, 2010 from <http://www.waza.org/en/site/home>
- Wildscreen. (2010). AKRive: Images of Life on Earth Homepage. Web. Retrieved August 13, 2010 from <http://www.arkive.org/>
- Wikipediga Commons. (2010). Wikipedia Commons Homepage. Web. Retrieved August 13, 2010 from http://commons.wikimedia.org/wiki/Main_Page
- Wikipedia: The Free Encyclopedia. (2010). Wikipedia Homepage. Web. Retrieved August 13, 2010 from http://en.wikipedia.org/wiki/Main_Page





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