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## **The value of natural capital – education through the combining of digital media and work with natural materials**

An art and craft based research proposal

Keywords: Education; natural environment; craftwork; digital media; natural materials

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## **Introduction**

This proposal describes a method of determining how creatively constructing objects from natural materials within a natural environment, supported by digital media, may influence the young in respect of their behaviour toward natural capital. The study aims to establish a method to gauge influence that certain activities, i.e. photography and craft has on the young in terms of their approach toward the natural world. A structured survey will be used to elicit feedback from the participants.

The method will have three contexts:

- Classroom – structured survey
- Natural environment – craft, natural materials, digital media
- Presentation – reflection

Observation and analysis will take place in each context to establish how the participants perceive their relationship with the natural world, their position within Nature and Nature as natural capital.

The participants will use digital media as a method of not only recording their creative work but as an incentive for a more detailed observation of their natural surroundings.

A literature review has revealed little evidence of environmental education that combines digital media with craft as the basis for motivating the young in this respect. Nonetheless, partnering such areas of expertise requires a political, social and cultural environment which values and supports such experimentation.

Insight revealed to the researcher in a study he conducted in a secondary school in Austria, suggested that viewing photographs of Nature on-line can increase the enthusiasm of children for engaging with the natural environment (Ragland, 2012). See - [http://www.redoakleaves.com/downloads/enthusiasm\\_for\\_the\\_natural\\_world.pdf](http://www.redoakleaves.com/downloads/enthusiasm_for_the_natural_world.pdf)

## **Problem statement**

Over recent decades, those using Nature for recreation purposes has increased; this has been aligned with increased amounts of leisure time (O'Neill, J., 1993). There is also however, evidence indicating that the young alongside have steadily become more reliant on technology for *their* recreation (Orr, 2002, pp. 201-203).

Technology itself is not the problem, rather the way it is relied upon and the way it is used to replace skilled handwork (ibid.). The necessary teamwork associated with crafts he affirms, previously had a significant effect in respect of interconnecting people with people and through the hands-on employment of materials, natural capital itself. Crafts, Sennett (2008) affirms can lead to a connection with self, which he argues is vital for the appreciation of one's surroundings.

## Objectives

- To develop a replicable method for the purposes of establishing any influence that engaging the young in craft activities held within a natural context may have on their attitude toward natural capital.
- Using categorised words used by the participants, the method will trace levels of interest and their attitude toward natural capital before and after the workshops.
- To qualitatively gauge the influence caused by use of digital media in the workshops has on participants in terms of their areas of interest and focus.
- To influence curriculum design in terms of the way in which sustainability is integrated within other subjects of education.
- To differentiate results into: age of participants, school type, and gender.

## Background and justification for the study

Schumacher (1973) in his book 'Small is Beautiful' explains 'natural capital' as those substances which when 'used' cannot be replaced through human intervention. Fossil fuels he gives as the most obvious example extending to metals, minerals earth and so forth. He argues that; *If we squander the capital represented by living nature around us, we threaten life itself*" (p. 14). He affirms that an alienation from methods of production, have blinded many to the fact that the processes being used are undermining the very substance of human life. He affirms that a life-style designed for permanence requires from everyone, an empathic attitude toward natural capital, whether old or young, powerful or powerless, rich or poor.

This proposal will develop a structured method that will contribute to how natural capital is considered, rather than to suggest an either/or approach to living and lifestyle choices. It does this by creating an enjoyable experience that connects hands-on craftwork with an education of material production. The rationale is that an environment familiar to the participants, such as a forest and familiar activities (in this case craft and taking photographs) may act to enable participants to 'sense' a link between their daily life in terms of the materials derived from natural capital and the products they use in that daily life.

Current educational movements are recognising that the young gain the greatest confidence from subjects with which they are most adept; significantly these are more often than not connected with movement, i.e. craft, drawing, music, dance and so forth (Robinson, 2011; Sennett, 2008).

There is growing evidence suggesting that engaging the young with Nature while within a natural environment has benefits to their interest and cognition speeds in the classroom. Organisations such as Woodcraft Folk, Forest Schools or Kindergarten Woods have been for decades demonstrating benefits of hands-on activities for the young working within a natural environment (O'Brien, and Murray, 2007). As before stated there is also evidence suggesting that such activities can be significantly enhanced through the use of digital media. Yet there is little evidence of combining digital media

with craft within the context of a natural environment as a method for nurturing a more empathic attitude towards natural resources.

The young are learning to use and trust technology as a means to communicate on an unprecedented scale (Druin, A., 2009). Photography has for many years been used to convey a message and an object's meaning. Photographs have been used to reflect on aspects of an object which otherwise could be less easily discernible (Berger, 1972). The digital age has further pushed the boundaries of how this media can be used in education. Robinson (2011) affirms that Digital technologies are now putting in the hands of millions of people, unprecedented tools for creativity. Mathematicians are also using digital photography, they have discovered aspects of Nature interconnectivity until now left undocumented, for example, the geometric similarities between drying mud, dragonfly wings and leaves (Glaeser, 2013). Glaeser also highlights how photography can lead not only to an increased knowledge of Nature, but also how it can deepen interest in the wider natural environment. Using photography as a means of understanding individual relationships with natural capital, through working within a natural environment forms the basis of this study.

As a first stage of this research the researcher conducted a school study in an attempt to ascertain whether technology, could actually complement and enhance desire for engaging with Nature, this was mentioned in the introduction (Ragland 2012). It was revealed to the researcher that the young are more likely to gain enthusiasm, in terms of willingness to visit and engage with the natural environment when activities within Nature partner areas of their knowledge that they trust, enjoy and are familiar with. Over one week he researched sources for children's' motivation for engaging with Nature. He randomly divided 23 school children into two groups; both groups spent an equal time within a natural environment. Both groups experienced a primer to this experience, this was named 'from a distance'. 'Group 1' used digital media to view nature 'from a distance', whereas 'group 2' used their classroom window for the same purpose. Evidence from the study indicates that group 1 had significantly greater interest for further engagement with a natural environment.

The following two charts present an overview of how the children presented their thoughts; the data are divided into four main areas of expression the children used in their writing. The bars indicate the number of children expressing words or comments the meaning of which could be construed as belonging to the category.

Table A below shows how both groups described their experience 'from a distance'.

**Table A: Nature experience 'from a distance'**

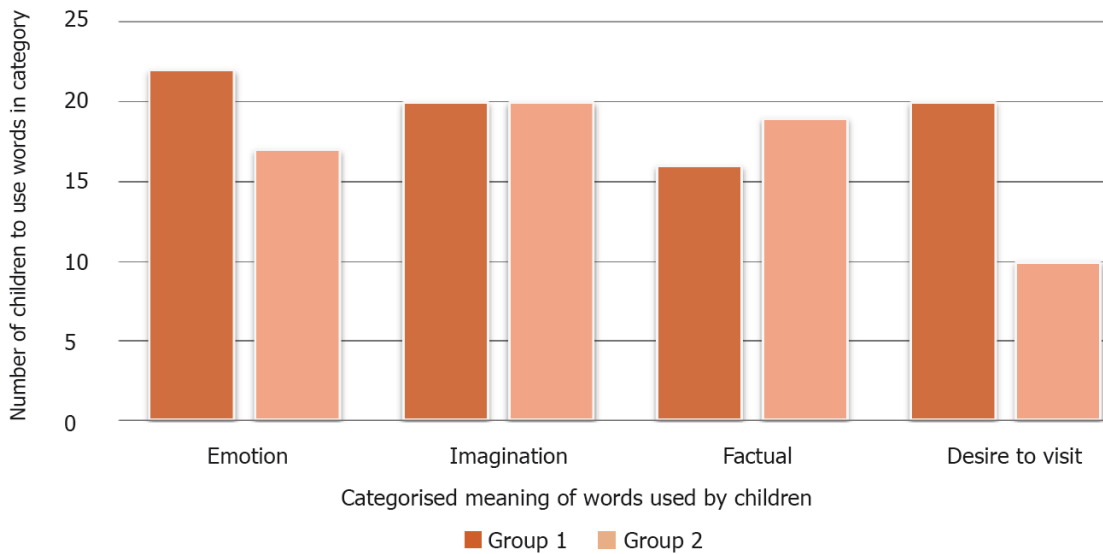


Table A shows that those in Group 1 wrote of their computer experience with an increased 'desire to visit' a nature environment; whereas the emotion category demonstrates that Group 2 wrote of their 'through the window experience' with less emotional enthusiasm; this was correlated by their more factual way of writing about this activity.

Table B below highlights how both groups described their physical experience of nature.

**Table B: 'Direct experience' of nature**

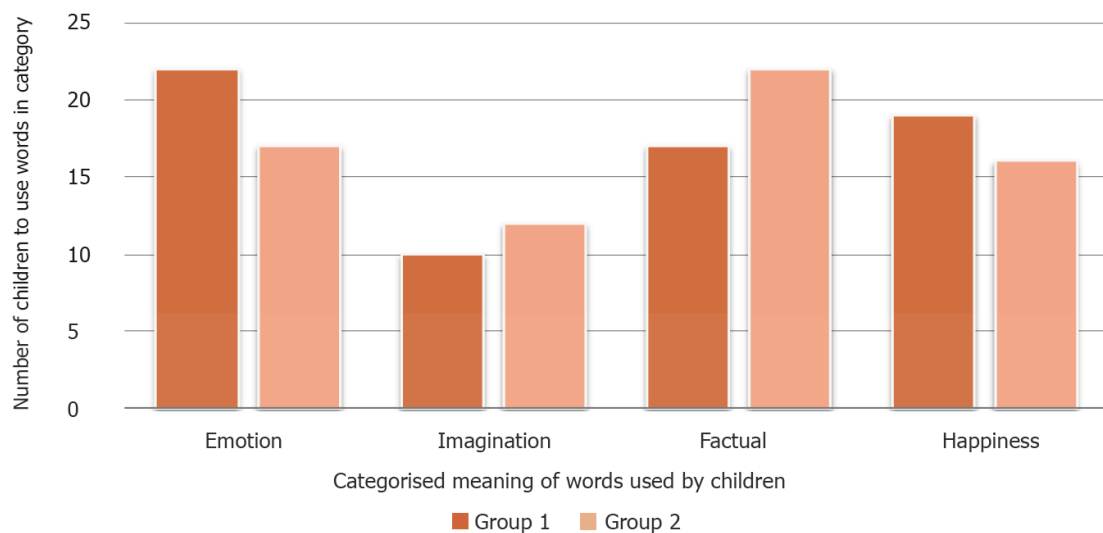


Table B indicates that Group 1 wrote of their physical experience in a noticeably more emotional manner. Conversely the results also indicate that Group 2 considered aspects of their direct experience of nature in a more fact manner.

Hence the researcher concludes that the use of digital media to support the making of objects from natural materials within a natural environment may have significance in respect of children's approach toward the natural environment.

The following section describes how digital media may be used to support the using natural materials skilfully with the hands as a medium of expression. 'Natural materials' describes materials which can easily be recognised as originating from their source.

### **Provisional research design**

This proposed sequel to the previous research project above, will build on the practical skills and experience of the researcher through his work as a furniture designer/maker and will draw upon his understanding of the characteristics and attributes of wood as they are transformed from their natural state.

State secondary schools, craft schools, colleges and universities will be approached to assist with this study. The pupils and students of the institutes which take part will be aged from twelve upwards because from this age they are more likely to have previously gained sufficient craft hand skills, and competence for taking photographs as a means of reflection on these activities. The participants, during a single action research day, will be supported by the researcher and a registered additional teacher to create objects in an outdoor environment. During this activity, natural materials found by those taking part within a forest environment will be used in tandem with natural materials brought additionally to the working site. Participants will be given a choice of different natural materials to use for their 'projects'. They will, for the purposes of later reflection, be encouraged to take photographs at every stage of their product's development. Mobile devices or cameras may also be used for this purpose. Aided by the photographs taken, they will later be asked to describe the materials they chose to use.

The study will be divided into three stages:

### **Exploration**

1. Participants will meet with the researcher and a teacher for 2 to 3 hours on a day prior to the action research day. They will be shown three lists: (a) examples of natural materials in their purest state such as wood, stone, clay, bone, leather (b) those materials which, although still recognisable, have been processed or are mixed with other materials, for example, some textiles, sheet materials, paper, and (c) natural materials which are no longer recognisable as such, for example, pvc, glass, some textiles, some metals and some paper products such as money. Importantly at this point those involved will be informed of all the stages of the study with which they will be involved. The researcher will provide a short overview of how photographs within a natural environment may be taken. ***The participants will then be asked of their opinion about the way in which humans consider the importance of natural capital.*** To qualitatively establish this they will be asked a number of structured questions, such as, how they think the people they know, in their town, county, country, consider natural capital relevant to their daily lives. The purpose of this will be to provide a baseline figure on the perception of the participants in respect of how people they know consider natural capital.

## Action research

2. The participants will meet with the researcher and a teacher at a time when their school/working day would normally commence. They will travel by foot or a form of transport to a chosen site of natural environment (or closely emulating), where they will work for approximately 5 hours with comfort breaks. The participants will photographically record their craft experience. They will be asked to take photographs not only of their finished object, but also of the initial stages showing their chosen materials. They will either work individually or in small teams. Their craftwork will be either artistic or practical, e.g. a giant picture from leaves, a musical instrument or a makeshift shelter from fallen branches. They will choose from a wide variety of materials, e.g. various woods, stone, hemp rope, etc. During breaks, the researcher will provide an overview of the processes attached to the manufactured materials they chose to use.

## Evaluation

3. Finally, on a date shortly following, the participants with the researcher and a teacher, over approximately 2 – 3 hours will, within a classroom environment, make a short presentation. During their individual presentations they will have the opportunity to show their photography and explain something about the objects made and materials used. They will again be asked about the importance of natural capital, but on this occasion, of their position within natural capital, for example, how their life is supported by natural materials and how their life influences the relevance, condition and availability of those resources. They will be asked to consider how those natural materials used for they projects feature in *their* daily life. ***The object of this stage is to gather data and qualitatively gauge whether the participants' awareness of their relationship with natural capital, has in any way been influenced through the activities of this project.***

The researcher will record results of all three stages. This data will be comparatively analysed both as specified above and for differences within the institutes.

Any institute which supports the research, will be acknowledged for their assistance. Standard ethical procedures will be followed e.g. anonymity, opportunity to for participants to at any time disengage with the activities of the project, protection of personal data, and obtaining of consent from participants for the answers they provide to be used for research purposes.

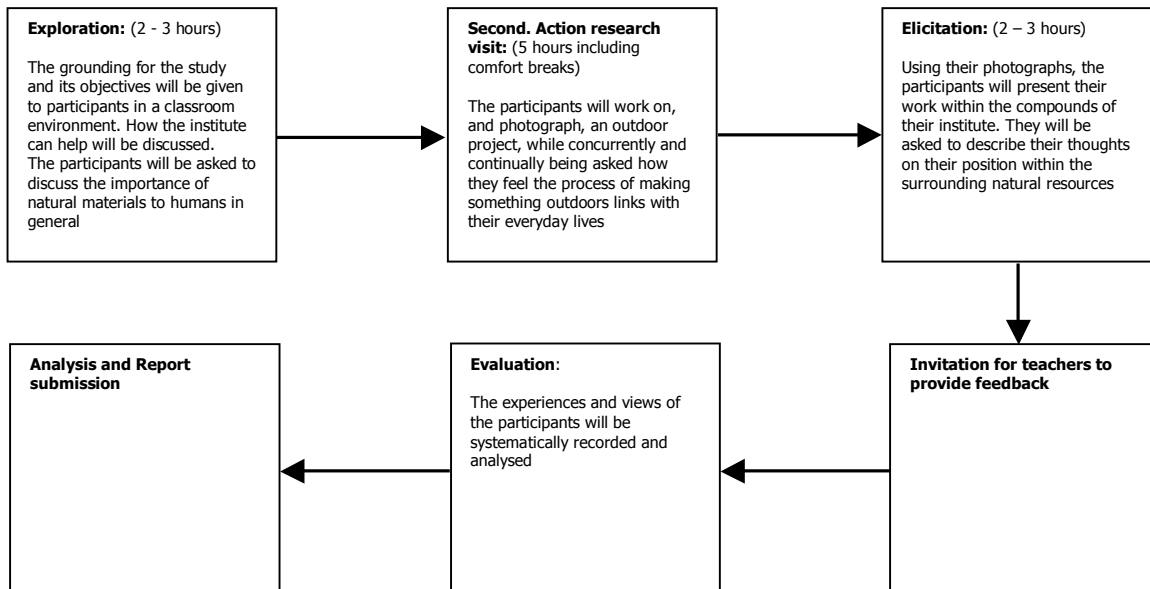
There are a number of incentives for institutions to participate:

- Providing participants an opportunity to combine workshop based tacit knowledge learnt with digital media within the context of a natural environment
- The project's findings will be presented in the form of a report and given to each participating organization.
- All participating institutes will be invited to a project presentation showing results concluded from the study, which will be followed by a discussion

Relevant teachers and/or students of the institutions involved in the study will be invited to observe, in part or all of the project's activities and instruction stages.

The optimal number of participants will depend on their age, nonetheless, between 10 and 20 is estimated for each institution.

### 1. A synopsis of the research period.



### General information

The study will be undertaken in a range of locations; inner, peri-urban, or rural; should the location offer a particular element, such as little or no noise pollution, noticeable differences will be recorded. The researcher will source suitable areas in which the exercises will take place. Permission to use an area will always be obtained. For logistical reasons, only institutes with suitable areas for the 'active research' within a reasonable distance will take part in the study.

Should opportunity be afforded, extending study to more than one country and if possible to extend beyond the borders of Europe would provide relevant and valuable information in respect of data comparison. Results reflecting cultural and political differences are likely to be essential when designing further stages of this research.

The duration of the project is likely to run for a period between two and three years. Nevertheless, an intermediate report after an initial pilot study will be available. In conclusion, the researcher will submit a paper to a publicist of academic work.





### **Johnny Ragland**

Johnny Ragland runs the design and technology course for wood at the Department of Design, Architecture and Environment for Design and Art Education at the Institute for Art Sciences and Art Education at the University of Applied Arts, Vienna. The course increases and uses the experience of hands-on craft to further awareness of material form in general.

Focused on object construction, the adult students study a combination of theory and practical work. This they do for a minimum of one semester. The course is part of a design education programme, which is divided into three; design, science and didactics. In Austria, all students in pedagogic education must study two subjects to be able to teach. Students enrolled in the programme mostly choose to study a further art theme as this second subject, such as fine arts or textile art and design.

Johnny also runs an '*English for conversation in the context of art and design*' course for professors and teachers of the University. He has experience teaching sport and English to children. He has employed many young trainees within his furniture design/making business.

- ❖ After qualifying as a carpenter and joiner he founded and ran his own business near London. For 20 years he successfully kept the orders coming for bespoke high-end interior furniture. During this time he also employed and trained through the apprenticeship system.
- ❖ He subsequently took a degree in 'Furniture and Product Design' at Kingston University, London. This course he finished as an exchange student in the New Design University, St. Pölten, Austria.
- ❖ He worked in Austria as a project manager for a large international furniture firm.
- ❖ In 2007 he completed a Masters degree in 'Innovation and Design for Sustainability' at Cranfield University.
- ❖ Immediately prior to his current post he worked for one year as an English trainer, teaching 12 to 16 year-old children in secondary schools across Austria.
- ❖ Since March 2010 he has taught 'design and technology' on a full-time basis at the University of Applied Arts, Vienna. He regularly lectures on the connection between handwork and the human bond with Nature.

He enjoys mountain walking and cycling and is a keen photographer. Examples of his photographic work can found using the following link:

[https://plus.google.com/photos/110138683741299263015/albums/6086722478070688161?authkey=CO\\_xtPPs4pHLYQE](https://plus.google.com/photos/110138683741299263015/albums/6086722478070688161?authkey=CO_xtPPs4pHLYQE)

His full résumé can be found at: <http://www.redoakleaves.com/resume.html>

**Previous relevant studies by the researcher:**

*'Investigating how working with natural materials can influence enthusiasm for the natural world'* (2012)

A paper that describes a method designed to gauge how stimulation from a represented form of Nature could influence enthusiasm to visit the natural world. The reason for the study is to justify further research on a wider and larger scale and investigate whether other activities, namely photography and woodworking, could have similar effects.

*'Developing the entrepreneurial spirit as a tool for teachers of art and design to gain confidence, leading to an increased ability to motivate'* (2011)

Discussing a method used to encourage students of design education to take risks in their individual design practice. The intention of this research is not simply to collect quantitative data, but rather to subjectively judge where these experiences lead students in terms of their career as a teacher.

*'Craft and Design'* (2011)

Do the skills used to create an artefact of qualitative uniqueness and quality by hand, increase ability in aspects of design?

*'Communicating Hand Skills'* (2009)

Exploring a link between the decline/learning of hand skills and a dis/connection of 'self' within Nature.

*'Emerging trends in sustainable design for office furniture'* (2008)

Discussing the governing and influencing factors with which industrial designers work.

All articles by the researcher can be downloaded from:

<http://www.redoakleaves.com/writing.html>

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