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The Determinants of Human Creativity/Ingenuity:

A Case Study of Teacher Candidates at Notodden

(NORDFO Conference, Norway, September, 2012)

Ronald Hansen, Professor Emeritus, Faculty of Education, Western

Introduction

Every child is born with a natural curiosity and fertile imagination. This innate ability and disposition is seldom clearly defined or understood, however. The literature abounds with speculation about the nature of creativity in people. Reference is made to a potpourri of words that conjure up what a creative individual/child would do or how he/she might behave (the ability to solve problems, generate ideas, think laterally, play imaginatively, design, make things, act spontaneously, fantasize, laugh). The instinct to identify and solve problems and do it creatively is often identified as a fundamental trait of being human, yet its core determinants remain an elusive phenomenon. Scientific and experiential knowledge about this elusive phenomenon is beginning to emerge. And, excitement about understanding and classifying it is mounting. Parents who have raised a family, for example, know firsthand that this creativity exists and that it varies in form from one child to another. It is also generally understood that curiosity and imagination changes over time from influences imposed by families and institutions. There is increasing evidence that creativity (lack of a universal definition and measurement procedure aside) declines into adolescence. Coincidentally there is mounting pressure from governments around the world to 'bottle' this magic trait/disposition so more of its citizens can stimulate sagging economies, among other things. More knowledge about these influences is needed.

In the spirit of the conference theme on 'making, materiality, and knowledge', this paper shares the results of a study on teacher candidates, particularly their attitudes to, and beliefs about, human creativity/ingenuity. My premise is that teachers and teacher candidates are aware of the power they hold in shaping children's minds. They may not realize, however, that the formal education system has a power of its own. That power often represents a social purpose that may prevent its members from nurturing any nature-driven or well-meaning human tendencies, i.e., creativity, among themselves and others.

The study involved student teachers at Telemark University College, Notodden. This teacher education college has a tradition for recruiting and preparing teachers with interests in arts and culture. That preparation in this instance has a prominent and distinctive 'learn-through-making' pedagogical philosophy inherent in it. Fourteen participants, from among two hundred who were contacted, agreed to participate and be interviewed. The results were recorded and a 'profile' of each participant collaboratively developed (Connelly & Clandinin, 1990). The purpose of this research project is to

identify, through the use of life story profiles, the traits and dispositions of creative/ingenious people. Human ingenuity is defined as the aptitude and ability to solve problems through experience, using originality and imagination (Hansen, 2008). This research seeks to answer the following questions: 1) What are the determinants of human ingenuity? What is the role of formal and/or informal learning in the lives of innovative people? How do teachers perceive their own creativity and its roots?

Canada and Norway share a great deal in common but also have their differences. The comparative human ingenuity research project currently underway at Western and TUC involves two recognized teacher education institutions that contribute to their respective social and economic systems. Expertise from the University of Western Ontario is being shared with Telemark University College and vice versa. The life story/ethnographic research methodology on the determinants of human ingenuity was tested and refined in an educational institution that provides students with a unique education (TUC). Research associates at TUC have developed a curriculum for art and design that is well regarded in Scandinavia. It has a distinctive impact on the inventive characteristics of young adults about to enter the professions. Culturally, the partnership has led to a better understanding of the similarities and differences across our respective systems although this paper leaves that comparison for another time.

Methodology

The two month study in Norway was designed to contribute to a long term and productive collaboration between Canada and Norway. I visited the Telemark University Notodden Campus for five weeks. By comparing my experiences with teachers in Canada and those of my colleagues in Norway it was hoped that understanding and knowledge about the determinants of human ingenuity would evolve; the education and cultural factors that inform research and practice would emerge. The University of Western Ontario and TUC are currently involved in measuring the creative thinking levels of a sample of eight year old children in Telemark and southwestern Ontario as part of an on-going multi-year research project.

Fourteen students and eight instructors participated in the study. A preliminary survey instrument was developed and pilot tested (see appendix A). Data were collected from the survey as well as a one hour interview with each participant, and a follow-up focus group meeting. All participants who voluntarily agreed to participate were from the art and design education department at Telemark University College. Interviewees had the option to partake in follow-up round table sessions (Morgan, 1993). The transcribed interviews and group discussions were reviewed by the investigator to develop thematic similarities. Observations of the TUC facilities and faculty were recorded. Ethical review protocols were followed according to the University of Western Ontario and the Telemark University College research ethics guidelines. Participants were recruited through purposive sampling that considered gender, race, and ethnicity. The author was aware of gender perspective issues and wanted to better understand women's ingenuity and ways of knowing/doing. The focus on gender perspectives was thought to be an important variable.

Portraits (written vignettes), showcasing each participant, were prepared by myself and then shared with each participant. Five are included here for their value as research, educational, and documentary material. In life-story research (Cole, 1991) the conversation between the investigator and the interviewee is usually dominated by the participant who is asked to freely recall and reflect on his or her life experiences. The researcher, Cole asserts, maintains a passive role, merely probing these recollections and reflections. The purity of such accounts can range from strictly autobiographical to what Connelly and Clandinin (1990) call 'collaborative stories'. "And in our story-telling, the stories of our participants merged with our own to create new stories, ones that we have labelled 'collaborative stories' "(p. 12). The compilation of working biographies and focus group insights were analyzed in a cross-case analysis (Merriam, 1998). Reference to known research in the literature was made so as to corroborate the findings/explanations, including an analysis of how ingenuity is, or is not, central to experience across crafts, arts, and technology teacher candidates. Reference to known research in the literature was made in a North American (Hansen, 2008) and a European (Gulliksen, 2009; Lerdahl, 2008) context.

Observations of the Notodden Facility

In addition to conducting interviews and focus group meetings the surroundings and architecture of Telemark University College, Notodden was observed. The facilities are modern, well equipped, and designed for project learning and work, quite a contrast to Western where students meet in sterile rooms/spaces that are designed for didactic forms of learning, no equipment or project space, lots of desks. At Notodden, the art rooms for painting were properly ventilated, and positioned so maximum natural light from windows and skylights was available. Spaces for each of the many art areas, e.g., ceramics, were well designed to accommodate work tables and student socialization (inviting seating areas). The music and drama departments had their own building with both rehearsal spaces and offices for instructors. Again, the decor was always welcoming and warm while functional for group work, individual projects, and discussion. Shop spaces, e.g., textiles, wood turning and fabricating, metal moulding and sculpting, were bright safe, and functional. The instructors and students seemed always to be in a productive 'state of mind'. Each area also had its own exhibit space for display of student projects.

Class sizes were small (10 to 20 students). Their instructors were always capable of doing as well as knowing. For example the ceramics instructor was an accomplished sculptor above and beyond his role as a pedagogical instructor at the college. As such every class and instructor I witnessed seemed engaged and happy with the experiential learning philosophy. Approximately 1650 students are enrolled at Notodden each year. There was also a penchant for detail evident everywhere. Excellence was not only a word, it was a way of life at Notodden. Each art and design project had both a sense of purpose and an appeal. It may have emerged from an individual who had an idea but it encompassed problem solving (both technical and social) and made a social or artistic statement, sometimes both. A sense of self was also apparent in the finished projects. I remember smiling often at the intensity and

focus in the eyes of the students. They were truly absorbed in their projects, often staying until late in the evening to finish each phase of the work.

Finally it was possible to trace the jewel behind the operation of this smooth running institution because it was evident in the coffee room, the cafeteria, and the many meeting rooms where instructors and administrators would meet for planning and problem solving. The staff, instructors, and students were happy and united in their purpose. There was a place-based pedagogy (Gruenewald, 2003) that was refreshing to see. The web site states "We place demands on each other and we support each other". As a faculty member from a comprehensive research and teaching institution I was curious about how research, teaching, and community service would be balanced. To my surprise there was a statement on the web site that helped answer my curiosity. "TUC offers programmes based on research, artistic development, and experience-based knowledge of the highest quality". Ninety four scientific papers were published in 2009. Notodden campus has an active Master's programme and, in 2009, was applying for a PhD programme in Culture Studies and Ecology. Hopefully the expansion of the TUC into the research and development role will evolve so that teaching isn't compromised. Community service is thought of differently than in Canada. Notodden campus, a one hundred year old institution, is an integral part of this small town. Students find their inspiration for projects in the natural and human-made environment around them. Instructors are often active in community projects in an inconspicuous way. Their participation is visible and invisible at the same time. Giving back to the community is expected not so much as a part of a contractual requirement for instructors but because the community and natural surroundings and learning are a way of life. In short, the role of experience and nature in thinking creatively is what Notodden is all about.

Interview Results

The results show that all fourteen participants believed they retained the curiosity and imagination they were born with and that, given the opportunity, they would help children in school expand and build upon their inherent creativity, not diminish it. In short, they all believed that institutionalizing children and nurturing/retaining their creative abilities at the same time, was not only possible but a noble purpose. The results also show that the determinants or roots of ingenuity/creativity can be identified. Whether or not they can be taught is a matter for further research. Formal education institutions provide programs designed to foster creativity, e.g., art classes, where the students are often allowed to follow their interests and encouraged to use their imaginations. They [teacher education institutions] also attend to teacher development of creativity. TUC is an example institution in which excellence in arts and culture was cultivated systematically. The following five vignettes were chosen for their diversity as well as their individuality. All fourteen portraits convey the themes identified here. The collaborated stories of Anne, Espen, Inghild, Patrick, and Mari begin to flesh out four types of creativity; artistic, technical, literary, and social.

“Anne”

Summary Portrait

A mature adult student, Anne is unique. She grew up in an artistic family but spent the first ten years of her working life as a veterinary nurse. Soft spoken in manner, she has a deep love of nature, and is methodical and structured as a person. What struck me about her was her composure and quiet confidence. “I am always planning gently for myself” she said with a soulful and relaxing smile.

Her family members (mother’s side) were woodcarvers and sewers. Her father’s work required international travel so she only saw him periodically. “He could draw though.” When he returned home he would tell his two daughters about his travels by drawing pictures for them. Anne fondly remembers her father drawing for her at bedtime. Her sister is an accomplished artist.

Anne’s career as a head veterinary nurse came to an abrupt end when she seriously injured her arm (not a workplace injury). She didn’t have the proper license to practice and found herself unable to remain in that business once the injury healed. This set of circumstances allowed her to return to the art she always loved. She had her own active studio/workshop before registering at Notodden. While rehabilitating her arm she worked as a graveyard gardener, pruning trees and creating/maintaining aesthetic gardens. To support herself she continues to do gardening work.

I thought Anne might consider teaching but this is not the case. “I have always loved art but am not intending to teach, at least not in Norway. The schools are here are too square.” She is thinking she might move to the Carribean where her father currently resides. “I never think about money so I am lucky and can pursue things that interest me.”

When I asked her what compelled her to pursue art she referred to the ‘flow’ that she feels when she takes a project from design to the completion stage. “Staying focused is important but you can’t get too deep into a trance. Take a break from what you do, and look at it from a distance when you have been flowing for a while. Then you really see what you are creating. It is the process that catches my attention.” She told me she often works uninterrupted for three days on one project. One project she described involved creating a wood sculpture for a customer who wanted a special gift for her two sons. She had to do research on the two boys, both quite different. She had to study the boys. What type of wood would describe each of them, their character and symbols, interests and archetypes?

Anne is truly a creative person who knows herself, her limits, her strengths, and works independent of the stresses and strains that drives most of us. She had the exposure she needed as a child and is a self-actualized open-minded problem-solver/artist.

“Espen”

Summary Portrait

Good natured and humble are the best words to describe Espen. He was a joy to interview and more recently to watch as he did his self-portrait study in class – a picture of concentration. Rather than go straight into postsecondary education he worked and travelled with friends (Germany, Ireland).

“Neither of my parents (both work in the post office) are artistic and my siblings are the same. I am the only one who is interested in creative things. Maybe it is left hand, right-brain, thing.” Espen is the second of four siblings, three brothers, one sister.

Espen knew he wanted to be in a creative arts program, especially drawing, form, and design. The progression started in high school where he used to draw cartoons. On a whim he decided to put his cartoons on Face-book where his friends soon noticed and urged him to pursue a career. Now he is in his final year at Notodden and works part time creating cartoons for his local hometown newspaper where he earns 300 kroner a week.

When I asked about what inspired his art, four role models were mentioned – Will Appledorn (US artist), Knut Nærum (Norwegian author), Andre Franquis (Belgian cartoonist), Frode Øverli (Norwegian cartoonist), and The Stone Rose (English Band). “In other words, artists who make music or visual types of art.” Ken Robinson’s name came up. A video where Robinson attacks the schools for killing the curiosity and creativity in children (found on the internet at www.TED.com) was recommended to him by a teacher for students to see. “That video helped me realize I was a typical curious person and that it was acceptable to be an artist.” Being familiar with the Robinson video I was pleased to hear that it is being watched by others around the globe.

The cartoon art intrigued me. I couldn’t get enough from this softspoken reflective young man. I asked where the ideas for the newspaper come from. It’s simple”, he replied, “I write down my ideas whenever they come to me and I draw on those for my weekly cartoon for the newspaper.” I asked if he was inspired by weekly team meetings of his peers who prepare the ‘young pages’ (ung-sider) part of the newspaper. “Yes, we talk about social and political issues of the day, some of which gives me material to work with.”

The only other job Espen had and still has is part time work in the post office. Whether or not post office work pushed him into artistic endeavors was something he shrugged off. “I admit there isn’t much need for ingenuity in post office work. We need to work together as effectively and as fast as possible, so solutions to problems are limited to ‘sorting mail’ but only in small parts.”

When he finds time Espen likes to play football with his friends, but ‘not organized in a league system’ he notes. He likes playing the guitar and listening to music. I asked if he was familiar with Leonard Cohen’s music. Yes, “I haven’t heard any of his music – though I’ve heard his name before.”

It is early to say what direction Espen’s career will take. That he will continue to be creative and ingenious in his endeavors is pretty certain.

“Inghild”

Summary Portrait

Inghild, while softspoken in manner, is a colourful and reflective student whose rural and art background defines her. Her strong appetite for learning was evident when I visited her ceramics class on several occasions. Along with several of her classmates she would often spend 12 hour days refining her clay sculptures, part of an individual design project/study.

Referring to my question about family background she commented rather proudly: “My father is a farmer on the west coast of Norway. He is very practical and I learned lots. My mother knows all the craft and baking arts.”

Inghild’s sense of career and purpose (to become a grade one teacher) was not always clear to her. After high school she spent one year in a folkschool that specialized in ceramics. After that she spent another year learning sign language – something she credits as useful in understanding body language. The turning point came when she realized that she felt a calling to help people and that the best way to do that was through art, especially three dimensional art. She applied to Telemark University College and was accepted into the three year bachelor program in Visual Arts and Design. She is now in her third and final year.

When asked how best to develop innovative thinking and learning capacities she made two observations: “Expose children to arts and culture, and treat them as equals.” She referred me to a book titled Skagkraft (Empowerment through creativity) by Erik Lehrdal. Admittedly a poor drawer, Inghild made up for the drawing with her ability to visualize and construct forms. Her simple ceramics design had a distinct Henry Moore feeling to it. In response to my question about something she had created or invented she provided an example where she had to improvise to build a closet for hanging clothes – she hung a wooden pole from two ropes attached to the ceiling - quite inventive.

In between her formal higher education Inghild works as a gallery assistant in Notodden (15 hours per week). Prior to this position she cut lawns (six months) for the park service in Volda (a small town in the Telemark region). For one year while at the Sign Language school in Trondheim she assisted a family who had a physically handicapped child.

As I probed about advice/criticism she has received she said: “I have a large conscience.” I asked her to explain. “I feel bad when I say something that may have hurt someone’s feelings or been misunderstood.” Or, if I do something that offends someone I feel terrible.

Inghild is definitely creative in an artistic and technical sense. Her conscience and love for people, along with her practical values, promise to be cornerstones of a productive career and life.

“Patrick”

Summary Portrait

Self-confident and self-realized Patrick has a strong tendency for scripting stories, complete with characters and scenes. “It comes partly from my youth and partly from the genetic hand I was dealt. Asthma and problems with his feet kept him from running as a child. “This allowed me to put energy into creative areas.” Patrick lived in a small town outside Oslo when he was young. He has an older brother and younger sister.

After high school Patrick attended Folk School (a one year non-competitive experiential institution available to high school grads who want to explore an interest before choosing a career path) that specialized in film production. In response to my question about the roots of his talent Patrick commented: “I was drawn to the power of being a director in film and being a scriptwriter.”

Responding to further questions about his youth Patrick admitted: “While I come from a normal home with strict parents much of what I do is because of defiance.” In high school his favourite courses were film, drawing, painting, and graphic design. Asked if he was a good team player he sheepishly said that he was not. “I tend to drift away from team work.” About his early years Patrick referred back to his love of art: “As a five year old child I was quite a good drawer.”

Patrick was quite emphatic about his role models: Luis Royo (illustrator), Don Rosa (cartoon artist), Henrik Ibsen (playwright) and JRR Tolkien (author of Lord of the Rings). Patrick did not have a lot of work experience at this point in his life. He was a groundskeeper assistant for three weeks one summer. He didn’t see any connection between work and creativity. “The major source of my creativity is Dungeon Dragons. This is a fun way to be creative that I learned in Folk School.” Using table top play with fantasy characters you can describe certain places and try to resist the dungeon master. “It is a game about resistance in one way or another. You learn how to resist the resistance.”

Patrick has particularly creative tendencies in an imaginary and literary sense. His scripts use imaginary characters and scenes that are vivid in his mind, to the point of defining his development at this point in his life.

“Mari”

Summary Portrait

Mari is a positive creative arts and handicraft teacher candidate in her first year of study. She understands the power of practical ‘doing’ and its relation to nature. To my surprise she has both an aesthetic and a social sense of purpose. Time stood still for me when I talked to her. It was as if she was interviewing me. She was the only interviewee who quietly and effectively articulated the relationship between human ingenuity and creativity for me. She singled out the invisible variable in the development of human ingenuity for which words had alluded me. “My childhood gave me a practical

ethic. I could make artistic things but also solve practical problems. To be curious and holistic are important.” As I probed, the roots of her ingenuity began to emerge. She subsequently found a passage from the internet that describes what it means to be holistic: “I feel it describes HOLISTIC the way I refer to the term”.

In a holistic worldview we learn to mentally step beyond ourselves, to see lives as individual strands within the web of life. We become aware that everything we do in life causes a ripple of impacts, big or small, good or bad, to travel throughout the web and ultimately back to us. For example, consuming gasoline can fund terrorism and contribute to global warming, melting the Arctic ice pack too early for polar bears to hunt seals. Our actions are reflected back to us in the form of increasingly dangerous and impoverished world with a destabilizing climate and disappearing wildlife. Holistic processing isn't merely a guilt trip, but rather a values-driven perception of the world and a means to make a positive difference....Holistic thinking is characterized by a high level of mutualism, in which people seek quality of life, prosperity, and a clean environment for each other as much as for themselves. Issues are perceived in terms of well-defined holistic goals, rather than as piecemeal problems. Socially and politically, boundaries between nations become more symbolic than rigid as cultures meld into a global community, working together for the betterment of all. A holistic approach is desperately needed to achieve global sustainability in the twenty-first century.

[http://www.roadmaptoreality.co/Holistic Worldview.htm](http://www.roadmaptoreality.co/Holistic%20Worldview.htm) .

Mari has a special attachment to her grandmother who spent most of her life on the farm and who is, above all else, “caring”. Her father is a music instructor at a local public cultural school (Kulturskole). Her mother is a public school teacher, grade nine. Oldest of three, it was possible to see glimpses of the responsibility and leadership bestowed on the oldest sibling in the family. She referred to her brother fondly as lazy but good. “He is creative too, but with computers. My younger sister isn’t interested in art.”

When I asked about her decision to become a teacher, a further indication of her maturity surfaced. “I would like to help people become more respectful and knowledgeable of nature and its relationship to human development.” The outdoors, gardening, and nature in its fullest sense (not just hiking but living outside) define her. As a teacher in arts, she wants to create, be creative, and be free. “I want children to achieve the feeling that they can make something beautiful, if it’s a small knitted scarf, or a drawing. I want them to find hope. Hope of change. Mari was inspired by the Waldorf school education system (known in Europe as Rudolf Steiner Schools).

Mari’s journey started in Bergen where she spent a year studying social anthropology. She quit. Following that she enrolled in a private art school, also in Bergen. That lasted one year. To support herself she worked at a kindergarten, an ecological restaurant, and in an art studio with a group of friends – “not to sell so much as to be creative”. She quit. Tired of city life but certain that she needed to be working at something creative she applied and was accepted at Notodden. “The instructors at Bergen were artists not pedagogues. “At Notodden they are both. I needed to be around art but also people who care!”

The love of nature, art, and learning, as staples in Mari's life, is strong. "They told me at school I was shy. That's not it so much. I felt different, and just knew I couldn't be a part of this mainstream culture in the school of Rauland. I need to have colour, beauty, and light in my life." I was curious about the community in which Mari grew up. "When I was young I hated it (a small community of 1000 inhabitants a few kilometers from Notodden). Only when I left and came back did I come to appreciate it." We talked about the rich arts and culture that surrounded her in those formative years (her musical father, caring mother, artistic friends) and how they shaped her disposition and personality.

Mari was the last interviewee in my study. She was late in arranging an interview. I didn't expect to hear from her. As I reflect I am glad she wasn't disinterested and that she came forward. Her humility, sense of purpose, and combination of interests - art, caring, and nature - give me hope that I came to the right place to further define and describe the roots of human ingenuity.

Discussion and Analysis

Several themes are evident in the summary portraits. One is the importance of role models from early in life, e.g., a grandmother, an aunt. A second is the importance of play, particularly without adult supervision. A third is the importance of access to natural and human-made spaces on an unrestricted basis. Finally, the mention of life experience as a maturing process for these aspiring teachers is a common refrain.

Mari's steadfast and quiet commitment to the relationship between nature and human development and her 'practical ethic' provide testimonial evidence that human ingenuity and creativity does live inside us. It may surface in different forms as we grow and mature and it may be deferred in favour of government and family priorities (work, careers, siblings, family, peers) but it doesn't disappear. Her 'caring' is also interesting. Somehow the bond that we form as human beings between our being and nature is so special it is overlooked, taken for granted. Why is it not revered more in western civilization policies? Why is it so hard to retain as a driver for learning and public acceptance? These questions stem from my experience in Canada where arts and culture as well as outdoor education are low priorities in the education system.

Anne's reference to her father's habit of drawing for his children when returning from his travels is a good example of the memories and building blocks associated with being creative. Family role models and the memories they conjure up are critical to our development. Invisibly these memories forge our tendencies and interests. She has a good sense of herself that appears to trace back to childhood days. That sense of self is durable, true, and steadfast/pure. Her penchant for concentrating on a problem and allowing the research (personality analysis of the two boys) to precede the solution, i.e., the artifact, is simple and classic. All of Anne's projects follow the same *modus operandi*. Where does the 'know thyself' principle come from? How does it happen? In Anne's case it seems to be from her memories of being cared for as a child.

The other participants, Inghild with her understated, warm personality, Espen's cartoon art, Patrick's 'defiance' strategy, while different in form, all serve as examples of 'human creativity in process'. They stand in stark contrast to the push for more formal education, i.e., credentialism, espoused by well meaning parents, who themselves may have fallen short of their professional career goals, 'the easy life'. Is it time to design an emulate another less travelled path? On the global stage human ingenuity/creativity research shows that direct contributions to economic development from formal education range from exceptional to marginal, depending on the priority given to this area in society. One cultural difference that jumps out is the reverence for art, crafts, and design and technology, slojd in the Scandinavian countries. NordFo research documents, i.e., *Techne*, (a journal) speaks to this philosophy. There is an assumption that creativity is critical to the human development of all young people in Nordic countries. Countries that fail to recognize and value creative approaches to learning and to development may need to encourage research and innovation in the education/economics domain in order to capitalize on this important human resource capability.

Government economies around the world are positioning to prepare workers and citizens for innovation, creativity, and for economic/social prosperity. Canada and Norway are two good examples. Education systems in each country are enlisting education institutions to assist with national goals, i.e., gain competitive advantage in a global market. The PISA testing program is testimony to the importance an individual country places on education. Now test questions and research that can measure the less tangible area of problem solving and ingenuity appear to be possible. It remains to be seen whether or not this is a viable goal/strategy for bringing creativity to the status it deserves. In addition to providing stimulating life stories of clever aspiring teachers that helps conceptualize a challenging phenomenon, this research address how government policies might begin to define and further human and cultural capital research more fully or differently.

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Appendix A – Preliminary Student Survey (Backgrounder)

Human Ingenuity Research Project /
Forskningsprosjekt om menneskelig oppfinnsomhet

Til Høgskolen i Telemarks studenter:

Dette er en undersøkelse utført av Høgskolen i Telemarks gjesteprofessor Ron Hansen fra the University of Western Ontario, Canada. Deltakelse er frivillig og all informasjon og navn vil bli oppbevart konfidensielt etter de etiske retningslinjene for dette prosjektet. Hvis du ønsker mer informasjon kan du lese det vedlagte dokumentet – Letter of Information. Vi har valgt å oversette spørreskjemaet til norsk, men ønsker at du svarer på engelsk for å forenkle Ron Hansens databehandling. Perfekt engelsk er selvsagt ikke noe krav – bare svar etter beste evne.

Svare skal sendes til Ron Hansen : hansen@uwo.ca

1. Human Ingenuity Study – Backgrounder / Bakgrunn

Below is a brief questionnaire to help us better prepare to meet with you. The actual interview will look at the sources of your knowledge, skills, experience, your sense of what it means to be inventive, and your thoughts on how best to develop innovative thinking and learning capacities.

Nedenfor er et kort spørreskjema som skal hjelpe oss i forberedelsene til å møte dere. Det faktiske intervjuet vil se på kilden til din kunnskap, dine ferdigheter, din erfaring, din oppfatning av hva det betyr å være oppfinnsom, og dine tanker om hvordan det best kan utvikles inovativ tenkning og læringskapasitet.

- *1. Name / Navn
- *2. Current course of study and responsibilities
/ Nåværende studium og ansvarsoppgaver
- *3. Where did you grow up? (hometown and nature of community, e.g. rural, urban, agricultural, etc.)
Hvor vokste du opp? (Hjemby og hva slags samfunn, f.eks. tettsted/landsbygd, by, jordbruksområde, o.l.)

2. Work Experience / Arbeidserfaring

- *4. Work experience: (include all jobs you feel relevant to developing your ingenuity including any summer or part-time jobs if applicable)
Arbeidserfaring (inkludér alle jobber du føler er relevant for å utvikle evnen for oppfinnsomhet, inkludert sommerjobber og deltidsjobber hvis det passer)

Type of Work / *Type arbeid*
Responsibility / *Ansvarsområde*

Approximate dates of service / *Omtrentlig tidsperiode for oppgavene*

5. Work experience: (include all jobs you feel relevant to developing your ingenuity including any summer or part-time jobs if applicable)

Position / *Stilling*

Type of Work / *Type arbeid*
Responsibility / *Ansvarsområde*

Approximate dates of service / *Omtrentlig tidsperiode for oppgavene*

3. Education Experience / <i>Utdanning</i>
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- *6. What was your: *Hva var ditt:*

favourite subject? / *favorittfag?*

least favourite subject? / *det faget du likte dårligst?*

- *7. Who was your favourite teacher? What subject?
/ *Hvem var din favorittlærer? Hvilket fag?*

- *8. Did you participate in extracurricular activities?
Deltok du i aktiviteter utover det som krevdes i undervisningssammenheng?

Yes No

- *9. Do you think there is any correlation between success in school and being inventive/creative? Check one.
Tror du det er noen sammenheng mellom suksess på skolen og det å være oppfinnsom/kreativ? Sett kryss for ett alternativ

Yes – Positive Correlation /
Positiv sammenheng

Yes – Negative Correlation /
Negativ sammenheng

No Correlation /
Ingen sammenheng

4. Other items / <i>Andre temaer</i>

*10. What are your community involvements? (e.g., organizations, church groups, social clubs, sports, etc.)
Hva slags fritidsaktiviteter deltar du aktivt i? (f.eks. organisasjoner, menighetsarbeid, sosiale grupper, sport, etc.)

*11. Indicate those of which you feel you are a regular user:
Sett kryss ved de som du mener du er en jevnlig bruker av:

News/Media / *Nyheter/Media*

TV

Magazines

Radio

Internet

Books

Other (please specify) / *Annet (spesifiser)*

*12. Who is your biggest role model?
Hvem er din største rollemodell?

*13. What was the most useful piece of advice/criticism you received?
Hva var det mest lærerrike rådet/kritikken du har fått?

*14. Please describe something that you have, or have been inspired, to invent/create.
Beskriv noe som du har, eller har blitt inspirert til å finne opp/lage.

*15. When being creative or inventive what traits and qualities do you exhibit/possess? Rate your response on a scale of 3 from often (1) to rarely (3)
Hvilke egenskaper eller kvaliteter viser du / har du når du er kreativ eller skapende? Grader dine svar på en skala fra 1 til 3; der 1 er ofte og 3 er sjelden.
Often / *Ofte* (1) Sometimes / *Noen ganger* (2) Rarely / *Sjelden* (3)

Resourcefulness /
Oppfinnsomhet

Inspiration/creativity /
Inspirasjon/kreativitet

Engagement with tools, materials, machines /
Involverer bruk av verktøy, materialer, maskiner

Work ethic /
Arbeidsetikk

Faith in an idea /
Tro på ideer

Visualization /
Visualisering

Doing for others (e.g. a community/family/social purpose) /
Å gjøre noe for andre (f.eks. samfunnsengasjement/familie/sosial hensikt)

Innate curiosity /
Iboende/naturlig nysgjerrighet

Willingness to go it alone /
Vilje til å gjøre noe alene

Being experimental /
Være eksperimentell

Perceived necessity /
Antatt nødvendighet

Ability to transfer knowledge/experience /
Evne til å overføre kunnskap/erfaring

Aptitude for problem solving /
Evne til problemløsning

Patience /
Tålmodighet

Tenacity /
Målbevissthet

Faith in myself /
Tro på meg selv

Motivation /
Motivasjon

Other (please specify) /
Annet (spesifiser)

Thank you for sharing this information.
We look forward to working with you. /
Takk for at du delte denne informasjonen.
Vi ser fram til å arbeide med deg.

Ron Hansen fra the University of Western Ontario, Canada hansen@uwo.ca
Jostein Sandven fra Høgskolen i Telemark.