People throughout the world have creative minds with unlimited potential for change. The Road to Independence: Emancipatory Pedagogy offers ways to empower people through education so that we can live and prosper together in a sustainable world. The emancipatory pedagogy of innovation and entrepreneurial education is presented as a road to independence: as a way to enable everyone to reach their inherent potential.

This book presents case studies, stories, and research findings from innovation and entrepreneurial education that illuminate the real lives and work of teachers and students from different cultures.

“Over 40 years of direct experience informs this text. You will find innovative things to think about from the authors, and come to understand how they are able to develop such innovative thinking in their learners. Educational forms such as these are much needed as we move from learning about how things work as observers, towards learning to be able to do things for ourselves. Importantly, all too often the term ‘joining the dots’ references looking backwards and understanding the past, but this book is all about the future; it proactively responds to what are becoming known as ‘entrepreneurial 21st Century skills, so start connecting them now.” – Andy Penaluna, Director, International Institute for Creative Entrepreneurial Development

“This fascinating, inspiring, and insightful book on how to actualize and develop an innovation potential of every child is a must-read for teachers, parents, and researchers alike. Svanborg R. Jónsdóttir and Rósa Gunnarsdóttir began an innovation revolution by introducing Innovation and Entrepreneurial Education in Icelandic schools. What the whole world needs today is to maximize revolutionary innovation in all fields of human endeavour and The Road to Independence provides a myriad of incredibly useful approaches to nurture that innovation.” – Larisa V. Shavinina, Editor of The Routledge International Handbook of Innovation Education
The Road to Independence
ADVANCES IN INNOVATION EDUCATION

Volume 3

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Aims and Scope

Industry, government-sanctioned research and development and the private sectors have historically been the champions of fostering innovation with the aim of addressing changing human needs as well as economic gain. The connectivity of the 21st century coupled with advances in information systems and the unchecked advent of globalization have resulted in challenges to existing institutional structures in place as well as a greater awareness of inequities within and across different regions of the world. Innovation and innovation education are the new buzz words increasingly inundating popular discourses in different media. The aim of this avant-garde book series is to unfold the conceptual foundations of innovation from historical, socio-political, economic, scientific and ethical perspectives, as well as apply these foundations towards issues confronting education, science and society in the 21st century.
The Road to Independence

Emancipatory Pedagogy

Svanborg Rannveig Jónsdóttir and Rósa Gunnarsdóttir
University of Iceland, Iceland
TABLE OF CONTENTS

Acknowledgements ix
List of Figures xi
List of Pictures xiii
List of Tables xv
To The Reader xvii

Chapter 1: Being Human Today 1
   The Overview Effect 2

Chapter 2: Survival in the Global Village 7
   The Art of Knowing Who You Are 7
   Social Matrix 13
   The Skillset Needed for Survival 18
   Owning the Tools and Using Them 20

Chapter 3: Carving Our Names into the Village Tree 23
   Points for Survival in the Global Village 26

Chapter 4: New Under the Roof – New Under the Sun 29
   Moving from Focusing on ‘Genius’ Creativity to Ordinary Creativity 29
   Emancipatory Pedagogy for Emancipatory People 31
   Understanding Creative Thinking and Creative Action 31

Chapter 5: Creative Intelligence for Intelligent Creations 35
   Creativity and Change 35
   The Concept 36
   The Duality of Creativity as Skill Versus Personal Trait 36
   Other Relevant Definition of Creativity 37
   The Creative Person 37
   Creative Thinking 39
   The Social Psychology of Creativity 39
   Intelligent Use of the Creative Mind 41
TABLE OF CONTENTS

Chapter 6: Creative Cultures 45
   The Role of Education in Creative Cultures 47
   Nurturing the Creative Mind 50
   Learning, Activity and Creativity 53
   The Evolution of Creative Culture 55

Chapter 7: Education as Evolving Paradigm 57
   The Innovation and Entrepreneurial School of Thought 58
   Constructivism and Socio-Historical Theories of Education 59
   Neo-Vygotskian Views of Learning and Activity 62
   Distributed Cognition and Community of Practice 64

Chapter 8: Independent Education 67

Chapter 9: The Emancipatory Pedagogy of Innovation and Entrepreneurial Education 71
   The Magic of Innovation Education 71
   Pedagogies of Innovation and Entrepreneurship Education 73
   The Unlikely – The Transmissive Mode 75
   The Controlled Mode – The Teacher is the Expert 77
   Progressive Mode – Supporting Learning Agency 78
   Emancipatory Mode – Creative Learners, Independent Explorers 78
   Emancipatory Pedagogy is Possible 80

Chapter 10: Comfort Zone 83
   Practise Structured from Research 83
   Making Sense of Life 84
   What Makes up the Personal Comfort Zone? 84
   The Role of Mentors or Teachers in Emancipatory Education 87

Chapter 11: Reporting of Progress as a Part of Emancipatory Pedagogic Practice 91
   Evaluation of Creativity – Rubric Structure 91
   The Design-Based Assessment Model to Understand and Assess Creative Work 97
   Prestolee School near Manchester 99
   Evaluation That Is Fit for Purpose 101
   Emancipatory Pedagogy as a Part of the Creative Community 103
# TABLE OF CONTENTS

Chapter 12: IEE Research in Iceland – Examples of Emancipatory Pedagogy in Action  
Case Study 1: Kolbrún’s Story: A Seaside School 106  
Case Study 2: Grunnskólinn Austan Vatna 108  
Continuity and Progression 111  
The School, Its Environment, and Staff 112  
IEE in GAV 113  
Teachers’ Ownership and Agency 114  
Example of Teacher Erin – Developing Efficacy 114  
Some IEE Lessons 115  
Creativity in IEE 116  
Time Issues Relating to IEE 119  
What Is IEE in GAV to Participants? 119  
The Rationale – Benefits 121  
Collaboration – Developing Collective IEE Teaching Efficacy 122  
Learners’ Voices 123  
Step-by-Step Development of IEE in GAV 124  
The Social Ecology of IEE in GAV 130  
Case Study 3: Fljótsdalshérað 133  
Workshop in Brúarás School 140  
Expanding Learning Spaces – Local Pride 142  
Emancipatory Pedagogy in the Two Compulsory Schools 143  
IEE in the Upper Secondary School 143  
Boundaries between Schools and School Levels 144  
Ecology of Feasible Development 145  
Case Study 4: Breiðholtsskóli Reykjavík 146  
Inner City School 148  
Science Workshop 148  
Evaluation 150  
From Philosophy Elective to Innovation 150  
Evaluation Methods 151  
Next Steps in the Inner City School 151  
Summary 152

Chapter 13: Connecting the Dots 153

References 155
ACKNOWLEDGEMENTS

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<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>The simplest form of the social matrix</td>
<td>14</td>
</tr>
<tr>
<td>2.2</td>
<td>The EntreComp competence areas</td>
<td>21</td>
</tr>
<tr>
<td>4.1</td>
<td>New under the roof – new under the sun</td>
<td>30</td>
</tr>
<tr>
<td>4.2</td>
<td>Analysis of creative thinking and creative action</td>
<td>32</td>
</tr>
<tr>
<td>5.1</td>
<td>Componential model of individual creativity</td>
<td>40</td>
</tr>
<tr>
<td>6.2</td>
<td>From a RSA animated lecture given by Sir Ken Robinson in 2006</td>
<td>53</td>
</tr>
<tr>
<td>7.1</td>
<td>The progression in IEE as presented in the INNOENT Education product line</td>
<td>58</td>
</tr>
<tr>
<td>7.2</td>
<td>Edwards and Collison’s model of Vygotsky’s learning framework</td>
<td>63</td>
</tr>
<tr>
<td>7.3</td>
<td>Genesis of performance capacity: progression through the ZPD and beyond</td>
<td>64</td>
</tr>
<tr>
<td>9.1</td>
<td>A tool for mapping IEE pedagogies</td>
<td>74</td>
</tr>
<tr>
<td>9.2</td>
<td>Mapping teachers’ IEE pedagogies</td>
<td>75</td>
</tr>
<tr>
<td>9.3</td>
<td>Describing four modes of pedagogy in IEE</td>
<td>76</td>
</tr>
<tr>
<td>10.1</td>
<td>Personal comfort zone showing things that are outside of person’s zone and on the periphery</td>
<td>85</td>
</tr>
<tr>
<td>10.2</td>
<td>Comfort zone constructed by language, ability and attitude</td>
<td>85</td>
</tr>
<tr>
<td>11.1</td>
<td>Representation of the Spencer et al. model</td>
<td>94</td>
</tr>
<tr>
<td>11.2</td>
<td>Structure of the habits described by Spencer et al.</td>
<td>95</td>
</tr>
<tr>
<td>11.3</td>
<td>Example of self-evaluation worksheet</td>
<td>96</td>
</tr>
<tr>
<td>11.4</td>
<td>A model of the creative process</td>
<td>98</td>
</tr>
<tr>
<td>11.5</td>
<td>Evaluation rubric from Prestolee school</td>
<td>100</td>
</tr>
<tr>
<td>12.1</td>
<td>IEE pedagogy in two compulsory schools</td>
<td>144</td>
</tr>
</tbody>
</table>
**LIST OF PICTURES**

<table>
<thead>
<tr>
<th>Picture</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>First full image of the Earth captured from space by the crew of the Apollo 17. This was the first crew to actually see a fully lit Earth. 07/12/1972 at 05:39 (EST)</td>
<td>2</td>
</tr>
<tr>
<td>2.1</td>
<td>Syrian father Laith Majid arrives in Greece after fleeing with his family from Iraq</td>
<td>8</td>
</tr>
<tr>
<td>2.2</td>
<td>Gunnar Högnason at age 6 years old (family album)</td>
<td>9</td>
</tr>
<tr>
<td>2.3</td>
<td>Gunnar senior, his father, and a family friend (family album ca. 1962)</td>
<td>10</td>
</tr>
<tr>
<td>2.4</td>
<td>Gunnar senior with his children by the glacial lake Jökulsárlón in 1978 (family photo)</td>
<td>10</td>
</tr>
<tr>
<td>2.5</td>
<td>Gunnar senior and his daughters with one of the REO trucks (family album)</td>
<td>11</td>
</tr>
<tr>
<td>2.6, 2.7</td>
<td>Gunnar senior and one of his best friends, Bjarni, contemplating their next move on the islands, do some construction work or go hunting. The latter was often the choice of the day. To the right is the boat used to travel between the mainland and island. In this typical family picture of the Akureyjar Clan, everyone is busy and happy</td>
<td>12</td>
</tr>
<tr>
<td>2.8</td>
<td>Gunnar Högnason, the father of Rósa Gunnarsdóttir. Picture taken two years before his death, in his favourite place on earth, the kitchen in the remote islands of Akureyjar in Iceland</td>
<td>12</td>
</tr>
<tr>
<td>2.9</td>
<td>Gunnar junior, age 7, School picture from Kerr Mackie Primary School, Leeds, England (family album)</td>
<td>15</td>
</tr>
<tr>
<td>2.10</td>
<td>Gunnar junior, first boy from the left in the back row, at age 10 with his football team in Leeds, England</td>
<td>16</td>
</tr>
<tr>
<td>2.11</td>
<td>Gunnar junior and his daughter Alexandra – one of the pictures he has shared online with his extended online friends, showing the loving relationship between father and daughter</td>
<td>17</td>
</tr>
<tr>
<td>3.1</td>
<td>Gunnar junior in the role of parent (family album)</td>
<td>24</td>
</tr>
<tr>
<td>6.1</td>
<td>Family in their nuclear bomb shelter in Long Island (Archive.com)</td>
<td>47</td>
</tr>
<tr>
<td>7.1</td>
<td>The Sekola Alam in Jakarta, Indonesia</td>
<td>57</td>
</tr>
<tr>
<td>8.1</td>
<td>Anna Lee Fisher</td>
<td>68</td>
</tr>
<tr>
<td>12.1</td>
<td>Smoker prevention cube</td>
<td>110</td>
</tr>
<tr>
<td>12.2</td>
<td>Making a camouflage cloak for hunting</td>
<td>115</td>
</tr>
<tr>
<td>12.3</td>
<td>Running a real coffee shop as a school project</td>
<td>116</td>
</tr>
<tr>
<td>Picture</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>12.4</td>
<td>Treasure bags for stimulating creativity</td>
<td>118</td>
</tr>
<tr>
<td>12.5</td>
<td>A sensitive moment – the creative chat</td>
<td>118</td>
</tr>
<tr>
<td>12.6</td>
<td>Interplay of imagination, materials and creative space</td>
<td>136</td>
</tr>
<tr>
<td>12.7</td>
<td>Proudly showing his ‘elf,’ made of a piece of tree branch, soft clay, a bead, and a sheep’s horn</td>
<td>136</td>
</tr>
<tr>
<td>12.8</td>
<td>A figure of imagination in colourful materials</td>
<td>137</td>
</tr>
<tr>
<td>12.9</td>
<td>Walking across a dangerous bridge: a creature made of beads, soft clay, and nut shells</td>
<td>137</td>
</tr>
<tr>
<td>12.10</td>
<td>Immersed in creative expression in tangible materials</td>
<td>138</td>
</tr>
<tr>
<td>12.11</td>
<td>Working on their projects at Fljótsdalshérað 2009</td>
<td>139</td>
</tr>
<tr>
<td>12.12</td>
<td>Main issues to present on the poster</td>
<td>140</td>
</tr>
<tr>
<td>12.13</td>
<td>Workshop: Creativity and agency</td>
<td>141</td>
</tr>
<tr>
<td>12.14</td>
<td>Workshop: Independent work</td>
<td>141</td>
</tr>
<tr>
<td>12.15</td>
<td>Workshop: Engagement and creativity</td>
<td>142</td>
</tr>
<tr>
<td>12.16</td>
<td>Children in Brúarás School present their inventions to other students and staff</td>
<td>143</td>
</tr>
<tr>
<td>12.17, 12.18, and 12.19</td>
<td>Research efforts of the owners of Madness Cosmetics, the range of products made, and the production line in action</td>
<td>149</td>
</tr>
</tbody>
</table>
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Criteria for assessing classification and framing values working with innovation and entrepreneurship education</td>
<td>73</td>
</tr>
<tr>
<td>10.1</td>
<td>Showing how aspects of the comfort zone can be translated into EU learning outcomes and active learning</td>
<td>87</td>
</tr>
<tr>
<td>11.1</td>
<td>Evaluation matrix used in INNOENT education</td>
<td>102</td>
</tr>
<tr>
<td>12.1</td>
<td>Learner views of IEE in GAV</td>
<td>123</td>
</tr>
<tr>
<td>12.2</td>
<td>Classification of IEE in GAV</td>
<td>127</td>
</tr>
<tr>
<td>12.3</td>
<td>Pedagogic features of the social base in GAV of IEE lessons</td>
<td>128</td>
</tr>
<tr>
<td>12.4</td>
<td>Framing: selection – in IEE lessons in GAV</td>
<td>129</td>
</tr>
<tr>
<td>12.5</td>
<td>Framing: pacing, sequencing and criteria – in GAV’s IEE lessons</td>
<td>130</td>
</tr>
<tr>
<td>12.6</td>
<td>The social ecology of IEE in GAV</td>
<td>132</td>
</tr>
<tr>
<td>12.7</td>
<td>Ecology of feasible development in Fljótsdalshérað: A social ecology of IEE of two of the compulsory schools</td>
<td>147</td>
</tr>
<tr>
<td>12.8</td>
<td>Methods of evaluation for spring 2016</td>
<td>152</td>
</tr>
</tbody>
</table>
TO THE READER

For the last twenty-odd years, the authors of this book have been involved in developing and researching Innovation Education (IE) and Entrepreneurial Education (EE) sometimes jointly called Innovation and Entrepreneurial Education (IEE). We started as regular teachers in regular schools in Iceland, trained and educated in the system we served. However, we felt that it was somehow not fit for purpose it was designed to serve. So we began an academic and pedagogical journey that has led us here, to this book, where we would like to share with you our travel stories of how we have become who we are, and what we can offer in the form of humble advice.

RÓSA’S STORY

Pondering over the question “of life, the universe and everything” is one of the trends that humankind has developed through the generations. The questions of how, why, where and by whom are asked countless times every minute, every day, all year round. So why should I be any different?

This was spoken by a 10-year-old physics student in my classroom one day. She was quoting her favourite novel, *The Hitchhiker’s Guide to the Galaxy* by Douglas Adams. At that time I was a novice teacher, just having graduated from the Iceland University of Education, in my first teaching job as a science teacher in Foldaskóli in Reykjavík, full of ideas and enthusiasm, and ready to take on the world – or at least my remote corner of the universe. I was primed to spread the joy of learning left and right, because I believed that to be my calling in life. However, it did not take long until the monotony of preparing my students for exams took over, and my wings were clipped by the cruel reality of the classroom. The development of the mutual experience of investigation in the wonderful field of science became secondary. Nevertheless, in the few moments I managed to spend with my students pondering about the world, trying to understand it, seeing their perspectives on life and reality, encouraging them to actively deconstruct arguments and construct their own standpoints – these moments were worth the endless monotony of grading reports and exam papers.

I came to realise that just raising a question about the physical world was a tremendous task for many students. It meant that they would have to review their default behaviour of being passive and non-critical about their environment. They would have to challenge their trained belief that students are expected to keep quiet and learn what teacher teaches, and instead become active participants and co-creators of their understanding of life.
A few months into my teaching career, I became friends with Gísli Þorsteinsson, the school’s crafts teacher. He was trying to teach children to invent things. Just the notion of children and inventions was interesting enough, but to situate this activity in a traditional school setting was captivating. I was fascinated, and bit-by-bit I got caught up in the emerging movement of Innovation Education, (which later became the foundation for INNOENT Education). Before the school year was over, Gísli and I were planning and applying for grants and sponsorships to fund further work in the field. Having secured enough funds to keep us afloat, we embarked on a journey that is still ongoing. The first step in this journey was to develop teaching materials suited to classroom-based Innovation Education and put them to use in the classroom. We then sought to extract the essence of Innovation Education by analysing how students and teachers used them.

Following our ‘gut feelings’ in creating the teaching materials presented us with a unique situation, both during and after classroom implementation. Being relatively free from theoretical constraints and traditions, we based our decisions on what was happening with the children and teachers involved, building a structure of interactions and activities designed to work in reality, not just in theory.

After years of practical work, it was becoming obvious that the curriculum we had created needed closer theoretical attention. As the grass root movement of IEE teachers gained momentum, it was beginning to seem inadequate simply to point to our classroom activities and say “well, as you can see, it works.” In 1996, as Þorsteinsson and I began to analyse the accumulated experiences of the participants in Innovation Education, a process or model started to emerge. The more we probed, the bigger the challenge became, as we lacked a theoretical framework to explain our findings to the academic world. So in a lapse of sanity, I volunteered to embark on a research career, with the goal of defining and developing the ideology and teaching methodology of Innovation Education.

That research was for me a journey into a strangely defamiliarized realm of academic discussion, an interesting world of wide-ranging opinions and contradictions. I took on the role of interpreter between two related but very distinct realms: the Innovation Education classroom and the world of educational academic discourse. As I moved through and between these realms, I tried to keep abreast of the ongoing activities in each, formulating my own understanding of the all situations and actions therein.

Over the years, more and more research projects have focused on the Icelandic Innovation Education classrooms of the 1990’s. Building on my initial PhD research, Innovation Education: Defining the Phenomenon, my fellow teacher Mr Gisli Þorsteinsson completed his own PhD work and is now Dr. Gisli. Later our colleague and close collaborator, Svanborg R. Jonsdottir, followed suit and became Dr. Svanborg. So Iceland has now three PhDs who have focused their research on innovation and entrepreneurship. The three of us have conducted international developmental projects, as well as “transfer of knowledge” projects funded by the EU.
Innovation Education went international when Dr. Omar Al Humaidi joined the movement in late 2010 and helped begin the INNOENT collaboration. The initial INNOENT mentor training programmes, in which Dr Omar and Dr Rósa trained both women and men leaders to support the Innovation Olympiad, were conducted in collaboration with the Mawhiba institute in Riyadh Saudi Arabia in 2011 and 2012.

Today the INNOENT Corporation WLL has been established in Bahrain as an international effort to support the growth and establishment of Innovation and Entrepreneurial Education for all under the brand name INNOENT Education. The company mission is to empower community-wide engagement in education on the part of the innovative and resourceful youth by constructing a global community comprised of educators and inventors/entrepreneurs alike. INNOENT uses enabling and emancipatory pedagogies to encourage innovation and entrepreneurship based on internationally recognized research.

This might sound quite fancy to most teachers or mentors, but the proof is in the pudding, as the English say. When you have engaged in the INNOENT mentoring processes, you will come to see that this actually makes sense.

SVANBORG’S SAGA

I smiled as I walked from the crafts classroom into the main building of my school in Iceland where I had taught for 23 years. It had just stopped raining. The sun was starting to come out, and the air was fresh and cold. I was happy. I had just finished teaching a class in innovation education and I remember feeling as though everything was as it should be. I was calm and content; I felt the peace of nature, and looked forward to meeting my colleagues. The learners had been active and interested. Two boys who usually loved to play football whenever they could had chosen to work on their innovation project in their free period. Together, they had invented a solution for feeding free-range hens – a wooden box designed to provide good access to the feed and at the same time to protect it from being ruined – that they were building to sell at a market that the class was planning the following week.

At that time, I had been teaching innovation education for five years. It had been a good experience, as it gave me a chance to be the teacher I wanted to be. The learners could be creative, using all kinds of knowledge from school subjects and from life itself.

I myself had always loved school and learning, but when I started teaching in compulsory school I soon found that some learners did not feel the same way; some even hated school. I really wanted find ways to help those students enjoy learning and coming to school. I observed that different subjects appealed to different learners; some likes gymnastics, others liked crafts, some liked arts, others languages – and a few liked everything. Most girls liked art, and the majority of boys liked crafts, but
there was not always a clear-cut difference across gender. Over the years I attended several courses for teachers and tried new methods, varying my approaches in teaching through projects of many sorts such as publishing a local newspaper or using the Story-Line method to create and display an Icelandic community from 100 years ago. These experiments often engaged the majority of learners.

I first learned about Innovation Education in a teachers’ course taught by Rósa, Gisli, and Guðrún Þórsdóttir. I was immediately impressed, and wanted to implement Innovation Education in my teaching. I first tried it as a short diversion in my class, but when it turned out to engage the children effectively and in a different way than in anything else we were doing in the school, I expanded it into a special subject, with the principal’s support. I taught Innovation Education for my last ten years that I taught in compulsory school (1995–2006) and my adoration grew with each experience and every course I took. In my school we offered Innovation Education within four overarching themes that covered many fundamental elements of human life: (1) enhancing the capacity to be creative, solving problems and working together, (2) understanding and making technology, (3) comprehending and starting a business, and finally (4) scrutinizing the environment and how both natural and human-made things connect and depend on each other. I was very happy as innovation education engaged the learners through their own experiences, somehow connecting their personal and work lives so naturally that they did not always realise they were doing school work or being creative. I seized every chance I got to learn more about innovation education taking part in a European project InnoEd where I got a diploma in Innovation Education. My masters’ research project was about Innovation Education in Icelandic schools. Later, in my PhD research I identified the core pedagogy of innovation education as *emancipatory pedagogy*, as well as analysing different forces of influence as the *Social ecology of innovation and entrepreneurial education*. Since 2006, as a teacher educator, I try to implement IEE and emancipatory pedagogy whenever I can, holistically or with regard to a given subject.
CHAPTER 1

BEING HUMAN TODAY

We humans have used the night skies for millennia to guide us on our journeys. Celestial bodies have guided us on our adventures into the unknown and back, bringing new knowledge of foreign countries, strange customs, and even more intriguing landscapes. Our insatiable curiosity has driven us to conquer broad oceans and vast mountain ranges, and we have even started to explore space itself. The good news is that we still have far to go on most frontiers; the not-so-good news is that we have been rather rash in our efforts. This foolhardiness is one of the main indicators that our creative minds seem never to be satisfied. Coming up with hypotheses about what could be waiting for us beyond the horizon – building expectations and discussing possibilities – is inherent to this effort.

Pointing the compass inwards, exploring what drives us to these explorations, is what we are attempting in this book. We do not pretend to give a full celestial map of the human mind’s creativity; however, we would like to present our story of how a creative mind might find the road to independence, with the support of emancipatory pedagogy.

In 1948 the American astronomer Fred Hoyle said that once a photograph of the Earth taken from space is available, a new idea as powerful as any in history would be let loose. Being able to see our blue planet for what it is, a fragile amalgam of living and non-living systems, should be very powerful. Yet most of us humans disregard this historical event as just another old news item that has little to do with day-to-day existence. We still live mostly within our minds, in small societies or groups with similar cultural backgrounds, more affected by the daily routines of our lives and our collective consumption than global events. Yes, we hear about these events almost as they happen, but when they do not directly affect us or those closest to us, we shrug them off as somebody else’s problems.

That being said, we as a species have achieved incredible things in very short time span, geologically speaking. The first picture of the earth in full light has the name AS17-148-22727 in the NASA archives, but it is better known as the Blue Marble Shot. It was taken during the Apollo 17th mission, 28,000 miles from the Earth, with a the 70 mm Hasselblad camera; NASA credits all three of the crew members with taking this epic picture. The astronauts did not realise what they had captured. Other crews had produced views of the partially lit Earth, and even an Earthrise from the moon, but this was the first picture of a fully lit Earth, taken near the winter solstice when Antarctica faces the sun. Most of us have seen this picture, either on television or in schoolbooks, yet somehow most of us still lack the understanding that we humans have to share this ever-moving rock on its perpetual trip.
The race for the stars had a profound impact on human society, not just because of the technological advances created to get us this far, but because it has provided us with a spectrum of thought. Knowing that you need to be 20,000 miles above the Earth to see it fully is one thing; but achieving this is quite another thing. A total of 547 people from 38 countries have seen Earth from space; 3 have done suborbital flights; 533 have reached Earth orbit; 24 have passed beyond Earth’s orbit; 12 have walked on the moon. Bearing in mind that there are now 7.3 billion humans currently living, this is not a large proportion. This obvious fact does not stop us and our creative minds from forming our own understanding of what it feels like looking at the Earth from a “floating tin can” in space.

We Earthlings cling to the poetic concept that no boundaries can be seen from space, just the blue marble. But most astronauts say that this is a misconception. You can see boundaries from space such as the Great Wall of China, and they are mostly the results of human impact: erosion, clear-cutting of forests, and other human structures.

THE OVERVIEW EFFECT

Frank White, author of the Overview Effect, reflects of this notion in a video published on Youtube and Vimeo under the same name. He bases his work on the
experiences of people that have actually seen the blue marble floating in space. In this short video one can hear the astronauts talking about how they felt as the Earth came into view from the portals of their spaceships. What they describe has been coined The Overview Effect. This notion that astronauts refer to is a feeling they have after seeing the Earth as one world not just a patchwork quilt of different nations with borders. They describe a feeling of awe, along with something else they struggle to express. David Beaver, co-founder of the Overview Institute, explains “to have that experience of awe is to, at least at the moment to let go of yourself, to transcend the sense of separation; so it is not just that they were experiencing something other than them, but they were at some deep level integrating, realising their interconnectedness with, this beautiful blue-green ball.”

Edgar Mitchell, Apollo 11 Astronaut, took further explored the notion of the Overview Effect. He spent time researching this feeling with academics and they came up with the Latin phrase *salva corpus amanti*, which literally means “save the lover’s body,” i.e., emotionally and viscerally experience what is seen with the eyes as ecstasy, total unity and oneness. The feeling that the astronauts describe – this ecstasy, total unity and oneness – is something like what many of the great wisdom traditions of Earth coined centuries or millennia ago, though this discovery is new to the Western traditions. This notion of us humans all surviving with the rest of the living world on one floating rock hurtling through space at 30 km/sec, protected only by a paper thin layer of atmosphere, is quite new and wondrous to most of us.

Though we humans and our creative minds have scarred our planet in nearly irreparable ways, we are still one species, and we have to learn to live in harmony with the rest of what makes up what we call nature. We have to *salva corpus amanti*, save our lover’s body, in order to have a future.

Some will say that the key to be able to restore nature to her former splendour is education. But in our experience, the education that brought us here is definitely not fit for that purpose. Education in its current incarnation, which has allowed us to plunder Earth’s bounty, progressively sacrifice things that were never ours on the altar of economic growth indicators, is greatly lacking or rather egregiously harmful.

Education is culturally and politically defined product; however, it seems that this fact has totally escaped most politicians and many educational entrepreneurs. Educational systems as we know them are built on the very humanist basis of giving the masses access to knowledge that was in fact a tool for control not so long ago. In order to maximise the productivity of our education systems, we have seen a rising trend of standardisation of education, with well-meaning individuals trying to build a one-size-fits-all education system. Doing this for one culture is a bizarre thought – it makes just as much sense as making one-size-fits-all shoes. Humans come in all different shapes and sizes, not just physically but also mentally. It is our diversity, not the potential of mass homogenisation, that is our hope.

Building a one-size-fits-all education system might make sense in monetary terms. Teaching the masses in the way that enables the largest number of individuals to
progress seems like a reasonable goal. One major drawback of this way of thinking, however, is that mass-production education tends to flatten out the potential of the participants. This produces a cultural norm, with anyone landing on either side of the normative evaluation curve considered to have peculiarities or maladies. The steep rise in diagnosis of different kinds of special needs is one indicator that the educational system views individuals as resources in a production line rather than persons of universally exceptional potential.

We, the authors, were brought up in Iceland, a very small speck on the blue marble. Even though the Icelandic education system has symptoms similar to those of all Western mass-production education systems, the words in Icelandic we use to describe learning and teaching have a slightly different root. Education, for example, is “menntun” in Icelandic, which really means to become a better human, (að verða að meira manni (isl)). The disparity between the meaning of the noun and what we were actually doing should have alerted us sooner to the discrepancies between the system as it was and what it should have been. We were supporting some students in becoming slightly better versions of themselves, while at the same time breaking the confidence of too many with external evaluation and stigmatising the rest with symptoms of having special needs – of being substandard, divergent humans. The height of this folly is the arrogance of globalising these mass-production education systems, migrating the systems into vastly different cultures, some of which have much longer and stronger academic histories, or are built on different value systems, especially when it comes to the value of the human mind.

Looking at the history of education as politically situated with a “Freirean” focus, one can see that education is more a way of controlling the masses than reducing the potential of individuals. What is now becoming evident is that this kind of education undermines the cultural foundations of nations, and aids in manipulation of learners’ sense of self so it becomes easier to justify robbing not just the culture of its human potential, but also the land of its natural resources. The first step is to eliminate creative thought and proud ownership of one’s culture and roots.

We live in a global village containing an infinite diversity of human conditions and situations. Though we share obvious similarities, no two of us are the same. But our differences – in the sense of being of different cultures, beliefs, and genders – are also what make us human. Being aware of global impact of local action is central to Innovation Education, as we understand the concept. Emancipatory pedagogy has proven to be one of the best suited paradigms for further development of our efforts.

The understanding we the authors have of Emancipatory pedagogy is simple. Emancipatory pedagogy is a certain way of viewing novices, as young persons having free will and self-direction in every part of their education. Thus the education system has to allow for different approaches to the teaching-learning continuum. In this book we will strife to give a better and deeper explanation of Emancipatory
pedagogy, by both presenting theoretical premise as well as case study evidence, mix with anecdotes from the classroom.

Understanding the different roles of the participant in the Innovation Education processes, along with observing and analysing the actual participation, gives rise to what we present in this book.
This chapter attempts to understand how our opposable thumbs and creative minds have enabled us humans to do extraordinary things. We do not live our lives in isolation, performing cognitive activities in our individual minds; rather, we seem to reliant on co-existence with other humans. In this chapter we explore the relationship between the need for co-existence in human society on one hand, and the development of sense of self and self-worth on the other, through role development within societies. Throughout this discussion we need to bear in mind that the only constant in our current and future lives is change.

THE ART OF KNOWING WHO YOU ARE

One of the interesting things that the creative mind does is to categorise everything that it observes. Primarily it distinguishes itself – i.e., the individual – from everything else, thus leaving a gap between the inner person and the role we play in different cultural settings. This gives us the feeling that we are different and separate from the rest of the world we observe. But the creative mind does not stop there; it busies itself with interpreting signals from human interactions and bits of cultural information that seem to float in the ether, such as stigmas attached to subsets of society, hierarchies and social systems embedded in discourse, and even economic systems.

Though we believe our individual consciousness’s are separate from these systems created as a by-product of human minds interacting, humans still behave in a hive minded way of social herds of beasts We all consciously or unconsciously take part in the social existence of humankind. We go to great lengths to make ourselves known as active participants in our various cultural subsets. We observe the actions of those have been there longer than us, and based on those observations, we modify our understanding of what we need to do and know in order to gain access to that subculture. Our creative minds define for us a strategy to follow, which we call our ‘ambition’ or our ‘chosen path’ to our preferred future. Being a human in this sense of the word is far from simple, given the complexities of the social hierarchies we and our creative minds have constructed around the act of just being alive.

Let’s take a family, for example. Family groups are natural phenomena in primates, who stick around for a while, at least, after their offspring are born. Human families are similar, at least in broad strokes. Normatively, Woman and Man meet, take part in a more or less loosely defined ritual, and an offspring is born. But now everything changes, as the woman takes up the socially defined role of Mother and
the man takes on the role of Father. The offspring goes through defined stages of infancy: toddler, young child, child, teenager, young adult, adult. All of these terms are first and foremost socially defined roles; however, they have also been defined by academics. The definitions have been used to determine what is deemed normal and what is not normal in a given cultural context. But because of the conflicts and contradictions that socially and academically defined roles inflict upon us humans, we intend to question this over-definition of human existence.

For example, let’s examine the role of Father. We all have one, and subsequently we have an understanding of what a father is what the word means to us. But also we have an understanding of what a father should be.

Rósa’s idea of ‘father’ is based on how she perceived her own father, Gunnar Högnason. His persona was one thing – the caring calm person with a wicked, mischievous sense of humour that could drive her mother up the wall sometimes – but he had a plethora of other roles to fill: the spiritual and ethical role model, the leader of the family group, the protector and provider. In some cases – not very often – he filled the role of the reluctant disciplinarian, who made her and her siblings own up to their mistakes and rectify them. But in other social contexts, his roles included entrepreneur, arctic explorer, farmer, company director, environmental activist, and of course son and brother.

Gunnar Senior, Rosa’s father, was born in Ísafjörður village in the northwest of Iceland in 1938. He grew up there with his parents and half-siblings. Like most
other boys at the time, at age 13 he started working as a sailor on a fishing boat from Ísafjörður. He stayed a sailor and later marine engineer until he started working for his father in Reykjavik in 1958.

Gunnar had many hobbies, such as hunting and traveling around Iceland for various purposes. Traveling at the time was very different than today, as roads could be cart tracks, farm ruts, or non-existent. There are hundreds of pictures of him and the vehicles he drove. Some of these he manufactured with his friends. When they determined they would need a mobile home for their next glacial expedition, they created a snowmobile called Sof-ét ("Sleep’n Eat"; sof= sleep, ét= eat) a deliberate pun for USSR or Soviet.
CHAPTER 2

Picture 2.3. Gunnar senior, his father, and a family friend (family album ca. 1962)

Picture 2.4. Gunnar senior with his children by the glacial lake Jökulsárlón in 1978 (family photo)
Gunnar’s role in the extended family was peripheral, as he was the youngest, and only a half-sibling to the rest of the group; it could be said that he became estranged from them. However, his connection to his own family was stronger. His love for travel and adventure was infectious, and his enthusiastic approach to life left quite a strong impression on his children.

Around 1970, Gunnar bought two American REO trucks that he used for traveling and adventures with the family. Stories about those trucks are still being told around campfires and family gatherings. For example, one day, whilst 8 months pregnant with her youngest child, Gunnar’s wife Kristín Kjartansdóttir used the trucks to go buy some milk from the local co-op, as she was too heavily pregnant to walk.

Gunnar and Kristín did not assign gender roles to their children, instead emphasizing the practical knowledge and skills to make the best of any situation. But most of all, they taught their children that you should have fun while you are at it. In 1979, Gunnar quit his job and sold his factory due to severe health issues. And so he bought a smaller company that his wife ran, along with and a cluster of small islands, Akureyjar in Breiðafjörður, for himself and the kids. Though once home to dozens of people, the islands had been uninhabited since the 1950s. When Gunnar started building, there was no clean or running water, electricity, or phone. So he and the children spent from April till October every year in the islands, making them habitable again.
Pictures 2.6 and 2.7. Gunnar senior and one of his best friends, Bjarni, contemplating their next move on the islands, do some construction work or go hunting. The latter was often the choice of the day. To the right is the boat used to travel between the mainland and islands. In this typical family picture of the Akureyjar Clan, everyone is busy and happy. (Arnþór Bjarnason, 1983)

Picture 2.8. Gunnar Högnason, the father of Rósa Gunnarsdóttir. Picture taken two years before his death, in his favourite place on earth, the kitchen in the remote islands of Akureyjar in Iceland. (Arnþór Bjarnason, 1983)
The images above give us the general idea that human beings are complex social constructs indeed, having so many roles we have either chosen to take on or are assigned to us by the chance of our time and place of birth. It is a wonder that most of us are not more confused than we already are. In order to explore this concept of social roles and the impact they have on the individuals acting them out, we have come up with a way of looking at them through what we call the social matrix.

**SOCIAL MATRIX**

The concept of the social matrix can be used alongside the concept of social event to represent the two major components of social actions, participants, and interactions. The social matrix is viewed in this book as the matrix of social interactions that forms between individuals, comprised not only of the interactions between specific individuals, but of all the interactions that come to be in any given instant. The social matrix is constructed of the individuals (the actors), the environment, and time (the factors). The actors are all different in make-up and behaviour. Each person’s personality is partly determined by genes and partly by the surroundings in which the person lives. An important point to make is that an individual or person exists on both intramental and intermental planes, and thus brings complex understandings and aspects of personality, mostly subconsciously, to events. Actors in a social matrix and in social events play different roles based on the factors that constitute the event taking place.

The factors that constitute the social matrix are social context and time. The physical environment in which the interactions take place contributes to the way in which the interactions develop, such as unconscious and conscious use of resources and time. This grants the actors opportunities to develop their roles within the event on a conscious or unconscious level, dependent on cultural restrictions or allowances.

An example of a social matrix for Rósa at a given time in her youth would be when she learned to become an islander in the west fjords with her family. She observed what her family was doing and emulated their actions and responded to the queries and information she got from her interactions with her family. Most of the interactions and reactions would be unconscious though some might well be very conscious, like wanting to learn to use a riffle very young so she could go hunting with the rest of the “bigger” kids.

Time is also an important concept here. In order to understand the phenomenon of emancipatory pedagogy, we must consider time as contributing to the formation of the social matrix. By viewing the social matrix as a grid defined by the physical environment and the presence of people in any given point in time, and the interactions between the people and the environment as interlaced multidirectional connections that continually change through time, one can then say that the product of this ever-changing network of interconnections and changing individuals is a defined social event. Simply put, actions and reactions in a social context are complex on their own, but adding to that the compulsion of the creative mind to analyse the whole
mess makes the social matrix a gargantuan heap of potential misunderstandings and over-analysis.

Everything that happens in a social matrix can, and in most cases will, be understood differently by the individuals taking part; their perceptions are tinted by the accumulated understanding that their creative minds have amassed during their lives.

![Figure 2.1. The simplest form of the social matrix](image)

Concentrating on person A (see Figure 2.1), one could say that the personality and previous experience of said person, as well as the physical attributes, i.e. the part decided by genes, work as a filter that the person uses to understand and interpret the ‘outside world’. Part of this perception and understanding is the role that person A takes on in this specific event. Person A interacts with person B – i.e., A perceives B in some way – forming a conscious or unconscious impression about B. But how A perceives him- or herself is a matter of how he/she incorporates the attributes that have managed to penetrate the ‘filter’ through time, which is the third dimension of the matrix.

The social matrix is thus made up of these basic units of individuals and their perceived roles, their physical and social environment, and time. This can be viewed as a grid of components needed to form any kind of interaction. This grid – the social matrix – is constantly moving through time; thus, the individuals and other components of the social matrix are constantly changing. The interactions between individuals form the shared experience that can be called social events.

The social matrix is ever-changing and never stationary, both in relation to time and space as well as in composition. Everything that an individual experiences changes him/her in some way. These changes can be slow and gradual over long periods of time, like when a person grows up within the norms of a certain culture; or very sudden, for example in the moment when a child learns to whistle or ride a bicycle. Coming back to Gunnar senior’s social matrix, we have to remember that it was based in the last century. The reality of young people today is vastly more extended, complex, and diverse. Gunnar had a very active social life in his day. He travelled extensively and explored Iceland while the roads were still being laid down in the 1960s, taking risks that would be deemed ridiculous by his grandson.
Gunnar junior today. Gunnar junior, on the other hand, has done things in his young life that his grandfather would not even have thought possible, and might even have deemed magical.

Picture 2.9. Gunnar junior, age 7, School picture from Kerr Mackie Primary School, Leeds, England (family album)

Gunnar junior was born in 1988 in Reykjavik, Iceland, during the fall of the Berlin wall and the birth of the Internet. Home computers, game consoles, and mobile phones were all normal household items during his formative years. He grew up both in Iceland and in England, so he was bilingual from an early age; during his teenage years, he was actively engaged with the youth culture that only large cities can offer. In terms of population, Leeds was three times greater than the total number of Icelanders in the world at the time. The cultural references that Gunnar junior adopted were considerably different from those of Gunnar senior. For example, ideas of race and things foreign were very different. Gunnar senior never worked with persons of colour, but from age seven, Gunnar junior went to school in a neighbourhood of very diverse ethnicity and race.

Below is a picture of the football team that Gunnar junior played for most of his time in Leeds. The picture shows most of his best friends, with whom he still talks from time to time, though their lives have all gone in different directions: one has pursued a career in creative music, some have decent 9–5 jobs, and others have been less fortunate in their life choices.
Today they connect mostly using social media and communicate mainly about big advances in their lives: births of children, weddings, arrests, and deaths. It can be argued that today it is not enough to manage the roles for which you are physically present. Today, most persons of certain age have what has become known as ‘online presence’ or an alter ego in a form of a conceptually constructed avatar. Some of the alter egos inhabited by young people today are totally imaginary, virtual presences that have not been physically confirmed in any way. The fact is that young people spends up to half of their waking hours inhabiting imaginary virtual presences online. As such, we have to include virtual presence as a part of a person’s extended social matrix.

The roles that Gunnar senior served in his adulthood were generally harmonious; none of them were in real conflict with each other. He could organise his time between, family, job and hobbies. He travelled across country with his family in tow, exploring the extremes of the Icelandic landscape. In so doing, he enhanced both his own life and his family’s, giving them opportunities to have real life adventures and get to know how to rely on themselves, the ability to fix things that needed fixing, and build their own futures.

Today the roles that young adults and adults are meant to serve are sometimes in conflict. The insidious creep of work-related and other roles into our private lives via the supercomputer in our pockets, is a worry we should consider. More and more,
people are being encouraged to leave the supercomputer behind and actually have a conversation with each other “in the flesh,” especially when the conversations are between family members in the same house, or even at the same dinner table. Being addicted to social media is not at all ‘social’ in the “gregarious and friendly” meaning of the word, and many societies are in fact beginning to view it as a mental health hazard. Social skills and competencies could be in danger if we do not turn this development around and start looking at the supercomputer in our pocket as the tool is should have been designed to be, not something that turns us into easily led consumer zombies who have been sucked into the tool for the addictive escape, which induces hormonally based bliss and paralysis from the neck up.

To illustrate this point, let’s outline a morning of an imaginary teenager in Iceland and find out what roles he might serve during his morning activities. He wakes up in the morning and for a few minutes he is just him, happily enjoying the leftover warmth of the duvet and the feeling of a free mind that follows a good night’s sleep. A few minutes later, his mother calls to him, asking him to hurry up; suddenly, he is in the role of Son. In the rush to get to breakfast in time, he stops to help his younger sister brush her teeth in the role of Elder Brother. After breakfast he gets ready for the walk to school, and on the way to school he meets up with his friends from football. For the remainder of the walk to school, he takes on the role of Friend and Captain of the football team. Lastly, when he steps inside the school, he is to leave all those roles behind and become just a Student for the next 6–8 hours of his life. However, the whole time he is also serving as the alter ego he portrays of his life on Facebook, Twitter, Instagram, and Snapchat as his different aliases.

None of the roles the teenager takes on are really in conflict until he is forced to take on the role of Student and strip himself of all the other roles. Some of the roles give him a strong social status: roles in which he finds solace and strength, like being a part of a family group; or roles that he has worked very hard to gain, like being a captain of the football team. These roles are rarely valued in the social matrix of the
classroom. The power structure is clear: the teacher is in charge and has the answers. The student is there to be filled with knowledge, skills, and competencies.

The disengagement of the role of student, and the collection of roles one takes on over time, are especially apparent when one observes how children are stripped of other roles and the experience and wisdom associated with those roles. As one 13-year old girl said, the only way that she could survive school was by leaving herself at the gate when she came to school in the mornings, and picking herself up from that point on way home.

The roles we choose to take on in any social context allow us to participate in and co-construct the social event being played out. Imposed roles such as the role of student can be viewed as constrictive as long as the person involved perceives their loss of agency, and there is a conflict between the chosen roles and the imposed one.

So looking back at the lives of Gunnar senior and junior, simplicity seems to be the preferred path to choose. Social structures and technologies are increasingly infringing on the different roles we have adopted. Especially now, when we are constantly linked to social events through the umbilical cords in our pockets, and we cannot disengage by physically leaving, we have to develop a new skillsets as actors and leaders in our own lives in order to thrive.

THE SKILLSET NEEDED FOR SURVIVAL

When Gunnar senior was growing up in the late 1940s and early 1950s, the social skillset that he had to master was very firmly situated in space and time. He would have learned social mannerisms from his peer group and proper conduct from his parents. Choice of career path was simple: you took the jobs that were available, sought out the necessary skills and knowledge to perform them, and that was it.

Things have changed quite a lot since 1950. For one thing, the population of Iceland has increased from 140,000 to 330,000. In 1950, 1.5 million metric tons of plastic was produced in the world, while today we produce over 300 million metric tons of this non-biodegradable product annually (Statista, 2016). Telephones were made of Bakelite and attached with a cord to the wall; anything else was called a radio, even the flip kind communication devices you saw 14 years later in the original Star Trek series were called communicators. Now we call them ‘flip phones’ and they are very much out-of-date. We are more apt to use the mini-super computers that reside in our pockets for social media interactions than to call our mums.

Other things have changed as well. Having a university degree does not guarantee you a job. According to Eurostat information, 6.1% of persons with education level at ISCED levels 5–8 in the EU 28 are unemployed. In Greece over 20% of the same group are unemployed, 14.8% in Spain, and just over 10% in Portugal (Eurostat, 2016). Access to global social networks has expanded our back garden into something spectacular. Our virtual village walls have been vastly extended, though our virtual selves still have all the same inherent misconceptions and bigotry our flesh selves have.
An impressive amount of research has been performed on the reason for the gap between what employers want and need and what education, mostly higher education, is providing to young adults. Wagner and Dintersmith (2015) have been examining what employers look for in individuals when they are looking for new recruits, and has set forth ideas about what skills are needed to survive in the global economic village. His extensive studies have allowed him to define seven skills that today’s world of work is looking for in a graduate, and he has presented these on his website as quotes from leading employers.

**Critical thinking/problem solving:**

The idea that a company’s senior leaders have all the answers and can solve problems by themselves has gone completely by the wayside…The person who’s close to the work has to have strong analytic skills. You have to be rigorous: test your assumptions, don’t take things at face value, don’t go in with preconceived ideas that you’re trying to prove. (Ellen Kumata, consultant to Fortune 200 companies)

**Collaboration across networks/leading by network:**

The biggest problem we have in the company as a whole is finding people capable of exerting leadership across the board…Our mantra is that you lead by influence, rather than authority. (Mark Chandler, Senior Vice President and General Counsel at Cisco)

**Agility/adaptability:**

I’ve been here four years, and we’ve done fundamental reorganization every year because of changes in the business…I can guarantee the job I hire someone to do will change or may not exist in the future, so this is why adaptability and learning skills are more important than technical skills. (Clay Parker, President of Chemical ManagementDivision of BOC Edwards)

**Effective oral/written communication:**

The biggest skill people are missing is the ability to communicate: both written and oral presentations. It’s a huge problem for us. (Annmarie Neal, Vice President for Talent Management at Cisco Systems)

**Initiative and entrepreneurism:**

For our production and crafts staff, the hourly workers, we need self-directed people…who can find creative solutions to some very tough, challenging problems. (Mark Maddox, Human Resources Manager at Unilever Foods North America)
Accessing/analysing information:

There is so much information available that it is almost too much, and if people aren’t prepared to process the information effectively, it almost freezes them in their steps. (Mike Summers, Vice President for Global Talent Management at Dell)

Curiosity and imagination:

Our old idea is that work is defined by employers and that employees have to do whatever the employer wants…but actually, you would like him to come up with an interpretation that you like—he’s adding something personal—a creative element. (Wagner & Dintersmith, 2015)

Wagner’s work is inspiring to say the least. He has made a great name for himself trying to make the education industry, mostly at the university level, see that what corporations need are not just individuals full of knowledge, but adaptable employees who can perform tasks independently. He highlights many attributes, such as creativity and initiative, that some critics such as Ken Robinson (2001) say education has killed.

What we see in Wagner’s work is the lack of emancipatory ground work before individuals enter higher education. A person who has not been given the opportunity to work within a supportive environment, where he or she is allowed to experiment with his or her own ideas and products, will have problems with most of the qualities and skills that the employers above find important.

What bothers us about all of this, though, is the fact that Wagner needed to point out that education is not serving corporate business, before education systems and governments started to take notice. It was not obvious enough to us that education as a systematic industry is not fit to serve the human race as it is structured today. Our claim in this book is that, instead of using education as a practise in freedom to build social equity, our societies have used it to produce non-creative, easily lead consumers in the most cost-effective way possible.

OWNING THE TOOLS AND USING THEM

Much has been written about skill, competencies, and tools that “millennials” have to adopt in order to be able to take part in the workplace by 2020. The World Economic Forum (n.d) has released a list of skills for millennials, ranging from cognitive flexibility to complex problem-solving. This list includes emotional understanding, working with others, negotiation skills, service orientation, and creativity (Wold Economic Forum). The EU has also published a skill set regarding IEE called EntreComp in a report from the Joint Research Centre of the European Union published in 2016, providing yet another definition of which competencies are
needed in order to function in society today and in the future (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016). It draws on extensive communication with experts in the field of education and provides a practical setup of three different competence areas: Into action, Resources, and Ideas & opportunities, with five competencies included in each area.

![EntreComp competence areas](image)

*Figure 2.2. The EntreComp competence areas (Adapted from Bacigalupo et al., 2016)*

Whether one agrees with the structure and contents of EntreComp it is evident that the general consensus of the world’s experts on human competence is that knowledge is not enough anymore to produce and preserve power.

Young people who would like to prosper economically in today’s system, then, need to adopt these competencies and adapt them to their social environments. Here, as in most things in life, it is not enough simply to know nearly everything about
these competencies; you have to have the ability to actually act on them. So, for example, knowing a lot about creativity does not make you creative, and knowing a lot about honesty does not make you honest. It is the actual practise, and leading by example, that is at the core here. *It is not enough to own the best tools if you choose not to use them.*