

WORKSPACE SOLUTIONS



# TREND REPORT

TRENDS THAT WILL SHAPE THE LEARNING  
ENVIRONMENTS OF THE FUTURE

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# THE LEARNING ENVIRONMENTS OF THE FUTURE. A SURVEY OF TRENDS BY KINNARPS

**Welcome to Kinnarps Trend Report 2017.** The third report in the series that identifies and analyses key changes in the world around us for different types of work, meeting, learning and training environments. This time the focus is on what these changes will mean for us in the Nordic countries: Sweden, Norway, Denmark and Finland.

We commissioned research company Kairos Future to carry out a study on our behalf, which identified a large number of trends and phenomena. A team of Nordic experts then sorted, prioritised and discussed a selection of these trends. Together with Kinnarps, the team then whittled these down to ten key trends which, based on our studies, we believe will shape our future.

So, the question to which you will receive an answer is this:

What will shape the Nordic countries' educational environments up to 2025?

In our quest to find the answer to this question, we will first look in detail at the situation as it is now. We will then analyse how significant the impact of the changes will be and how quickly they will make their mark.

We conclude the report with a section entitled Success or Failure, in which our experts give a number of potential trends in the field of education the thumbs-up or the thumbs-down.

Happy reading!



**ELISABETH SLUNGE**

DIRECTOR, GLOBAL RANGE & COMMUNICATIONS

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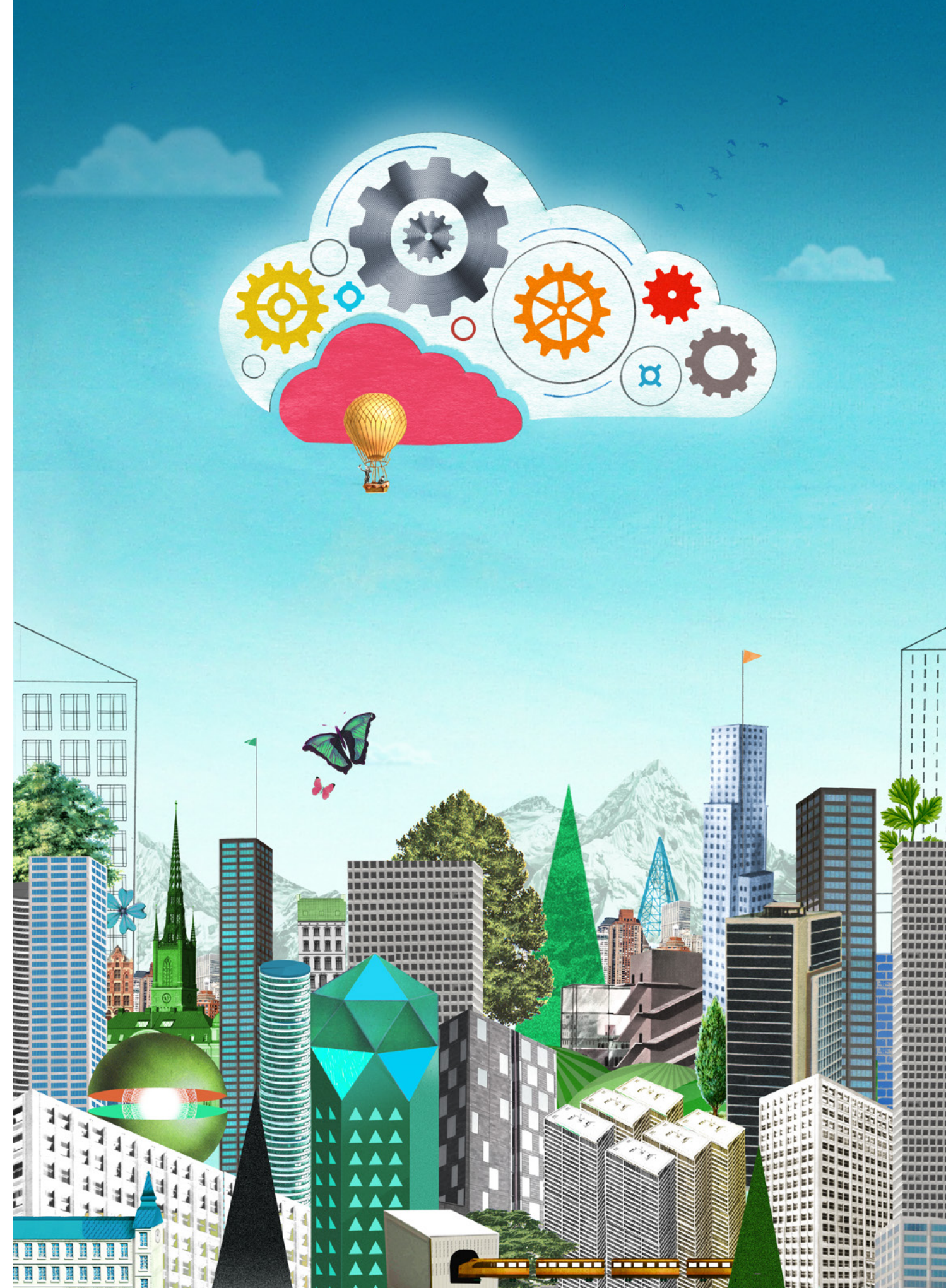
# KEY GLOBAL TRENDS

IN ORDER TO UNDERSTAND WHAT WILL SHAPE THE LEARNING OF THE FUTURE, WE WILL START BY IDENTIFYING THE KEY GLOBAL TRENDS. JOIN US AS WE EXPLORE THE KEY FACTORS THAT WILL SHAPE THE LEARNING ENVIRONMENTS OF THE FUTURE AND SOCIETY AS A WHOLE.

In this the second decade of the 21st century, we are witnessing migration on an unprecedented scale. And with famine, war, geopolitical conflicts and ever more environmental disasters, this migration looks set to continue for the foreseeable future. Some people even claim that if all those living outside the country they were born in formed a republic, it would be the fifth biggest nation in the world with a population of 240 million people<sup>1</sup>. The number of people migrating to the Nordic countries is at record levels, which leads to greater diversity and a broader mix of cultures. Sweden, for example, has a higher proportion of foreign

nationals than the US, which has always been regarded as leading the way in terms of ethnic diversity. According to Statistics Sweden, Sweden is currently growing at a rate of one new immigrant every four minutes, and in January 2017 its population broke the 10 million mark. The population of the Nordic countries has increased by more than 3 million (13 per cent) since 1990<sup>2</sup>.

Urbanisation is evident the world over – large numbers of people are migrating to growing cities and conurbations. It is estimated that by 2050 70 to 75 per cent of the world's population, some seven billion people, will live in





cities<sup>3</sup> and, according to researchers, the world's cities are growing by one Seattle<sup>4</sup> a week. The city has gone from "bad guy" to the place where the future is to be found. In this context, it goes without saying that urban areas will struggle with overcrowding and land will become increasingly expensive.

As the knowledge society takes over from the industrial society, urbanisation is evident in the Nordic countries too. People are moving to urban areas in order to access the labour market and educational opportunities that they offer. As a result, rural areas are being drained of their tax revenues, which leads to the loss of public services. This encourages even more people to move to the cities and the trend becomes self-perpetuating.

Learning environments impact on and are impacted by this trend. Ever increasing gentrification<sup>5</sup>, whereby run-down areas of a city are regenerated, attracting new and more affluent residents, makes life more expensive and challenging for urban schools and educational institutions. Parents want their children to have a good education, but this can be a challenge for a location which is suffering from the effects of emigration, which is operating on a tight budget and which offers little in the way of attractions for teachers. And there is also a shortage of teachers due to the ageing population – there are more teachers retiring than training<sup>6</sup>. In extreme cases the local learning environment ceases to exist as the village school simply closes down. In other cases university campuses relocate to smaller locations, branches of the university in different locations. One of the aims behind this is to make it easier for young people who don't go to university to continue their education in their local area. Another option is distance learning, which is a consequence of the trend for digitalisation.

### THE UNSTOPPABLE FORCE OF DIGITALISATION

Everything that can be digitalised will be digitalised. Digitalisation is a force that is so strong that it drives other megatrends, such as globalisation, as well as the automation of tasks that were previously performed by people. This radically transforms the labour market, because now even previously protected academic professions are being

automated, as long as they don't require creativity or the ability to form genuine relationships, which the role of teacher does.

When we interviewed Niklas Lundblad from Google for the Kinnarps Trend Report 2015, he highlighted the problem of the growing amount of data and information, which doubles every year, creating a requirement for ever smarter technology which can analyse and visualise the growing volumes of data that society produces. Artificial intelligence will be vital and is now clearly evident in a growing number of expert systems which will radically transform life in the workplace<sup>7</sup>.

Digitalisation also gives rise to cultural changes, and knowing how to behave in digital environments will be just as important, if not more important, than other codes of conduct. Or, conversely, how we approach digitalisation in the analogue learning environment, in classrooms and other learning environments.

This trend is part of what is known as the Fourth Industrial Revolution. Some forecasts<sup>8</sup> suggest that as much as 50 per cent of professions involving more complex intellectual tasks will disappear or change significantly over the next 10 to 15 years.

### DIGITALISATION AND THE LEARNING ENVIRONMENT

Online learning in the form of massive open online courses (MOOCs) is perhaps the most obvious example of how digitalisation affects the learning environment – to say nothing of the ever greater use of tablets and computers in everyday learning. The number of these online courses with video lectures and online testing has increased exponentially worldwide, and by 2015 35 million students<sup>9</sup> had enrolled for one or more such courses.

The vast majority of these courses are delivered in English, and the largest in terms of the number of students highlights the status of English as the global language of communication: 440,000 students enrolled for a course on the IELTS language test, which is needed when applying for a job or to a university. Success in this test paves the way for migration.

THE CURRENT RATE OF GLOBALISATION IS DEPENDENT ON THE EXTENT TO WHICH INFORMATION AND KNOWLEDGE TRAVELS GLOBALLY. WITH EVER MORE HIGHLY EDUCATED PEOPLE IN THE WORLD, COMPETITION BETWEEN NATIONS FOR THE BEST TALENT - THAT CAN CREATE THE MOST CREATIVE PRODUCTS - IS GROWING.



# 50%

**OF PROFESSIONS INVOLVING  
MORE COMPLEX INTELLECTUAL  
TASKS MAY DISAPPEAR  
OR CHANGE SIGNIFICANTLY.<sup>8</sup>**

**OVER THE PAST 40 YEARS WE HAVE WITNESSED A CONSTANT INCREASE IN THE MOVEMENT OF PEOPLE, LABOUR, CAPITAL, GOODS AND INFORMATION ACROSS NATIONAL BORDERS.**

## **GLOBALISATION AND THE NEW THOUGHT ECONOMY**

In a nutshell, globalisation involves the movement of physical and digital assets, increasing migration and a growing knowledge of and proximity to people and places on the other side of the world. It has been going on for centuries but sped up significantly when the aeroplane, followed by information technology, broke the boundaries of space.

Over the past 40 years we have witnessed a constant increase in the movement of people, labour, capital, goods and information across national borders. Throughout the Western world however, people are currently voicing objections to the free movement of people and to some extent also to free trade.

In the Nordic countries, which have always had a strong tradition of openness around immigration, there currently appears to be a rare degree of consensus over relatively closed borders. Equally, the Nordic countries, with their mature economies and small populations, are heavily dependent on the outside world and on open borders and free trade.

The current rate of globalisation is dependent on the extent to which information and knowledge travels globally. With ever more highly educated people in the world, competition between nations for the best talent - that can create the most creative products - is growing.

We are moving towards a "thought economy" in which the means of production, which previously comprised primarily of labour, capital, raw materials and technology, are giving way to new and ever more important factors: information, patents, ideas and other innovations which are created and utilised through the power of human thought.

In this new thought economy, thinking is the key factor in production. This economy is in turn a crucial part of the Fourth Industrial Revolution.

## **MAXIMUM EFFICIENCY**

The challenge for businesses and organisations in the thought economy is to achieve the same dramatic increase in efficiency that the manufacturing industry achieved in the 20th century. In other words, to signifi-

cantly increase your productivity in order to cope with the global competition.

The big question is: can thought processes be made more efficient in the same way? In this economy, growth is created in the first instance by creativity – the ability to discover or create new requirements, through new offerings, based on specialist expertise in a particular field.

Innovation and problem-solving will become key factors. The ability to think in an abstract way, to collaborate and use digital skills will also be key competencies on the labour market of the future. This will mean different requirements in terms of what learning is expected to achieve and, as a result, new requirements will also be placed on the environment in which learning and work takes place. We may need to completely rethink how we design these environments in order to make them more effective, more creative, more serene and less stressful.

## **A CHANGED DEMOGRAPHY**

The increase in average life expectancy and the decrease in the number of children being born globally means that the average age is increasing globally. A smaller workforce will have to support a larger number of old people for a longer period of time, particularly in the West<sup>10</sup>.

This trend is at its most dramatic in Finland, where 50 per cent of the population will be over the age of 65 by 2030. At the same time, all populations are growing, but the discrepancies between them are significant. Denmark's population is forecast to increase by 7 to 8 per cent up to 2040, Norway's by 28 per cent and Finland's by 10 per cent, based on forecasts made prior to the large wave of migration in 2015<sup>11</sup>. Sweden's population is expected to grow by a million (just over 10 per cent) in just seven years from 2017<sup>12</sup>.

These significant increases are attributable to a large extent to immigration into Sweden and Norway. This brings with it the need for publicly funded education of various kinds. Those who do not succeed in their new country of residence will very likely have to rely on the welfare systems. Also, if the financial stress becomes too much, health problems will result.



# WE ARE MOVING TOWARDS A THOUGHT ECONOMY IN WHICH PATENTS, IDEAS AND INNOVATIONS ARE CREATED THROUGH THE POWER OF HUMAN THOUGHT.

All this leads to increased pressure on the public sector. Digitalisation can lead to the increase in productivity that is needed to fund ongoing prosperity, but automation can also lead to large numbers of redundancies.

It is highly likely that there will be greater competition for public funds. In Kinnarps’ previous trend reports we highlighted a trend for people to be increasingly healthy and to work longer. So we can expect more generations in the workplace, new types of coaching and educational methodologies and probably also a change in the learning environment as a whole.

### IN OR OUT?

Globalisation, digitalisation and greater knowledge intensity have many positive consequences but they also reinforce the differences between those who are established in society and those who are not.

More and more people struggle to access today’s society. Such people include new immigrants, those who have not successfully completed their upper secondary education and the long-term sick. Or those who will soon become the “non-automated class”: people whose repetitive tasks are now performed by computer algorithms and robots.

Internationally, we are witnessing a growth in the so-called precariat: a group of people from all sectors of society who are not necessarily lacking in education but who are and feel outside the norm. Their job security is poor, they are on short-term contracts and their future prospects are uncertain. Many are self-employed and together

they constitute an ever more significant movement.<sup>13</sup> People who have a high level of education and specialisation, or who work in professions where there is a significant requirement for creativity and relationship-building have a more secure position on the labour market. But here too dramatic changes are in prospect. Those who are already prepared for the thought economy will thrive. Others risk incurring more stress.

Having a secure, stable existence affects people’s self-image and social status; factors which in turn impact on their health. A growing awareness of health, primarily among those with stable lifestyles, means that more people are exercising and fewer people are smoking. Fitness is becoming a factor in success.

In parallel, a trend is emerging whereby a large group of people neither eat healthily nor exercise. According to the statistics, the number of people on long-term sick leave has increased significantly in recent years. Mental health issues among young people are still rife, and this can be due to stress caused by school and work. Those who are depressed at an early age are more likely to be depressed in the future, so the current situation may have a long-term impact.

All these trends lead to a growing polarisation of society. A divide that learning environments and educational institutions will increasingly need to be able to manage, balance and combine into an effective and credible whole.

The growing pressure on all parties involved with learning, education and knowledge-building in society to reform is therefore already clear.

# A GROWING AWARENESS OF HEALTH, PRIMARILY AMONG THOSE WITH STABLE LIFESTYLES, MEANS THAT MORE PEOPLE ARE EXERCISING AND FEWER PEOPLE ARE SMOKING. FITNESS IS BECOMING A FACTOR IN SUCCESS.

### SOURCES

- 1 Ian Goldin, Geoffrey Cameron & Meera Balarajan (2011) Exceptional People – How Migration shaped our world and will define our future.

2 Nordic Co-operation, Facts about the Nordic region (norden.org).

3 UN Human Settlements Program (UN Habitat), 2013.

4 Corresponds to approximately 650,000 people.

5 The term “gentrification” was coined in the 1960s and describes the process whereby rundown areas of a city are regenerated and attract new and more affluent residents. Source: Språktidningen (language magazine).

6 Although the ageing population and the problems it brings with it differs between the Nordic countries, one way or the other, far too many teachers are nearing retirement and not enough teachers are being trained to replace them.
- 7 For example, IT company Tieto has appointed an AI robot to its management team (Veckans Affärer, 18 October 2016) and the bank SEB has “employed” the digital employee Amelia in customer services.

8 See, for example, Frey, C B and M Osborne (2013), “The Future of Employment: How Susceptible are Jobs to Computerisation?”, Oxford Martin School Working Paper No. 7, or Will a robot take your job? (BBC News 11 September 2015).

9 Class central, By The Numbers: MOOCs in 2015 (class-central.com).

10 Population forecast, Municipality of Värnamo.

11 Nordic Co-operation, Population (norden.org).

12 Statistics Sweden.

13 Kinnarps Trend Report 2015.

# FUTURE TRENDS IN LEARNING

BASED ON RESEARCH, INTERVIEWS AND WORK IN KINNARPS FUTURELAB, WE HAVE IDENTIFIED TEN MAJOR TRENDS THAT WILL INFLUENCE AND SHAPE THE EDUCATIONAL ENVIRONMENTS OF THE FUTURE UP TO 2025 IN THE NORDIC COUNTRIES. ALL OF THEM INVOLVE TECHNOLOGY, WHICH BOTH ENABLES AND CHALLENGES. PEOPLE, WHO MAY BE DAUNTED BY THEM, BUT WHO CAN ALSO EXPLOIT THE OPPORTUNITIES THAT THEY BRING. AND STRUCTURES, WHICH CAN SUPPORT OR LIMIT THEIR IMPACT ON SOCIETY. THESE ARE THE KEY TRENDS THAT WE HAVE IDENTIFIED:

## TREND 1 LEARN BNB

Body language is a crucial part of how we communicate, and research indicates that people learn better through movement. That way, not only the brain but the entire body is engaged in the learning process. But people's ability to learn and the way they learn varies significantly. The learning environment must therefore be responsive and flexible.



## TREND 2 FULLY SUSTAINABLE LEARNING ENVIRONMENTS

Sustainability means that all players take a long-term perspective. From the economy and the environment right down to the level of the individual. A fit body that puts the mind in the best possible position in a carefully considered learning environment will help make learning sustainable in the long term.



## TREND 3 DIGILEARN

The digitalisation of schools has enabled interaction between sender and recipient. Now we are seeing new tools that can personalise learning, and learning can take place remotely in almost any location. The learning environment must allow the power of digital technology to be exploited, but it must also be capable of preventing distractions.

## TREND 4 DIGITEACH

We are now seeing technology that really can change the role of the teacher in an ever more digital future. Teaching robots, artificial intelligence and digital transfer of teachers across geographical borders are no longer science fiction.

## TREND 5 MASS CUSTOMISATION

Personalised study paths are in ever greater demand but, at the same time, educators need to ensure that their operations are financially viable. The answer: mass customisation. In other words, the mass production of (online) courses that respond to the student's requirements.

## TREND 6 MAXIMISE EVERYTHING

In the affluent society in which we live, parents fulfil themselves through their children – and are keen to protect them from anything that they perceive to be bad for them. And this also applies to demands placed on them at school. The attitude “the customer is always right” is now evident in schools, and is putting educational institutions under a great deal of pressure.



## TREND 7 GLOBAL LEARNING NETWORK

As globalisation takes hold, courses, teachers and students may come from all over the world, forming new educational networks. The old hierarchies will be transformed: the young will teach the old and vice versa. We will meet without borders.



## TREND 8 NEW REALITIES

Ever more powerful computers are helping us construct alternative and indeed “better” realities, which will become powerful new tools in the classroom. We can also collect huge quantities of data on events that are taking place around us – information that can enhance and guide these resources.

## TREND 9 NEW ECOSYSTEMS FOR LEARNING

Students are no longer content with their nearest school. Instead, they want to be associated with a particular group or approach to education. Businesses are also getting involved, establishing links with schools and students and creating entire ecosystems for learning.

## TREND 10 FROM IQ TO SQ

For a long time now, a high IQ has been a key factor in a person's success. Now, “social intelligence” is at least as important in the achievement of success. At the same time, creativity and the ability to innovate are essential, both in schools and in society as a whole.



# TREND 1: LEARN BNB. INVOLVING THE WHOLE PERSON IN THE LEARNING

LEARNING ISN'T JUST FOR THE BRAIN. THE ENTIRE BODY MUST BE ENGAGED BECAUSE BODY LANGUAGE IS ALSO PART OF HOW WE COMMUNICATE, AND RESEARCH INDICATES THAT PEOPLE LEARN BETTER THROUGH MOVEMENT. ALL THE SENSES MUST BE INVOLVED, BUT, AT THE SAME TIME, PEOPLE'S ABILITY TO LEARN VARIES, AND APPROACHES AND METHODOLOGIES CHANGE. WE MUST TAKE THIS INTO ACCOUNT IN THE LEARNING ENVIRONMENTS OF THE FUTURE.

LearnBnB – Learn with Brain and Body. That's what we've chosen to call this trend, which involves utilising and promoting all the languages and learning styles that people can have. A person's intellectual learning is facilitated and supported through the involvement of their body. Body language will be just as important as verbal language. This will impose demands in terms of physical ability. Four-year-olds should be able to jump as high as their knees, but at the moment many can't. According to physiotherapist Ulrika Myhr, that's because they have been far too sedentary in their early years. If children lack motor skills,

their intellectual abilities will be impaired.<sup>14</sup>

The idea that people develop best through stimulation is nothing new. The Waldorf and Montessori approaches to learning are examples of well-established alternatives that take a broader approach to students' development than the conventional approach.

At last it appears that French philosopher René Descartes' strict distinction between body and soul can be disregarded. In our survey of the future we found progressive schools such as the successful Altschool in San Francisco, which includes social and emotional education





“LET CHILDREN CARRY HEAVY THINGS! LET THEM FALL OVER! LET THEM GET DIRTY! LET THEM PLAY!”

ULRIKA MYHR, CHILD SPECIALIST IN PHYSIOTHERAPY, LEARN TO MOVE



## 5 PRIME EXAMPLES

In a school in Wake County, USA, students can ride an “exercise bike” at their desks, both to generate energy and to keep themselves moving.

Furniture that allows students to stand up at their desks.

Classroom gyms give students the chance to exercise on school premises.

Classrooms that encourage movement through mobile furniture.

Education and learning is delivered in classrooms and outdoor environments.

as one of its educational principles. And, as is the case in a number of schools in Scandinavia, exercise is a daily feature on the timetable.<sup>15</sup>

Maharishi University of Management in Illinois, USA, for example, features over an hour of meditation on a daily basis.

### MAKING ROOM FOR MOVEMENT

Research has demonstrated the importance of movement in promoting focus and learning, which should affect the design of rooms, furniture and equipment. Its main benefit is improving students’ ability to learn but movement also helps students burn off excess energy, which in turn improves their powers of concentration.<sup>16</sup>

Schools are developing more flexible environments, which are reminiscent of what is known in office environments as Activity Based Working. This Activity-Based Learning (ABL) allows the right environment to be created for the right activity and makes it possible to alternate between whole-class activities, group work and individual work. And the educational space or classroom promotes this in a dynamic way, enabling a wide variety of functions.

In the case of adult education, learning environments will become increasingly like Activity-Based Working environments, so different types of learning can actually take place in different types of locations, spaces and facilities. But ABL is also being developed for the compulsory education system and for upper secondary schools.<sup>17</sup>

The new Finnish curriculum for upper secondary schools from autumn 2016 highlights, amongst others, the need for movement and activity-based learning.<sup>18</sup>

But how can this be achieved? Since most learning environments are built for conventional seating, and resources for converting them are limited, there are major opportunities for new types of flexible furniture and for creating different environments in existing spaces. Interior design will need to enhance education and to be able to convey instructions or reminders that engage all the senses.

### SOURCES

<sup>14</sup> Ulrika Myhr, Child Specialist in Physiotherapy, Learn to Move (learntomove.se).

<sup>15</sup> There are AltSchools in both San Francisco and Brooklyn, New York.

<sup>16</sup> Movement in schools: see, for example, More physical activity on the timetable improved academic results, Gothenburg University.

<sup>17</sup> Ulrika Myhr, Child Specialist in Physiotherapy, Learn to Move (learntomove.se)

<sup>18</sup> See, for example: New curriculum, practical changes in education, Yle news (yle.se).

<sup>19</sup> See, for example: New curriculum in Finnish schools gives cause for concern, Dagens Nyheter 4 December 2016.

# WHAT IMPACT WILL LEARN BNB HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

IN THE SOCIETY OF THE FUTURE WE WILL NO LONGER SIT STILL. WE WILL TAKE A DIFFERENT APPROACH TO MOVEMENT, AND THERE WILL BE NEW DEMANDS ON THE ENVIRONMENT IN WHICH WE WORK.

What we are calling BnB essentially involves taking a more holistic approach to the individual. An approach in which “body and soul” are no longer regarded as opposites, but rather as one and the same. And we must remember: incorporating a body-based learning approach within academic subjects will not be easy. And parents whose children, for various reasons, would not achieve highly under the new methodology may in particular be extremely sceptical during the transition phase.

The trend will probably lead to more movement in schools. Not only for health reasons, but also in terms of the learning processes themselves.

Clearly this will impact on the design of the learning environments. Universities may develop spaces that are specifically designed for movement. And online education platforms may incorporate physical activity for students who are studying at home. What role can furniture and interior design play in these activities?

### MOVEMENT THAT DOESN'T DISRUPT

In the same way as a number of the consequences of digitalisation, movement in learning environments brings with it challenges in terms of the disruption of others. And questions such as:

How can interior design help ensure that students receive just the right amount of stimulation? How can you move around the room without disturbing those who need to concentrate? How quietly, for example, can you jump on the floor?

One solution could be products that allow quiet, discreet movement, such as, for example, a chair that rocks rather than a conventional chair. Quiet desks are already in demand, as are chairs that don't make a noise if they are moved.

### FROM SUBJECT TO PROJECT

We are also moving from subject-based learning to project-based learning; from teacher-led learning to student-led learning. It's all about increasing the dynamic and movement in the room in order to enhance learning. Few, if any, students are naturally inclined to sit at their desks all day long. A clear example of this is in Finland, where in autumn 2016 a new curriculum designed to make learning more student focused and activity based was introduced, initially in upper secondary schools. One of the reasons for this was the fact that Finnish children were not happy at school<sup>19</sup>. Now the emphasis is on group work, own research and critical thinking. This also encourages students to take responsibility and to develop their skills.

### ADAPTING EXISTING SPACES

If learning environments are to transform themselves from “rooms where people sit” to environments that involve movement we must no longer make assumptions. Existing school buildings are very often poorly adapted to these new approaches to learning. And it won't be easy for purchasing departments. What do we need?

What is essential and what is a luxury? In this context, it's a good idea to ask your supplier to suggest practical solutions and products.

The right products and furniture can encourage movement, which, in turn, can enhance learning. In combination with sensors, a chair, for example, can instruct the user to change their position or to stand up. This can also be achieved by the fabric changing colour according to how long the person has been sitting down.



## TREND 2: FULLY SUSTAINABLE LEARNING ENVIRONMENTS

SUSTAINABILITY MEANS THAT ALL PLAYERS AND FACTORS WORK TOGETHER WITH A LONG-TERM PERSPECTIVE. NOT ONLY IN TERMS OF THE ECONOMY, THE ENVIRONMENT AND SOCIETY AS A WHOLE, BUT ALSO AT THE LEVEL OF THE INDIVIDUAL. A SUSTAINABLE, FIT BODY THAT PUTS THE MIND IN THE BEST POSSIBLE POSITION FOR LEARNING, TOGETHER WITH A CAREFULLY CONSIDERED EDUCATIONAL AND LEARNING ENVIRONMENT, WILL HELP MAKE LEARNING SUSTAINABLE IN THE LONG TERM.

When developing learning environments, we must consider not only how they affect our mental and physical health but also how we, as social beings, respond to the environment. How can environments promote learning better? Not least when we know that the learning process is so much easier in a healthy, fit body. These are factors that have a huge impact on long-term, sustainable learning.

### FROM IMAGE ISSUE TO ESSENTIAL REQUIREMENT

After decades of reading in books, alarmist reports and global environmental conferences, the environment is now one of the key political issues of our day<sup>20</sup>. Environmental sustainability is an integral part of the strategy of any rep-

utable company – and not only to strengthen the brand. The ever more obvious effects of climate change have made environmental sustainability into something tangible and necessary. The circular economy, i.e. the principle that resources should not end up as waste but should rather be reused, is one way of improving environmental and economic sustainability. An optimum sustainable learning environment is one in which both people and the environment are protected from the wasting of resources and from harmful substances. But under the holistic approach that we will adopt here, protecting the planet is not enough to ensure a longer and better life. Sustainability also applies to the individual body, to knowledge and to the workplace.



# “I BELIEVE THAT UNDERSTANDING HOW THE BODY WORKS WILL BE AN EDUCATIONAL CHALLENGE FOR SCHOOLS.”

ULRIKA MYHR, CHILD SPECIALIST IN PHYSIOTHERAPY, LEARN TO MOVE

## **NIMBY – NOT IN MY BODY!**

The abbreviation NIMBY originally stood for “Not in my backyard”, and was coined to describe property owners who objected to plans for new building work and activities that might reduce the value of their property. The same clearcut drawing of boundaries is increasingly common among today’s consumers. Rather than being afraid of direct threats such as, for example, famine and natural disasters, many people in today’s society are afraid of diffuse threats which often arise as a result of the modernisation of society.

One such threat is hazardous substances that affect our bodies through the food we eat, the air we breathe and the things we surround ourselves with. The media draw attention to these substances through alarmist reports, and the market adapts with a range of new “natural” products.

Perhaps the most obvious example of this is food additives. 84 per cent of Swedes say that to some extent they avoid products and foods simply because they contain chemicals which are dangerous to their health.<sup>21</sup> Criticism

of additives, with good reason or otherwise, has prompted the food industry to find new ways of colouring, flavouring and preserving its products.

This passion for healthy food doesn’t involve all consumers but it involves enough to cause producers to fear for their sales and also their brand. The same applies to manufacturers of the items we use and surround ourselves with in our workplaces.

“Clearly, it is completely unacceptable for our members to be handling toxic substances on a daily basis that might increase the risk of hormonal disorders. Rarely would anything be more unacceptable than this.”

This was the response of the spokesman for the Swedish trades union Handels, Lars-Anders Häggström, when receipt rolls containing hormone-disrupting substances were identified in Sweden in 2010.<sup>22</sup> This statement could equally well have been made by many parents in the Nordic countries, who have been told by the media for several years that toys, and even baby bottles, contain toxic substances.<sup>23</sup> In 2016 Greenpeace added a new category

of products to the list of toxins when they put leisurewear under the spotlight.<sup>24</sup> Comprehensive testing indicated that the outdoor leisure sector, which supplied products to people who cared about the environment, was not treating the environment in a particularly caring way.

But people’s understanding of what is hazardous varies. And how does this affect schools? “Parents want their children’s environments to be designed using safe, pure materials,” says Kinnarps’ Elisabeth Slunge.

## **HEALTHY LEARNING ENVIRONMENTS IN THE FUTURE**

Almost 9 out of 10 Swedes say they are worried about ingesting chemicals from the environment that could damage their health.<sup>25</sup> One of the reasons for this concern is the cocktail effect, i.e. the fact that unknown consequences can occur when apparently safe substances are combined with each other in products. But although the fear of ingesting toxins is growing, just under half of Swedes (49%) are aware that chemicals that are harmful

to health can be present in the components of furniture, e.g. flame retardants and softeners used to make plastic and rubber soft. And design bureau Wolfgang, which is designing the new Skapaskolan Rosenhill school on the outskirts of Stockholm, a project that is scrutinised by the most scrupulous of parents, has not noticed a demand for particularly toxin-free materials either.<sup>26</sup>

But the issue of healthy interior design materials will probably attract more attention over the coming decade. A number of parallel trend studies<sup>27</sup> indicate that consumers are becoming ever more savvy. An awareness of substances that are harmful to health or not good for the health is manifesting itself in ever more contexts. The general trend for people to try to prevent themselves becoming ill and to look after their own and their children’s health is showing no sign of abating. People want to avoid being exposed to harmful substances – as soon as they are aware of their existence.

Knowledge often brings with it new and more stringent requirements, which is exactly what today’s consumers



90%

SAY THEY ARE WORRIED ABOUT  
INGESTING CHEMICALS IN THE  
ENVIRONMENT THAT COULD  
DAMAGE THEIR HEALTH.<sup>25</sup>



## 4 PRIME EXAMPLES

**Swedish Society for Nature Conservation's Toxin-free Preschools campaign.**

**Toxin-free Everyday Environment network, Swedish Chemicals Agency, 2015.**

**A survey of school environments conducted by Kinnarps and Demoskop indicates that 1 in 2 students believes that the physical environment is crucial to or very important to their wellbeing. Only 1 in 3 teachers said they were totally satisfied with their working environment.**

**Within less than a year, 7,200 people joined the Toxin-free Garden campaign, which aims to avoid the use of toxins in Danish gardens.**

and citizens are calling for. It is unlikely that healthy learning environments will be an exception to this trend.

### POWERFUL ARGUMENTS FOR TOXIN-FREE INTERIORS

Specific arguments in favour of toxin-free interiors can be found in new research. A team at Harvard University conducted an experiment whereby participants worked in environments with varying degrees of clean air over six working days. The participants completed tests involving decision-making tasks on an ongoing basis. The results were striking. Those who had worked in better quality air performed as much as 61 to 101% better in the test.<sup>28</sup>

With the current requirement for increased personal productivity and knowledge skills, research results like these may become increasingly important. According to Rikard Gartmyr from design bureau Wolfgang, natural materials appear to make users' behaviour more sustainable. In the project it is implementing at the aforementioned new school, the company deliberately selects materials with natural-looking surfaces. And this was after a study visit to other schools which indicated that surfaces with a more plastic appearance are harder wearing.<sup>29</sup>

"When something is built or designed in an authentic way it shows that you care, both about the visitor and about the environment," he says. "When visitors sense this care in the environment they show consideration themselves and they treat the environment with respect."

Perhaps it's the furniture industry that must rise to the challenge of letting consumers know that there are alternatives. And maybe school environments, where so many people spend so much time, and where interior design often remains unchanged for long periods of time, would be an obvious place to start?

### SOURCES

- <sup>20</sup> Swedish Radio P1 12 October 2016, Interview with Karl Hallding from the Stockholm Environment Institute.
- <sup>21</sup> Survey by Kinnarps 2016.
- <sup>22</sup> Swedish Radio, 14 October 2016.
- <sup>23</sup> Toxic toys are still on the shelves, DR Nyheter 5 August 2002; Popular toy contains toxic chemical, Metro Express 12 February 2013; Toxic substances found in popular toy, Ekstrabladet 31 March 2015.
- <sup>24</sup> Greenpeace.
- <sup>25</sup> Survey by Kinnarps 2016.
- <sup>26</sup> Conversation with Rikard Gartmyr, design bureau Wolfgang 2016
- <sup>27</sup> Ridderheim Report 2015 and Harrys Report 2016
- <sup>28</sup> Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and Volatile Organic Compound Exposures in Office Workers; study by Joseph G. Allen, Piers MacNaughton, Usha Satish, Suresh Santanam, Jose Vallarino, and John D. Spengler 2015. Environmental Health Perspectives.
- <sup>29</sup> Conversation with Rikard Gartmyr, design bureau Wolfgang 2016

# SUSTAINABLE LEARNING ENVIRONMENTS FOR THE NORDIC COUNTRIES – 2025

THROUGHOUT SOCIETY PEOPLE ARE INCREASINGLY CALLING FOR A TOXIN-FREE  
ENVIRONMENT. THIS IS A FACTOR THAT MUST BE TAKEN INTO ACCOUNT  
WHEN SHAPING THE SCHOOLS OF THE FUTURE.

Like the trend we described in the previous chapter, Learn BnB, the trend for Sustainable learning environments also emphasises the importance of the body in learning. And the environment must also be safe and healthy. What role can interiors and furniture play in this context?

### STRIKING A BALANCE BETWEEN CONCERN AND ALARM

Being able to present your school as a totally toxin-free learning environment represents an opportunity for the future and a unique selling point but, at the same time, it's important to strike a balance between concern and alarm. Telling people about the risks associated with chemicals may cause the recipients of the information to overreact and, if the alleged alarming effects are not actually experienced, it may also cause a loss of confidence in the sender of the information. At the same time, we know that risks are experienced differently within the different brand categories that people are forced to adhere to. When organic milk was launched people started to think differently about ordinary milk. The question was whether it should be regarded as non-organic.

### SUSTAINABLE WORKING ENVIRONMENT – A COMPETITIVE TOOL

If there is widespread demand for a toxin-free learning environment, there will be a huge requirement to be able to replace existing furnishings with healthier materials. But who will pay for this in an age when schools and education are faced with such tight budgets?

BY HIGHLIGHTING ITS TOXIN-FREE DESIGN, THE MOST AMBITIOUS OF PARENTS AND STUDENTS CAN BE ATTRACTED TO A PARTICULAR LEARNING ENVIRONMENT. AND WHAT STARTS AS SOMETHING UNIQUE OFTEN TENDS TO BECOME AN ESSENTIAL REQUIREMENT.

A combination of strong demand and limited resources may give rise to large-scale innovation around both materials and design. Exciting times await all designers of learning environments!

Market forces may also improve the quality of learning environments. With a better understanding of the significance of the environment for learning, a sustainable working environment will quickly become a tool in the competition for pupils and students. People increasingly want the best. They place demands on their lives by placing demands on themselves and on their "suppliers".

By highlighting its toxin-free design, the most ambitious of parents and students can be attracted to a particular learning environment. And what starts as something unique often tends to become an essential requirement – if it fulfils a need among the target group. And this drives the trend towards holistically sustainable learning environments.

### OPTIMUM MENTAL WELLBEING – THE NEW NORMAL

But it's important also to create optimum spaces for the brain and its thoughts. As the relationship between the body and the mind becomes a focus of increasing attention, the likelihood that the students of the future will learn how to optimise their own brain for learning also increases. The preschools that currently allow children to practise meditation do so in order that similar initiatives will be introduced in other areas of education too.



## TREND 3: DIGILEARN. DIGITAL LEARNING

IT ALL STARTED WITH TV, AND WITH THE ADVENT OF THE COMPUTER WE DELVED EVEN FURTHER INTO THE NEW MEDIA REALITY WE CALL THE CYBER WORLD. AND THE INTERNET THEN ENABLED FULL DIGITAL INTERACTION BETWEEN SENDER AND RECIPIENT.

But whereas the Internet embraced the dissemination of knowledge and ideas from the outset, the world of education has been surprisingly resistant to the digitalisation of society. It has essentially remained in an analogue paper-based world of stencils, books and posters. Until now at least.

Because now, IT companies are making inroads into schools, and waiting in the wings are robots, both of which have the support of the government, which needs to obtain more education for less money.

At the same time, the Internet is granting access to free education on a monumental scale, which affects not only the design of learning environments but also what a learning environment actually is.

### THE SCREEN IS KEY

The screen is a fitting symbol of how learning is changed by digitalisation.

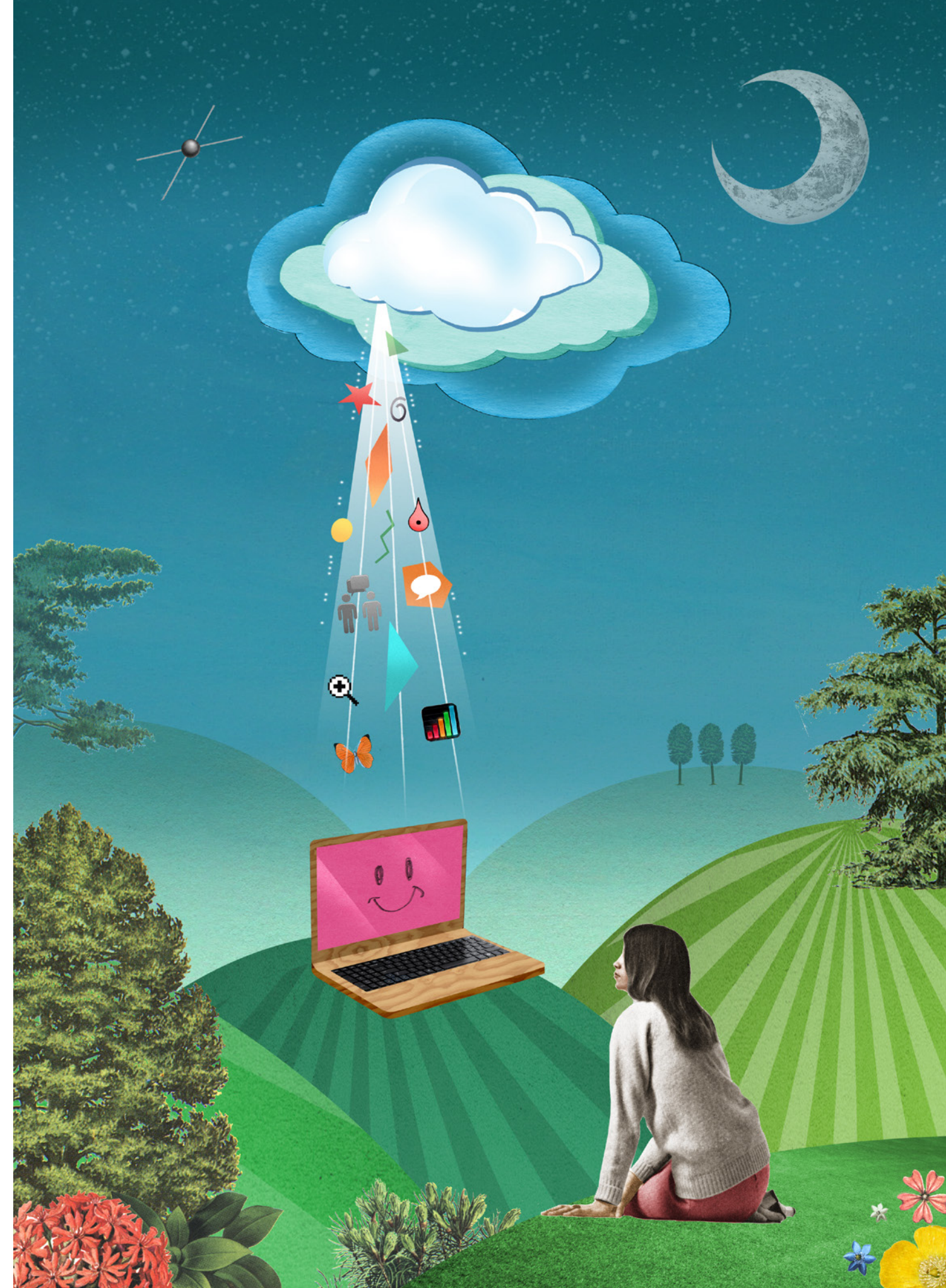
In a flipped classroom the teacher videos the lecture. The pupils watch the video at home and then come into school

to complete tasks that previously would have been homework – except now they have their teacher for support.

The globalising power of the Internet gives us the opportunity to meet and understand others. Why not get feedback on your creations by publishing them in social media, for example? As well as a greater sense of their studies being for real, students learn in a formative feedback loop with the outside world.

And then there are courses, thousands of which are currently offered via web platforms such as Khan Academy. Tuition may be delivered by individuals or by the world's highest ranking university, but everything is done through the screen. And informal learning takes place via social media and YouTube, as confirmed in Kairos Future's new study, *The School of 2031*.<sup>30</sup>

Here students describe their way of working as more digital than the teachers believe it is. This difference in perception could be due to the fact that the students communicate about their studies and acquire knowledge more digitally than their teachers see in the classroom.





“IN THE FUTURE, IT WILL BE TRANSFORMED FROM INDIVIDUAL UNITS INTO COLLABORATIVE TOOLS.”

EVA BJERROM, DISTINGUISHED ORGANISATION ANALYST, ALEXANDRA INSTITUTE



### 3 PRIME EXAMPLES

More home-based learning through online services.

Use of Big data: large volumes of data from different sources, which are analysed for problem-solving purposes.

Demand for flexible classrooms.

#### EDUCATION WITHOUT BORDERS

In a learning environment without borders learning takes place in many different locations, independently of specific physical premises. Instead, the classroom is virtual and open to many.

Digitalisation creates opportunities for collaborating and learning across geographical and cultural boundaries. Finding the right expertise and information also makes for a more democratic learning process. Information is available to all. A person can be a student in one context and another person’s teacher in another. And clearly the sharing of information between teachers and between parents and school is also easier, which means access to more resources concerning the respective student. Online learning platforms and teachers’ video clips give students access to school resources 24/7.

#### HIGH DEGREE OF CUSTOMISATION

Digitalisation also helps with something that has always been a challenge in the analogue world: giving every student a personalised education. Online learning platforms give students the opportunity to review the teacher’s instructions and repeat the exercises. This reduces the risk of the pace at which the class is working forcing students to move onto the next topic before they have mastered the previous one. Also, the teacher has more time to give students individual support because the class has been recorded in advance. Teaching can be both live and on demand.

#### DO THIS MAKE FOR GREATER EFFICIENCY?

In an age when society is endeavouring to cut costs across the board, greater efficiency is vital. Education must get smarter too. New ways of thinking, requirements and opportunities can trigger a revolution. But technology is there for people, never the other way round. The results of studies on the impact of digital resources on learning are not entirely positive. Rapid developments in technology are at the same time more complex and more accessible. This can create a rift between those who are familiar with digital learning and find it easy and those who find it difficult and are unfamiliar with it or simply don’t want to get involved with it.

#### SOURCES

<sup>30</sup> The School of 2031, Kairos Future.

<sup>31</sup> Chalmers Library was the first in Sweden to have Learning Commons: a “flexible learning environment that doesn’t focus on physical books but provides full access to electronic resources and has specialist staff”.

# WHAT IMPACT WILL DIGILEARN HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

SHARED SPACES THAT ALSO PROVIDE PRIVACY.  
THAT WILL BE THE CHALLENGE FOR THE FUTURE.

Genuine digital learning is entirely dependent on learners having personal access to hardware and software and a connection to the Internet. Once the environment has provided this, it’s time to consider what the digitalisation of learning requires of the physical learning environment.

#### SHARED WORKSPACES

In recent years, a number of digital tools have been developed for shared workspaces. The reason for this is the impact today’s digital tools often have on collaboration: we tend to sit staring at our screens, and are sometimes distracted mid-conversation by the endless stream of stimuli that the Internet produces. This gives rise to expensive interruptions in the interaction between people. Not least in group work and creative processes, which are key features of the team-centred, entrepreneur-focused approach to education that we are likely to see in the future.

So, the learning environments of the future must meet the requirement for shared workspaces – ideally digital spaces that relieve us of the work involved in having to document in a separate process. We also need spaces and furnishings that can shield us from unwanted digital input, e.g other groups’ work on an interactive smartboard.

#### HUGE DEMANDS ON THE FLEXIBILITY OF FURNISHINGS

Learning environments must be able to accommodate many different forms of working: group work, small group instruction, individual work, teacher-led discussions. In addition, there is a desire to increase the use of school buildings, which are sometimes unused for a large part of the day – school in the daytime, community space in the evening. This probably also means that some of the furnishings will have to be mobile, so the space can be adapted to different types of activities. In addition, furniture must be capable of supporting different devices and must be ergonomic. All this places huge demands on the flexibility of furnishings.

#### PHYSICAL INTERACTION IS ALSO IMPORTANT

Screens often make for interrupted conversations. And when the people involved in a conversation meet remotely via social media this often has a negative impact on the conversation too. In order to counteract these consequences of digitalisation, there must be an awareness that conversations and conflict resolution must be able to take place in analogue meetings between learners.

#### EXTRAORDINARY PREMISES FOR ORDINARY PARENTS

It’s a well-known fact that making major changes to the way schools do things isn’t easy. And the factor that is most often underestimated is the potential resistance to change among parents. So, if the transition to digital learning is to be successful, one of the challenges will be getting parents to accept such innovations, particularly if the school to be transformed is a well established one.

#### DIGITALISATION LEADS TO LIBRARY 2.0

With the advent of digitalisation, reference books quickly lose ground. Some libraries have fully digitalised their offering<sup>31</sup> and Google has high hopes of digitalising the world’s documents. The questions we must ask ourselves are these: What will the library of the future be like? How can the values that have always existed in these key social institutions be retained without books playing the main role?

#### SENSORS DRIVE INTELLIGENT INTERIOR DESIGN

With sensors being incorporated into almost every conceivable object, there are opportunities for intelligent interior design. And a self-organising learning environment: in theory, furniture fitted with sensors should be able to position itself in the right place in the room once the last activity has finished. A refinement on this would be being able to furnish the room online, or the room remembering the last layout a user requested. And, last but not least, furniture “recognising” users and adjusting itself accordingly.



## TREND 4: DIGITEACH. TEACHING IN A DIGITAL AGE

HOW IS TEACHING BEING TRANSFORMED BY DIGITALISATION? THE INTERNET PROVIDES ALL THE INFORMATION A SCHOOL COULD NEED. DIGITAL COURSE LITERATURE IS ALREADY AVAILABLE ON SOME TABLETS. AND THE TECHNOLOGY THAT CHANGES EVERYTHING IS ON ITS WAY – WILL WE SEE ROBOT AVATARS AS TEACHERS IN THE FUTURE?

Forecasts suggest that up to 50 per cent of today's work tasks will be automated by around 2035.<sup>32</sup> The professions that are expected to remain the most intact in this Fourth Industrial Revolution are those that require creativity and the ability to establish genuine relationships. In that sense, teachers are doubly hard to replace. But it's not for want of trying.

A robot called Nao is helping with language learning and the development of autistic children, and it is also being used in higher education.<sup>33</sup> The Swedish "social robot" Furhat converses with the outside world at a school on the out-

skirts of Stockholm, his fur hat concealing his non-human head. Automated students, then? In Norway, a robot called AV1 is allowing students who can't go into school for a long period of time due to illness to "attend" classes and "go" on trips and visits. By controlling the robot's head, the user can interact with the outside world through his smartphone and can join in with what other students are doing.

Using a robot avatar to allow people in other locations to be present in a physical space may change the teaching profession more than anyone could have imagined.





“IN THE FUTURE, TEACHERS  
WILL NO LONGER BE ALONE.”

MORTEN FISKE, CHIEF ANALYST,  
CO-DEVELOPING LEARNING ENVIRON-  
MENTS FOR THE FUTURE, SIGNAL



### 3 PRIME EXAMPLES

**Classflow:** digital service that allows teachers to present lessons and students to complete educational processes step by step.

**Microsoft’s HoloLens and Holoportation,** which use hologram technology to produce 3D images.

**UNICEF’s successful education campaign,** which uses Virtual Reality technology to provide information on the educational requirements of children in refugee camps.

#### AI – ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is already being used in the workplace. SEB has “employed” Amelia, an AI that solves customers’ problems and gets better the more she does.<sup>34</sup> Accountancy firm Dooer is using an AI to do its accounts. Finnish company Tieto has appointed an AI robot called Alicia T to its management team.<sup>35</sup>

These cognitive robots learn from people. Initially they can perform simple tasks only but as time goes on they learn to complete ever more advanced operations.

So, some of the teacher’s tasks can be handled by robots but the fully automated school is not yet in prospect. Now there’s a challenge!

#### DIGITAL TELEPORTING – MULTIPLE ROLES

With the help of Microsoft’s TeachReach initiative, Miss Xin in China taught students in a Swedish school without being physically present. Instead, her teaching face was moved around the room on a robot body with a tablet positioned at face height.<sup>36</sup>

The Holoportation service allows people to enter each other’s environments virtually, wherever they are. The interaction can then be saved and revisited. Experts believe that this is as close to teleporting as we will get over the next few years.<sup>37</sup>

This technology suddenly makes it possible for universities and schools to use the best possible teachers, wherever they are located. Not only would this be good for the pupils and students of the future, but it would also benefit the teachers themselves in that they would no longer need to know virtually everything about students to help them succeed academically. Instead, motivated educators would create content in conjunction with subject specialists, and this material would then be communicated by the best possible communicators etc.

Anywhere in the world.

#### SOURCES

<sup>32</sup> See, for example, Frey, C. B. and M. A. Osborne (2013, 2016). The future of employment: how susceptible are jobs to computerisation? The Oxford Martin Programme on Technology and Employment. Oxford, or Fölster, S. (2014). Within the next 20 years 1 in 2 jobs will be automated – Challenges for Sweden, Swedish Foundation for Strategic Research.

<sup>33</sup> Nao was developed by SoftBank Robotics.

<sup>34</sup> IPSoft and SEB.

<sup>35</sup> Tieto News.

<sup>36</sup> Dagens Media 7 October 2016.

<sup>37</sup> Microsoft.

# WHAT IMPACT WILL DIGITEACH HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

VIDEO WILL BECOME AN INCREASINGLY IMPORTANT FACTOR IN TEACHING.

If learning is to be genuinely digital, a solid technical foundation is required: each and every learner must have access to the necessary technology. The next stage is to ask yourself the question: What challenges and opportunities does digitalisation bring in terms of the physical learning environment?

#### CREATIVE MINISTUDIOS

The opportunity to learn free of charge on services such as YouTube constitutes a revolution in the struggle to achieve equal opportunities in education. As does the widespread ability to produce high-quality videos.

But videos don’t make themselves and there must be no disruptions while they are being produced. Sometimes an entire group is videoed, and sometimes it’s just a teacher uploading a few lessons before the start of term.

The learning environments of the future must therefore be conducive to both the creation and the use of videos, in terms of acoustics, for example.

#### DIGITAL LEARNING IMPROVES ACCESSIBILITY

In a digital learning environment, desks, as we know them today, will become less relevant and chairs can be replaced by structures made of materials that are easier to move and that are designed in a way that makes them more accessible for those with a disability. The question is: How can the choice of colours and other design factors help create a classroom that works for everyone?

#### AI TAKES ITS PLACE AT THE TABLE

Artificial intelligence will become increasingly important in the workplace. The challenge will be finding the best way of using this technology in teaching too. It should be used to enhance, not replace, human capabilities. It may, for example, be possible to use AI to perform simpler tasks, such as marking tests. But how do you create an educational environment that can accommodate AI?

ARTIFICIAL INTELLIGENCE WILL  
BECOME INCREASINGLY IMPORTANT  
IN THE WORKPLACE. THE CHALLENGE  
WILL BE FINDING THE BEST WAY  
OF USING THIS TECHNOLOGY IN  
TEACHING TOO.



## TREND 5: MASS CUSTOMISATION.

WITH THE GROWING CUSTOMISATION AND INFLUENCE OF MARKET FORCES IN EVER MORE SECTORS OF SOCIETY, IT IS ONLY NATURAL THAT PUBLICLY FUNDED WELFARE SERVICES WILL BE CUSTOMISED TOO. INDUSTRY IS ALREADY WORKING WITH MASS CUSTOMISATION, WHEREBY ECONOMIES OF SCALE ARE COMBINED WITH CUSTOM ADAPTATIONS. THE EDUCATION SECTOR IS KEEN TO DO THE SAME.

The principle that the customer is always right changes the traditional balance of power between teacher and pupil. Global competition between employees also makes it more important to make the right choice of school and university. How can this be done in a rational and cost-effective way? Mass customisation could be the answer.

The prime example of this in industry is cars, where customers can order specific colours and audio equipment, for example, although the car itself is mass produced.

The education sector is currently moving in the same direction: mass production of online courses with a high degree of flexibility in terms of a student's abilities and requirements. But even in more conventional educational environments, efforts are being made to fulfil students' individual needs and requirements, without losing sight of the whole.

### GREATER ACCEPTANCE OF INDIVIDUAL NEEDS

People's views on what is normal have become ever more tolerant. The rights-based approach, according to

which every individual should be seen as receiving equal treatment by all possible means in all parts of society, is gaining ground. Combined with new knowledge around people's inherent differences, this has resulted in greater efforts to adapt teaching, premises and communication to individual needs. Criticism of the norm – questioning what is normal rather than drawing attention to the abnormal – is a key concept here. Differences encompass more than just physical disabilities and neuropsychiatric disorders such as ADHD. They also include, for example, different religious beliefs and learning styles. In other words, we've moved on a bit from the days when left-handed pupils were forced to write with their right hand.

### A WEALTH OF ALTERNATIVE APPROACHES

A recognition of the fundamental differences between people has always given rise to alternative approaches to education. The well-established alternative approaches of Montessori, Reggio Emilia and Rudolf Steiner have





“WE USED TO SEND CHILDREN OUT, THEN WE ADJUSTED CERTAIN THINGS ACCORDING TO THEIR NEEDS. NOW WE ADJUST THINGS FOR EVERYONE AND FOR ALL KINDS OF SKILLS.”  
MAGNUS BLIXT, AUTHORISED PROFESSIONAL PRIMARY TEACHER, GLÖMSTA SCHOOL



### 3 PRIME EXAMPLES

- The interior design of learning environments will become increasingly specialised.
- Learning enhancing interior design that makes a difference.
- Need for flexible classrooms.

now been joined by “cooperative learning”, “project-based learning” etc. And “gamification”, which involves creating engagement through the brain’s built-in reward systems. Fun presentation with simple feedback systems that make learning into a game.

The emphasis is on student-led learning. It’s all about collaboration, support, reflection, critical thinking and feedback, and focuses on the student’s own learning.<sup>38</sup>

And premises aren’t the only things that are expected to be adaptable. Students’ degrees must also be flexible.

#### UNIVERSITIES AND DEGREES TAKE ON NEW MEANINGS

The American company Udacity offers free online courses in a wide range of subjects, and so-called nanodegrees, mini degrees in subjects such as web development and data analysis.<sup>39</sup> The courses are often run in conjunction with large companies such as Google and AT&T. These can be seen as complementary to, or as a replacement for, conventional degrees, at least in terms of the access they provide to the labour market.

They play both to companies’ need for employees with the right skills and students’ desire to avoid taking on large student loans. And it will probably be easier for this type of education to incorporate the latest scientific discoveries.

Greater customisation places new demands on teachers and premises. In addition, companies’ need and individuals’ desire for cheap education is prompting ever more organisations to take on the role of educator, with the right to award degrees.

In the trend for Mass Customisation, much of the “mass” is accounted for by digitalisation, i.e. through economies of scale. While structure and practical applications in the physical space are the place for customisation.

**SOURCES**  
<sup>38</sup> Cooperative learning, pupil-led learning, kooperativt.com.  
<sup>39</sup> Udacity.  
<sup>40</sup> New Skapaskolan.

# WHAT IMPACT WILL MASS CUSTOMISATION HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

IN THE FUTURE, SPATIAL FLEXIBILITY WILL BE EVER MORE IMPORTANT FOR OUR ENVIRONMENTS.

#### CONSTANT UPDATING OF INDIVIDUAL NEEDS

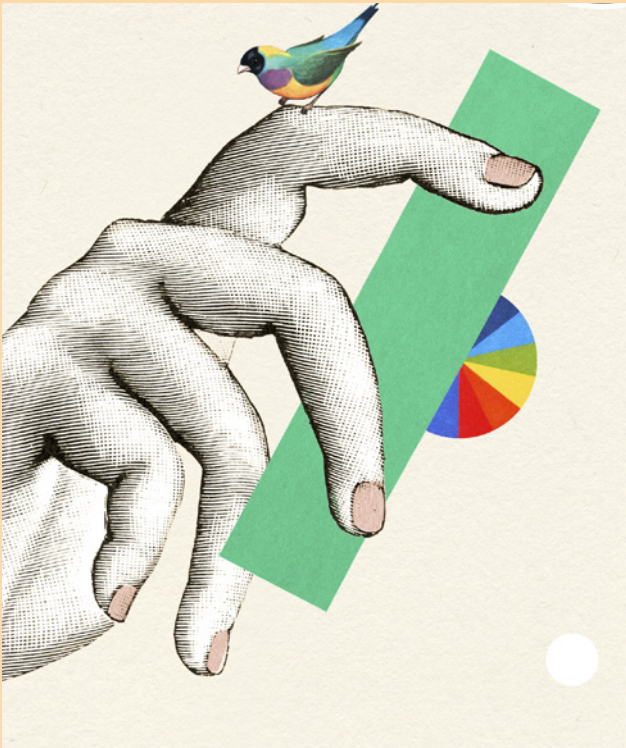
The expectations citizens and customers have of the services they receive from local authorities and businesses have fundamentally changed. People’s desire for a customised education makes it all the more important for all those involved in the delivery of education to monitor current requirements.

#### NEURO-BASED DESIGN

Customised learning is based, amongst other things, on research around how the brain works and how it differs from one person to another. By following developments in neuroscience, it is possible to create even more effective learning environments. “Neuro-adapted” interiors will become a competitive tool for educational institutions.

#### WIDE VARIETY OF METHODOLOGIES GIVES RISE TO SPECIFIC REQUIREMENTS

An increase in the number of educational methodologies brings with it an opportunity to identify specific requirements in terms of the physical environment. An environment that is optimised for learning can act as a competitive advantage.<sup>40</sup>



### ONE SIZE DOES NOT FIT ALL

What do we want the learning environments of the future to be like? As well as light, sound and good ergonomics, our study suggests that there is a requirement for premises that incorporate the following four important and requisite environmental factors:

- |   |  |   |   |
|---|--|---|---|
| <b>1.</b><br>Wide variety of work-spaces. | <b>2.</b><br>Ability to adjust furnishings easily according to theme, subject and setup. | <b>3.</b><br>Opportunity for students themselves to get involved in the design of the learning environment. | <b>4.</b><br>Ability to control the level of stimulation individually, i.e. partitioning. |
|---|--|---|---|

## TREND 6: MAXIMISE EVERYTHING. SELF-FULFILMENT THROUGH YOUR CHILDREN

IN THE AFFLUENT SOCIETY IN WHICH THE MAJORITY OF PEOPLE IN THE NORDIC COUNTRIES LIVE, OUR BASIC MATERIAL NEEDS ARE MET. AND THE PERFECT LIFE IS NOW SEEN AS A REAL POSSIBILITY. WITH THE RIGHT LIFESTYLE, SMART CHOICES AND HARD WORK, ALL OUR DREAMS CAN COME TRUE. AND THE SAME APPLIES TO OUR CHILDREN!

Parents fulfil themselves through their children – if their children succeed, they are successful too. There is also a growing anxiety among parents that they may not live up to expectations as parents.

Parents want to protect their children from anything that they perceive to be bad for them – whether it be demands placed on them at school or environmental issues. A generation of over-protective (curling) parents and over-protected (curling) children<sup>41</sup> has made its mark both in school and at home. Parents do everything for their children, so they don't have to contend with setbacks or difficulties. They give them a lift rather than letting them take the bus and they don't expect them to help with the housework. Critics suggest that the children of such parents will get

used to this easy, comfortable life and will find it hard to manage later on in life.

Today's parents are not satisfied with a good education, they want the best education available and demand that their children be given special treatment. This puts significant pressure on educational institutions, which can't always meet parents' expectations and their at times unreasonable demands. And they overlook the needs of the child and, more particularly, of the group as a result.

### THE CUSTOMISED CONSUMER

But it's not only parents – and certainly not only over-protective parents – who impose unreasonable demands or have unrealistic expectations: the desire, ability and opportunity





**“KEYWORDS FOR FUTURE LEARNING: DIVERSITY AND ADAPTATION.”**

IDA HERMANSSON, MARKETING & COMMUNICATIONS MANAGER, KINNARPS AB



### 3 PRIME EXAMPLES

The book “The Trophy Kids Grow Up”, which explores the challenges we will face when “the most demanding and the most coddled generation in history” enters the workplace, is a must-read for all parents.

Social media is driving a new way of communicating: Snapchat, Facebook, Instagram.

A number of IT solutions in school help students, e.g. Schoolsoft and Schoolido.

to make demands has increased within society as a whole.

When we try on clothes as consumers we expect personal attention, and we expect schools and universities to offer us that same individual attention. Students expect to be supported in their studies and to receive an immediate response – something they’ve been used to from an early age, now that children are praised for everything they do.<sup>42</sup>

They learn that there are no limits, that they are stars with rights but no obligations.

This attitude has gone so far that students even take their university to court over alleged loss of earnings: a former student of Oxford University filed a £1 million claim for compensation on the grounds of “the venerable institution’s boring and appallingly bad tuition”.<sup>43</sup>

#### PERSONALISED COMMUNICATION

We used to send out standard, collective information to all pupils and students. Nowadays, communication between school and pupils or parents has become more effective, more open and more personalised. Tools such as Schoolsoft enable direct communication between teachers and pupils. But this also means that greater demands can be placed on teachers in terms of them always being available and communicating with each individual parent and student. As a result, teachers can be exposed to a kind of social media hounding that is difficult for them to avoid.

#### BYOD

Pupils and students also want to be able to bring their own digital equipment with them. As a result of this trend for BYOD (Bring Your Own Device), students’ equipment is better than the school’s equipment but it is not always compatible. Some schools turn this into something positive. Västerviks Gymnasium, for example, has set up a separate BYOD network for students’ own equipment.<sup>44</sup>

Other schools find managing mobile phones particularly difficult. Should students be allowed to keep them with them in the classroom – or could they be banned?

The trend can also lead to even more competition between students. The fact that some children can afford the latest gadget while others can’t simply reinforces the socioeconomic divide.

#### SOURCES

<sup>41</sup> The terms “curling parents” and “curling children”, coined by the Danish psychologist Bent Hougaard, refer to helicopter parents and their offspring.

<sup>42</sup> See, for example, Alsop, R. (2008). The Trophy Kids Grow Up: How the Millennial Generation is Shaking Up the Workplace. San Francisco, Jossey-Bass.

<sup>43</sup> Dagens PS, 6 December 2016.

<sup>44</sup> Jenny Gustafsson, Site manager / IT manager, Västerviks Gymnasium.

<sup>45</sup> New Skapaskolan.

# WHAT IMPACT WILL MAXIMISE EVERYTHING HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

HOW CAN WE MEET ALL THE REQUIREMENTS AND WISHES OF THE EVER MORE DEMANDING AND SAVVY CUSTOMERS WHO ARE PART OF THIS TREND?

#### DEMANDING CUSTOMERS

As the relationship between teacher and parent becomes increasingly like that of customer and supplier, who should make the decisions in an educational environment? Because, after all, the customer is always right? Especially if providers of education are competing on a market where the provider’s ability to adapt is rewarded with more students. So, why shouldn’t students’ parents, the purchasers, be involved in shaping the design of the learning environment?

#### INSURE YOURSELF AGAINST FAILURE

If students might sue their educational institution on the grounds that they received a poor education, should educational institutions insure themselves against legal proceedings and claims for compensation? All types of educational establishment must be extremely clear about what they “deliver” and what pupils or students can expect. Perhaps exclusion clauses could be introduced?

#### CUSTOMISED MASS COMMUNICATION

In line with the trend for Mass Customisation, we must learn how to communicate with everyone in a way that works for each and every individual. Everyone must feel that their own particular requirements have been met without teachers drowning in emails. New digital ways of working will make this easier.

#### FOCUS ON TARGET GROUPS

Some schools can focus on particular target groups. For example, they could choose an approach that makes things as easy as possible for students, or strict discipline that focuses on hard work and indepth knowledge. In both

cases the right types of parents can be given what they want for their children.



#### SCHOOLS WITHOUT BORDERS

The conventional school classroom was fine in the olden days when the teacher simply imparted knowledge to a homogenous mass. But in today’s customised world there is scope for creating a flexible, activity-based learning environment where each and every student can find the right environment for learning, collaboration, communication or concentration. Schools like this are being established in ever more locations.<sup>45</sup>



## TREND 7: GLOBAL LEARNING NETWORK. NEW WAYS OF COLLABORATING AND LEARNING BEYOND BORDERS

LEARNING WITHOUT BORDERS AND A WORLD IN WHICH THE TRADITIONAL ROLES NO LONGER APPLY. THIS WILL BE THE RESULT OF A GROWING GLOBALISATION. COURSES, TEACHERS AND STUDENTS MAY COME FROM ALL OVER THE WORLD, FORMING NEW EDUCATIONAL NETWORKS. AND BE PREPARED FOR THE OLD HIERARCHIES TO BE TRANSFORMED: THE YOUNG WILL TEACH THE OLD AND VICE VERSA!

With globalisation and digitalisation, learning goes beyond borders. We are seeing collaboration between schools and classrooms in different countries. Courses and learning environments must be part of the global society, for the sake of both learning and sustainability. Conventional teaching spaces (classrooms, lecture halls) are disappearing and are being replaced with spaces or technology that supports global learning.

Digitalisation continues to support the sharing of knowledge and to enable collaboration and shared learning over

borders, all over the world. Just as you can buy a smartphone that was manufactured in China, you can, for example, benefit from the latest educational findings from New Zealand. With increased trade and increased immigration, strengthening the global capability of learning environments will be ever more important. Strict or restrictive local values will be challenged by new students.

### BRAVE NEW "CREFFECTIVE" WORLD

If we are to succeed in a globalised world and to rise to





# "WE SHOULD TRY TO DEVELOP DIGITAL LEARNING SYSTEMS THAT CAN BE ADAPTED TO SCHOOLS' VARYING REQUIREMENTS."

TOMI JAAKOLA, POSTDOCTORAL RESEARCHER, UNIVERSITY OF TURKU

the challenges of increased immigration and integration, we must use our ingenuity: we must be effective in our work (or our studies) but we must also be creative. Creativity plus effectiveness = creffectiveness<sup>46</sup>. In other words, we must be both creative in making things more effective (constantly doing things better) and effective in our creativity (speeding up development and innovation processes).

Creflectiveness is not the preserve of industry or the business world. It will be just as important in education. We cannot continue to teach using methods from previous centuries, we must constantly change the way we do things.

Creativity isn't about spontaneously coming up with brilliant ideas (that's something that's reserved for a handful of geniuses), it's about working methodically. Pupils and students need to learn how to be more innovative and educational establishments need to be innovative in the types of education they offer.

## LANGUAGE IMMERSION

An innovative concept that has emerged in recent years is language immersion, which involves learning in multiple languages by immersing yourself in several languages at the same time. The aim is to make children multilingual and it starts from the age of three. The trend comes from Canada and is used in several countries, including Finland.

According to the University of Vaasa, language immersion also makes other forms of learning easier for students.<sup>47</sup> Consequently, it's an innovative method for coping in today's global world, partly because it teaches you several languages and partly because it's easier to learn other things as a result.

## ALWAYS RE-LEARNING AND LEARNING MORE

A constantly changing world, plus the fact that we are living longer and longer, also means that we must work longer and must therefore constantly train and develop our skills. Young people define a career as "constant personal development".<sup>48</sup> But, if that is the case, people must also have the opportunity to constantly develop themselves. The World Economic Forum, for example, highlights the need for in-service training in companies and collaboration with educational institutions as strategies for securing the workforce of the future.<sup>49</sup>

In Kinnarps Trend Report 2013 we explored the demographic changes within society. How the workplace will be shared by four generations – with different needs and requirements in terms of their development and different abilities in terms of learning. We will also change professions more frequently and within professions constant improvements will be required. New technology brings with it new requirements and provides new opportunities for continuous training. New types of adult education and in-service training in particular will be required, adapted to the greater diversity among students. In many cases customisation will be needed. The mixing of generations will also affect who learns from whom – the older ones will learn from the younger ones, just as the younger ones will learn from the older ones.

### SOURCES

- 46 Tomorrow's digital workplace and office study by Kairos Future and Palorial 2017.
- 47 University of Vaasa.
- 48 Global Youth, Kairos Future, 2007, 2013, 2016.
- 49 The Future of Jobs, World Economic Forum.

# WHAT IMPACT WILL THE GLOBAL LEARNING NETWORK HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

FORGET LEARNING THAT FINISHES AFTER UNIVERSITY. IN THE FUTURE THERE WILL BE LIFELONG LEARNING FOR ALL GENERATIONS!

## LEARNING IN A WIDE RANGE OF ENVIRONMENTS

Lifelong learning must be available wherever people live and work. Maintaining the tradition of learning being delivered in specific locations only would quite simply be unacceptable. Homes, offices, factories, to name but a few, will be the classrooms of the future, and there will be special requirements in terms of equipment.

## NEED FOR INNOVATION IN SCHOOLS DRIVEN BY EMPLOYERS

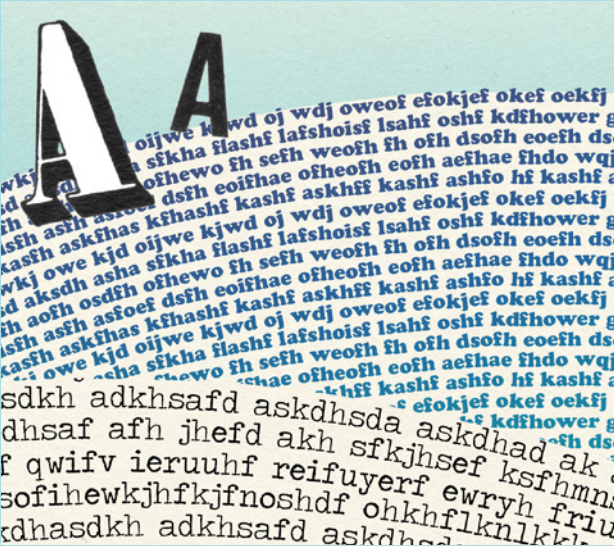
Today's employers are looking for entrepreneurs: employees with an entrepreneurial spirit. Conventional schools don't focus specifically on developing creativity and innovative thinking. In order to change this, teachers must first be trained in innovation themselves.

## SCHOOLS AS PART OF SOCIETY

How can we prepare students for a world that is constantly evolving? It's impossible for teachers to keep up to speed with everything that's going on in the ever changing outside world, so the outside world must come to the students, or vice versa. Without a constant flow of new impressions and without contact with the issues that require innovative solutions, schools will be intellectual "bubbles".

## EDUCATION FOR ALL GENERATIONS AND NATIONALITIES

Until now, schools and training courses have focused on the younger generation, with a number of different support initiatives for the older generation, especially those



affected by restructuring. The big challenge now is to constantly develop new courses that can help older people refresh their knowledge, immigrants and refugees adapt and people in general cope in a globalised world.

## EXPLOIT NEW RESOURCES

Many people want to share their experiences and knowledge. By utilising the talents people have, you can both affirm the contributors and give others the opportunity to learn directly. This kind of learning can take place in different types of environments and doesn't have to be restricted to the classroom.



**TREND 8:**  
**NEW REALITIES.**  
**MULTISENSORY LEARNING**  
**THROUGH VIRTUAL**  
**ACHIEVEMENTS**

NEW TECHNOLOGY WILL RADICALLY CHANGE THE LEARNING OF THE FUTURE. EVER MORE POWERFUL COMPUTERS ARE HELPING US CONSTRUCT ALTERNATIVE AND INDEED “BETTER” AND MORE ENGAGING REALITIES USING NEW TECHNOLOGIES SUCH AS AUGMENTED AND VIRTUAL REALITY.

Try to remember a really good memory from a course you have been on, in any context whatsoever. An occasion when you learned something that you've never forgotten. The chances are that the experience was engaging in some way. That your emotions were involved, even if it was only a feeling that what happened was important.

That's because emotions have been proven to be highly significant to learning<sup>50</sup> and it's also why AR (Augmented Reality) and VR (Virtual Reality) technology have such potential.

The American educator Edgar Dale<sup>51</sup> has demonstrated that an active approach enhances learning. By both saying and doing, verbally, visually and through movement, we learn more deeply. And if a specific emotion is associated with the activity, the learning will be even deeper.

With Augmented Reality, the experience of what you see is enhanced in various ways using various tools. 3D videos are an example of this. Other simpler AR applications enrich a screen or a pair of glasses with additional information about the objects the user is looking at.





VIRTUAL REALITY BROADENS THE ILLUSION  
A SENSE OF BEING SOMEWHERE ELSE: A STUDY  
ENVIRONMENT IN A NEW BUILDING. THE TECHNOLOGY  
INTUITIVE UNDERSTANDING OF WHAT IT'S LIKE

TO THE ENTIRE VISUAL FIELD. THIS CREATES  
DY VISIT TO ANCIENT EGYPT, A NEW OFFICE  
NOLOGY CAN ALSO GIVE PEOPLE AN  
KE "TO BE IN SOMEONE ELSE'S SHOES".

An example of this is the use of AR to train doctors<sup>52</sup>, where students go from reading text and looking at pictures (2D) to interacting with virtual bodies and organs in 3D.

Virtual Reality broadens the illusion to the entire visual field. An image is projected on the inside of a pair of specially designed glasses. Whenever the user moves his head this is recorded by the computer, which then updates the image in such a way that it gives the user the illusion of looking and moving around in the videoed virtual world. This creates a sense of being somewhere else: going on a study visit to ancient Egypt, trying out the environment in a new office in a new building. The technology can also give people an intuitive understanding of what it's like to "be in someone else's shoes".<sup>53</sup> As in the campaign by the

Swedish Red Cross, where viewers were able to stand alongside a queue of refugees at a border post.<sup>54</sup>

It took a long time for film to achieve the same standing as literature. Books and words always take precedence. Unlike images, reading requires a certain level of concentration and willpower. Perhaps it has something to do with the power of images. Because one thing's for certain: as soon as AR, and VR in particular, are incorporated into learning environments, all other media will feel like fossils from the pre-digital age. People will be amazed.

#### TECHNOLOGY FOR EMPATHY

Research conducted by Stanford University<sup>55</sup> indicates that the experience of what it's like to be someone else

changes people's behaviour, for a while at least. In a society that many people regard as increasingly segregated, with increased alienation between people, there are interesting opportunities for VR. Could VR perhaps be used to help develop people's emotional maturity? And why not start with the youngest pupils first?

#### A CHANGED VIEW OF THE WORLD

Digitalisation brings with it sensors that are small enough to be installed almost anywhere. More and more products are being connected to the Internet of Things. The aim is to improve the product's performance. For example, driverless cars transfer their experiences and traffic information to other cars.

User data that manufacturers can use to offer customised services to the user is also collected. A technology that social media has been using for a long time to display adverts directed specifically at the user. For teachers, digitalisation and sensor technology offer interesting opportunities. At basic level, digital learning platforms will collect learning analytics. By identifying what students find difficult, the teacher can gain insights that make their learning more effective.

#### SMART LEARNING ENVIRONMENTS MEASURE EVERYTHING

In smart learning environments a large volume of data can be collected about students, teachers and performance.

“LEARNING WILL BE INCREASINGLY CUSTOMISED.”

SIV MARIT STAVEM, CAND.PAED/  
SCHOOL PLANNER, NORCONSULT



## 4 PRIME EXAMPLES

Even the Royal Dramatic Theatre in Stockholm has taken the new VR technology on board – most recently in the play *Det levda baklänges*.

The Stanford Ocean Acidification Experience is a virtual ecosystem that allows people to experience firsthand what coral reefs are expected to look like by the end of the century if CO2 emissions are not reduced.

Plickers: smart app that uses QR codes to let students vote/answer questions.

Programming and innovation: the “new textiles” in schools.

This data can give teachers, students, property managers and digital education programmes insights into various aspects of learning. Examples of this data include the noise and oxygen level in the room, light, temperature and who is present.<sup>56</sup>

Sensors in furniture can also provide support in terms of the physical experience and ergonomics – when someone has been sitting down for too long they will be encouraged to move around or to raise the height of their desk.

### BODY SENSORS FOR LEARNING

Nowadays, everything from signs of stress to the nature of your brain activity can be picked up by sensors. Fitness watches, for example, are now a mainstream product. MUSE is a metal headband that measures the user’s mental activity and guides behaviour during meditation. This type of data could have a real-time impact on education, both face-to-face teaching and educational software.

New research from Yale University is also looking into the possibility of reading the memory through brain scanning. Being able to do your homework through a sensor cap on your head is still a long way off, but sensors are opening up a wealth of opportunities.

A huge quantity of data is collected in our everyday lives. In terms of its value, “data is the new oil”. The question is, who owns it and what can be done with it? Also, many systems have proved easy to hack and can be used for cyber warfare. So, there are integrity and security issues that must be resolved before learning environments can embrace the sensor revolution with open arms.

### SOURCES

<sup>50</sup> “A student’s learning style is dependent partly on inherited biological factors and partly on emotional, sociological, physiological and psychological factors”. Anna Thomasdotter, (2008), Students’ learning styles – the importance of differentiation in biology teaching, Uppsala University.

<sup>51</sup> ACRlog.

<sup>52</sup> INSIDER on YouTube.

<sup>53</sup> Dagens Nyheter, VR news 2016.

<sup>54</sup> Red Cross on YouTube.

<sup>55</sup> Wired.

<sup>56</sup> Nymi, nymi.com.

# WHAT IMPACT WILL NEW REALITIES HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

WHEN VIRTUAL REALITY ARRIVES, THE QUESTION WILL BE:  
HOW CAN WE INCORPORATE IT EFFECTIVELY?

### MAKING LEARNING MORE FUN

VR/AR technology can make learning more like the popular computer games and their highly effective learning processes. This would make learning faster and would probably also benefit students who are currently sometimes disadvantaged by conventional knowledge transfer.

### EMOTIONAL STIMULATION WILL BE MORE IMPORTANT

With VR/AR technology, how learning must feel will be more important. This may be a challenge for educators, who must create engagement; schools, which will have to

pay for educational materials; and for subjects that quite simply are not really suited to the technology.

### AR/VR NEEDS SPACE

Using VR to move around in a historical environment requires a certain amount of physical space. What would happen if lots of students needed to do this at the same time? Might it be possible to design furniture that gives a sense of freedom of movement without actually moving round the room? One of the side effects of AR/VR applications is that they can disturb others who are working in actual reality. How can this be avoided?





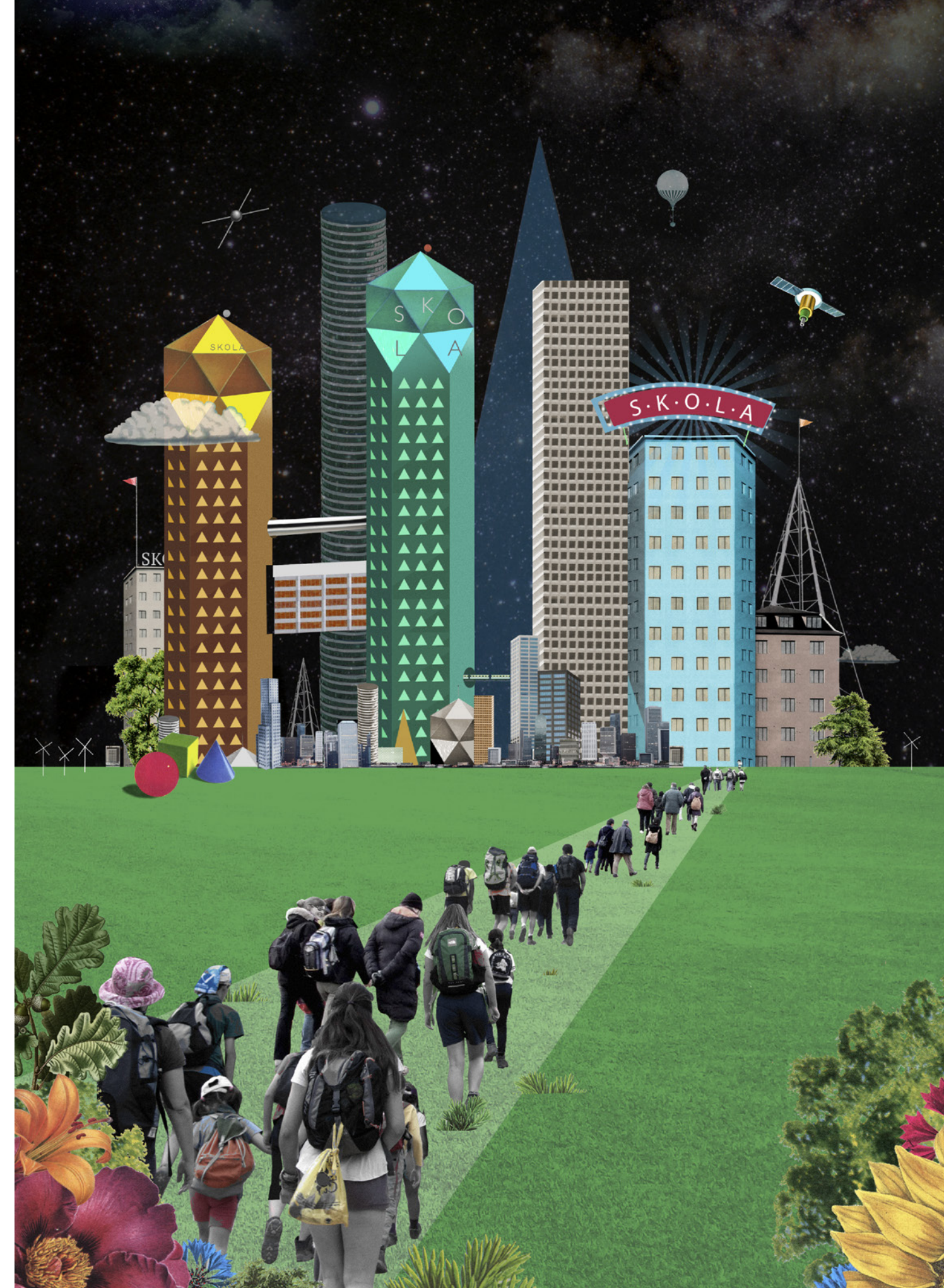
## TREND 9: NEW ECOSYSTEMS. BUSINESSES AND STAKEHOLDERS TRANSFORM LEARNING

WHO DO YOU WANT TO BE? IN THE FUTURE, STUDENTS WILL NOT BE CONTENT WITH APPLYING TO THEIR NEAREST SCHOOL. INSTEAD, THEY WILL WANT TO BE ASSOCIATED WITH A PARTICULAR GROUP OR EDUCATIONAL PHILOSOPHY. ALSO, NEW PLAYERS WILL HAVE ENTERED THE ARENA: BUSINESSES WILL ESTABLISH LINKS WITH SCHOOLS AND STUDENTS AND WILL CREATE ENTIRE ECOSYSTEMS FOR LEARNING. BUT IN THIS NEW ERA, THERE IS ALSO A DANGER THAT THE DIVIDE BETWEEN STUDENTS AND GEOGRAPHICAL LOCATIONS WILL INCREASE.

The identity of an educational establishment will be an increasingly important factor in attracting and retaining staff and recruiting students. A strong identity also gives students a greater sense of belonging. So, the way schools and universities position themselves will be crucial for their success – brand will be a key factor in this positioning process. No brand = fewer students.

Developing your brand however can be difficult. At the same time, businesses, often IT companies, are keen to

link up with schools to enhance their market position. Investment companies and the major technology companies are increasingly investing in so-called edutech companies, which in turn are investing more in schools and school systems. Building your brand in this way can be a good way of attracting students and teachers. According to Ericsson Consumer Lab, 40% of consumers globally think the big five IT companies should deliver education.<sup>57</sup> Both Microsoft and Google are already extremely active in







this field and other companies are becoming increasingly involved.<sup>58</sup>

### ECOSYSTEMS FOR LEARNING

The interest shown in the education sector by technology companies, in parallel with the building of a brand, creates a breeding ground for new ecosystems for learning and new learning environments. This gives rise on the one hand to a higher technology content in learning environments and, on the other, to the creation of new types of schools and educational systems, which in themselves form ecosystems. There is a risk that companies tie everything to themselves and their systems, in the same way as Apple has tied Mac computers, iPhones, iTunes, etc. to an entire ecosystem. Schools may become the property of technology companies, with no freedom to develop their own approach to education.

Digital tools for teachers and students have the potential to rapidly transform a low-tech sector into a high-tech sector, especially when technology giants invest large amounts of money in development platforms with their sights set on the global education community.

### POLARISED EDUCATION

The basic principle in the Nordic countries has always been equal education for all. In other words, everyone must have the same educational opportunities, whatever their social or geographical background. This vision of equality has always applied right through the compulsory education system and on to higher education. The number of students enrolling at a university of technology is currently greater than the number of students who enrolled at an upper secondary school in the early 1960s.

In recent times however we have started to see a change in this equality. Although the desire for equality in education remains, it is not always achieved. In the Nordic countries this trend has been strongest in Sweden, but it is also evident in the other countries.

There are a number of reasons for and aspects to this trend.

Urbanisation is driving more and more people to the cities. Small communities are becoming even smaller and, as a result, have fewer students, which in turn makes it

THE INTEREST SHOWN IN THE  
EDUCATION SECTOR BY TECHNOLOGY  
COMPANIES, IN PARALLEL WITH  
THE BUILDING OF A BRAND, CREATES  
A BREEDING GROUND FOR NEW  
ECOSYSTEMS FOR LEARNING AND  
NEW LEARNING ENVIRONMENTS.



40%  
OF CONSUMERS GLOBALLY  
THINK THE BIG FIVE IT  
COMPANIES SHOULD  
DELIVER EDUCATION.<sup>57</sup>



### 3 PRIME EXAMPLES

More and more companies are realising the benefits of investing in education – Google, EON and Schell Games are three prime examples.

Current investments in “edutech” – technical investments in schools and education systems – are set to increase tenfold in ten years.

Major discrepancies between socioeconomically strong and weak areas, in terms of the number of students who go on to upper secondary school and higher education.

harder for schools and education to be maintained. If the school then disappears from the village, there is a risk that the village will die through a negative spiral of decline. The need to cut costs means that schools and educational institutions are becoming bigger and bigger. Larger establishments can offer more opportunities and a wider range of learning.

In this respect, the education sector is going the same way as the health service and hospitals. Small schools can’t deliver education of the same quality or scope.

In our increasingly multicultural societies, we often find it a challenge to integrate students with different cultural and academic backgrounds. In some areas schools have a majority of immigrants and very few Nordic students. This makes language learning harder because very few students are mother tongue speakers. There are specific examples of this type of school, in Sweden in particular.

Finally, there is now a major discrepancy between socioeconomically strong and weak areas. In some areas almost all students continue beyond non-compulsory education (to upper secondary school or university), while schools in more vulnerable areas have large numbers of students who don’t even fulfil the basic requirements.

#### DIFFERENCES BETWEEN THE NORDIC COUNTRIES

The trend for “highly specialised schools” varies between the Nordic countries: the team of experts called it a phenomenon in Finland and Norway, a trend in Denmark, and a well-established trend (and maybe even a recoil) in Sweden.

In other words, there is still a strong trend in three of the Nordic countries, but perhaps no longer in Sweden. The new curriculum in Finland’s upper secondary schools<sup>59</sup> from autumn 2016 should make it possible for schools to tailor their educational style and approach in order to attract the best students. Universities are already doing this, so why shouldn’t it be done at the lower end of the spectrum too?

#### SOURCES

<sup>57</sup> Ericsson Consumer Lab, 10 Hot Consumer Trends 2017, 2016.

<sup>58</sup> Chinese edutech company Yuanfudao has obtained a total of 100 million USD of investment.

<sup>59</sup> See, for example: New curriculum, practical changes in education, Yle news (yle.se).

<sup>60</sup> You could compare this with the development of videos and DVDs. Betamax was regarded as the better technology but VHS still became the de facto standard. Then came DVDs and Blu-ray, but then came videostreaming too.

## WHAT IMPACT WILL NEW ECOSYSTEMS FOR LEARNING HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

THE INVOLVEMENT OF BUSINESSES MAY CREATE  
MAJOR DISCREPANCIES BETWEEN SCHOOLS AND UNIVERSITIES.  
IN THE FUTURE, INCREASED SAFETY WILL ALSO BE CRUCIAL.

#### EDUCATION WILL BE A MARKETPLACE

When organisations start to take a brand-focused approach there is always a risk that this will go hand in hand with a “keep the customer happy” approach (see also page 39). But in an education scenario, in an ideal world, the educator has the upper hand in terms of knowledge of the subject, which justifies a certain degree of power. Unlike customers, students are not always right.

It is becoming increasingly common for parents to demand higher marks for their children.

#### EXTERNAL FACTORS LEAD TO INEQUALITY

If educational technology companies drive schools, either themselves or in conjunction with others, the differences between schools will increase. Democracy will be at stake in that children and young people will not be guaranteed an equal education. In the longer term, there is also a risk of investing in the ‘wrong’ technology, and the school lagging behind as a result.<sup>60</sup>

#### SAFETY IN A POLARISED SOCIETY

Growing divisions in society are linked to an increase in certain types of crime. In a future where there will potentially be bigger differences between people’s living standards and between schools, there is likely to be a greater risk of violence. Safety will be increasingly important in

the learning environments of the future, particularly where children and young people are involved.

Parents don’t want to have to worry about their children’s safety. Creating educational and learning environments that are both equitable and safe will therefore be a challenge.

#### CREATING A SENSE OF SECURITY IN LARGE INSTITUTIONS

Larger schools generally means greater social pressure on students. Learning to design learning environments that create a sense of security and trust will be a major challenge. How can the design of physical and digital environments minimise bullying and make each and every student feel secure? Even large schools and educational institutions must be perceived as safe and secure.

#### MORE LOCAL INVOLVEMENT IN SCHOOLS

When companies and other players are involved in the education system to a greater extent, access to resources increases. For businesses, supporting their local school is probably money well spent. Whilst it may lead to differences between schools, it will increase funding in the education system as a whole, which will enable investments in effective physical learning environments etc.



## TREND 10: FROM IQ TO SQ. THE IMPORTANCE OF SOCIAL SKILLS

THE STATE EDUCATION SYSTEM WAS ESTABLISHED IN RESPONSE TO THE REQUIREMENT FOR WORKERS FOLLOWING INDUSTRIALISATION. EDUCATION WAS ABOUT ACQUIRING KNOWLEDGE, AND A HIGH IQ WAS A SIGNIFICANT FACTOR IN AN INDIVIDUAL'S SUCCESS. NOW, "SOCIAL INTELLIGENCE" IS AT LEAST AS IMPORTANT IN THE ACHIEVEMENT OF SUCCESS.

The IQ scale has constantly been adjusted upwards, as if the ever longer period of time young people spend in education had influenced the population's IQ. At the same time, the global availability of education has made it increasingly difficult for countries and businesses to obtain a long-term knowledge advantage. In the quest for other competitive advantages, concepts such as social intelligence (SQ) and emotional intelligence (EQ) have therefore emerged.

In other words, the ability to collaborate, to understand

others and also to understand yourself. Today's networked, thought-focused society is imposing new demands. People have to be able to interact with others and, to a greater extent than ever, to be able to move between different environments and different forms of interaction. Understanding your own and other people's emotions and what drives individuals and groups, and being able to build high-quality relationships are skills that have been highlighted in research as ever more important.





**NEW VIRTUAL LEARNING ENVIRONMENTS WILL MAKE SOCIAL INTELLIGENCE EVEN MORE IMPORTANT. A BETTER UNDERSTANDING AND UTILISATION OF NEUROSCIENCES WILL BE NECESSARY WHEN DEVELOPING LEARNING ENVIRONMENTS AND EDUCATION SYSTEMS.**



### 3 PRIME EXAMPLES

Over the past year, the Spaces for Learning network (Rum för lärande) has doubled its membership. The network highlights “the importance of the physical environment to learning” and organises conferences in this field.

The Swedish Standards Institute, SIS, draws up standards for different activities. It is currently drawing up a standard for innovation.

Luleå University of Technology is currently undertaking a research project around “innovative solutions to the social needs of people, organisations and communities”.

#### PERSONALITY PLAYS A ROLE

According to research by Carnegie Institute of Technology, 85 per cent of a person’s financial success depends on their personality, how good they are at human engineering, i.e. the ability to communicate, negotiate and lead. Only 15 per cent depends on technical knowledge.<sup>61</sup>

Psychologist and Nobel prizewinner Daniel Kahneman also demonstrates in his research that people prefer to do business with someone they like and trust than someone they don’t like, even if the person they like and trust is more expensive and supplies worse products. It is these social skills that help or hinder today’s organisations in the global marketplace. EQ also appears to have a greater impact on academic success than IQ.

Because even if it appears that we are becoming more individualistic, our working lives are becoming more dependent on collaboration, across disciplines and cultures.

#### INSTANT GRATIFICATION

Author and TED speaker Simon Sinek is worried about the millennium generation and how they seem to lack the tools for creating in-depth relationships, building trust and coping with stress<sup>62</sup>. Many of their relationships are superficial, and when they get stressed they don’t turn to those around them but rather to their digital devices and social media, which offer them temporary relief and relaxation.

Phenomena such as instant gratification and swipe mean that they don’t have to tolerate the slow, continuous processes that produce quality, experience and satisfaction in relationships. Sinek and many others with him therefore emphasise the importance of teaching the ability to create balance, patience and self-confidence. It’s also important to teach students how to collaborate, and to create an environment in which our digital devices support rather than hinder human interaction and creativity.

#### NEW COMBINATIONS

Education must engage and stimulate both students and teachers, both in order to avoid passivity during lessons and to ensure that students learn the skills they need for group work: collaboration, dialogue, evaluation of arguments, etc. Social skills will therefore be just as important as knowledge of the subject.

New virtual learning environments will make SQ even

**NOW THAT MORE AND MORE COMPANIES CAN PRODUCE SIMILAR PRODUCTS, CREATIVE SKILLS AND THE ABILITY TO CREATE SOMETHING UNIQUE WILL BE AN INCREASINGLY IMPORTANT FACTOR IN CREATING A COMPETITIVE EDGE.**



more important. A better understanding and utilisation of neurosciences will be necessary when developing learning environments and education systems.

By combining different ways of learning and different subjects, social skills can be enhanced at the same time as intellectual learning. And new subjects and combinations in which physical and intellectual abilities facilitate and enhance new learning can be created: “art & mathematics”, “sport & biology”.

### INNOVATION IN SCHOOLS

In recent years the idea of innovation and creativity as mystical phenomena which only those with natural talent can master has gradually lost ground.<sup>64</sup> Whilst the most creative aspect of innovation benefits from exploration, challenging questions and inspiration from many different disciplines<sup>65</sup>, if innovations are to become reality, a systematic, commercial approach is also needed<sup>66</sup>.

At the same time, schools and universities have a long way to go when it comes to creating environments in

which innovation can occur across all disciplines. There will be a call for curriculums and other directives to enable this to happen and for teaching to be adapted to the needs of individual students<sup>67</sup>.

### LEARNING FOR INNOVATION AND CREATIVITY

Now that more and more companies all over the world can produce similar products, creative skills and the ability to create something unique will be an increasingly important factor in creating a competitive edge. All organisations will have to be capable of innovation. As we move towards a thought economy and a thought society, we need new ways of teaching, developing and supporting innovation. An example of this is the Makerspace in School project<sup>68</sup>, which aims to develop new methods based on the creative use of emerging technologies. Exploring the interface between analogue and digital resources also makes it possible to combine theoretical and practical work, as already happens in craft subjects, for example. The project is designed to inform future curriculum development.

**85% OF A PERSON’S FINANCIAL SUCCESS DEPENDS ON THEIR PERSONALITY, HOW GOOD THEY ARE AT HUMAN ENGINEERING, I.E. THE ABILITY TO COMMUNICATE, NEGOTIATE AND LEAD.<sup>61</sup>**

### SOURCES

<sup>61</sup> Forbes.

<sup>62</sup> Simon Sinek, Millennials in the Workplace on YouTube.

<sup>63</sup>

<sup>64</sup> Do schools kill creativity? Sir Ken Robinson on TEDTalks.

<sup>65</sup> Kreativ när piskan viner – Pusselbiten som saknas i Lean (Creativity in an

age of austerity – the piece of the jigsaw that’s missing in Lean).

MackAldener & Stetler (2015). Roos&Tegnér förlag.

<sup>66</sup> How to kill Creativity, Harvard Business Review.

<sup>67</sup> To encourage creativity, Mr Gove, you must first understand what it is –

Ken Robinson, Creativity in the classroom, The Guardian 17 May 2015.

<sup>68</sup> Makerspace in School project.

# WHAT IMPACT WILL A MOVE FROM IQ TO SQ HAVE ON NORDIC LEARNING ENVIRONMENTS UP TO 2025?

A RECIPE FOR THE FUTURE IN THE SQ ERA IS TO DEVELOP ENVIRONMENTS IN WHICH EFFECTIVE, CONTENT-RICH DIALOGUES CAN THRIVE AND DIGITAL BUBBLES ARE BURST.

### A MORE SOCIAL APPROACH TO LEARNING

In order to put social skills into practice, learning will increasingly take place in groups. But it won’t just be about producing a piece of work on a subject, for example. Students will go through the entire process: from definition of the group’s objectives to all the decisions to be taken by the group. Consequently, the learning environment must be able to create spaces for effective dialogue, undisturbed but monitored by the teacher. The transition to project-based learning also requires a higher degree of social intelligence (SQ).

### SQ IN A DIGITAL, VIRTUAL WORLD

One challenge highlighted by thinktanks and experts is the world that is created by social media and our reliance on Google. A world where people increasingly live in filter bubbles and are focused on digital devices, which triggers behaviour whereby the search for instant gratification takes priority over the ability to build deep and meaningful relationships. In a nutshell – in a digital, virtual world, we must improve our SQ.

### SQ BEYOND THE CONFINES OF SCHOOL ITSELF

The fact that schools have to work in a more SQ focused way brings with it an opportunity to improve the crucial interface between school and home: both key factors, particularly in learning environments involving children. Take parents on the journey with you.

### TRANSFORMATION OF NON-SOCIAL ARCHITECTURE

If the aim is that schools should increasingly encourage the development of social skills, what form should these schools take? Traditionally they have been built primarily to ensure that students move efficiently and safely between classrooms. How can existing premises be cost effectively converted into socially stimulating environments? If this can be achieved, students will feel happier and more secure, which will enhance their learning.

### EXPERIMENT TO BUILD KNOWLEDGE

Physically building, drawing and moving around the room when you are experimenting allows a number of learning styles to be employed simultaneously. This kind of experimentation is already being used in many schools but it could be expanded to include other areas. Experimental play could be developed and implemented in adult learning scenarios and workplaces, for example.

### IN PRACTISE ENVIRONMENTS FAILURE IS ACCEPTABLE

It’s important to create environments where failure is acceptable. If students don’t give the wrong answer, the task was not hard enough for them, and if the bar was not exceeded it was not sufficiently high. It’s better for students, including adults on work-related training courses, to fail in a practice scenario than in real life. You can make it clear that the task will be made harder and harder until students are no longer able to complete it.



# SUCCESS OR FAILURE?

IN OUR INTERNATIONAL RESEARCH, WE IDENTIFIED A NUMBER OF INTERESTING TRENDS AND PHENOMENA. BUT WHICH OF THESE WILL IMPACT ON US HERE IN THE NORDIC COUNTRIES UP TO 2025? WE ASKED 21 EXPERTS FROM A RANGE OF DIFFERENT DISCIPLINES WHICH TRENDS WOULD SUCCEED AND WHICH WOULD FAIL. ONLY TIME WILL TELL WHETHER THEIR PREDICTIONS ARE CORRECT.



## ALTERNATIVE DEGREES AS A PASSPORT TO EMPLOYMENT

Businesses and education platforms collaborate to create customised mini degrees.

Two thirds of the panel believe that these options will form part of our future:

**14 SUCCESS – 7 FAILURE.**



## INCREASE IN HOME STUDIES

Some people predict that within ten years, 50% of students at American universities will take their degrees online. According to the panel, this could be the case in the Nordic countries too:

**15 SUCCESS – 6 FAILURE.**



## ROBOTS AS REMOTE TEACHERS

Robot technology allows teachers in remote locations to deliver education in real time.

Will this be common practice by 2025? The panel is divided on this:

**10 SUCCESS – 11 FAILURE.**



## MINDFULNESS IS PART OF THE HIGHER EDUCATION OF THE FUTURE

The positive effects of meditation have been confirmed by studies of the brain.

Just over two thirds of the panel believe that it will form part of education in the future:

**16 SUCCESS – 5 FAILURE.**



## BIOFEEDBACK – ENHANCES LEARNING

Measuring a student’s pulse and other so-called biomarkers makes it possible to determine their inner state. Will this technology support the customisation of learning?

**5 SUCCESS – 16 FAILURE.**



## AUGMENTED REALITY IN THE COMPULSORY EDUCATION SYSTEM AND UPPER SECONDARY SCHOOLS

Virtual and augmented reality make it possible to depart from the two-dimensional reality of books. Will this soon be standard equipment? A resounding Yes:

**19 SUCCESS – 2 FAILURE.**



## EDUCATIONAL TECHNOLOGY COMPANIES SET UP SCHOOLS

In Southeast Asia, educational technology companies have expressed an interest in setting up their own schools. Two thirds of the experts predict that this phenomenon will become a trend in the Nordic countries too:

**16 SUCCESS – 5 FAILURE.**



# THE LEARNING ENVIRONMENTS OF THE FUTURE IN THE NORDIC COUNTRIES

WHAT WILL THE LEARNING ENVIRONMENTS OF THE FUTURE LOOK LIKE? THE TRENDS WE IDENTIFIED WILL IMPACT ON THE DIFFERENT COUNTRIES IN DIFFERENT WAYS AND IN DIFFERENT COMBINATIONS. BUT WE BELIEVE THAT SOME OF THEM WILL MAKE THEIR MARK ACROSS THE BOARD IN ALL THE NORDIC COUNTRIES. LET'S TRANSPORT OURSELVES TO 2025!

By 2025 digitalisation has made its mark on a huge scale. Learning environments are characterised by virtual and augmented realities. Learning at all levels takes place largely through digital applications. VR devices are now so efficient and cheap that they are used in a wide variety of ways. This has also made schools more open. Learning takes place from different locations and in different ways. If you're ill you can access learning remotely. If a lecture in Argentina is more interesting than the local one in Tam-

pere or Tromsø, you can attend that one. As if you were there in situ. And digital screen walls, holographic studios and other systems will enhance learning in the classroom.

The older generation are horrified that young people don't learn to write by hand and are worried that the absence of analogue learning is hampering students' development. At the same time, the demand for digital skills and innovation has given rise to a new type of craft subject, where objects are created on a keyboard.



**EVEN IF THE POPULATIONS OF THE NORDIC COUNTRIES CONSTITUTE ONLY A FRACTION OF THE GLOBAL POPULATION, WE ARE AN INTEGRAL PART OF GLOBAL SYSTEMS AND NETWORKS. NOT ONLY IN POLITICAL AND ECONOMIC TERMS BUT ALSO IN TERMS OF OUR LEARNING ENVIRONMENTS.**



# FINALLY, WE HAVE BROKEN AWAY FROM THE COMMON, UNIFORM LEARNING ENVIRONMENTS OF THE 20TH CENTURY.

## GREATER FOCUS ON HOLISTIC APPROACH

People now firmly believe, in ever more contexts, that if humans are to thrive, on the one hand we must minimise the impact of toxins, environmentally harmful substances and other environmental issues and, on the other, we must engage the whole person in the learning process.

Almost all equipment in schools and educational environments is classified according to stringent environmental and sustainability criteria. But a healthy, toxin-free environment is not enough. As physical beings, we also need to move around and engage our whole body in the learning process. It looked at first as if digitalisation would hamper physical movement and physical development within education. But the new digital devices require human movement to function, and subjects such as PE and art have been incorporated into other subjects. Particularly in the younger age groups, movement is an integral part of the learning environments.

## DIVERSITY IS THE KEY

We have finally accepted the fact that people are different and succeeded in breaking away from the common, uniform learning environments of the 20th century. Schools, training institutions and businesses certainly strive to increase productivity by streamlining as much of their learning and learning resources as possible. At the same time, they now understand better how different people respond to different types of stimuli and learning.

This has triggered a revolution in customised education. In addition, so-called nanodegrees have become commonplace, particularly at post-upper secondary school level. These are specially designed, specialised degrees that are at once unique and universal. Unique because few other courses offer that particular combination, universal because every part of the course has been approved in common systems, which also include commercial players.

Students make themselves more attractive on the labour market and employers find the specialists they need.

## THE NORDIC COUNTRIES ARE GLOBAL

Even if the populations of the Nordic countries constitute

only a fraction of the global population, we are an integral part of global systems and networks. Not only in political and economic terms but also in terms of our learning environments.

We follow courses from all over the world. This may be a complete course at an international educational institution. But, increasingly, parts of courses are followed in global collaborations, right down to the level of individual classes.

New technologies allow us to meet virtually and share each other's expertise. Robots, holoportation and other technologies facilitate globalised learning environments.

## DIVISIONS REMAIN

In 2025, not everyone has the same opportunity to obtain a good education. In Sweden and Finland, in particular small communities, often rural communities, have fewer opportunities for development.

Some of the large numbers of immigrants who arrived in the Nordic countries in the mid-2010s have also found it tough. But here too improvements have been made, thanks, amongst others, to better technology and more enlightened policies.

Foreign-born entrepreneurs have also made great strides through a range of different initiatives.

The greater awareness around social skills and social intelligence has also led to a new approach to dealing with different groups, particularly the more vulnerable.

## THE POWER OF INNOVATION

People now realise the importance of innovation in reducing the divisions between countries and making the Nordic countries more competitive on the global stage. Systems for achieving this are now part of the curriculum in the majority of schools. People have realised that it's not just about giving people the freedom to create – they now understand that if they are to promote creativity, and create new products and services, the new learning environments also require discipline and support.

Those businesses and education providers that have realised that innovation must be a systematic process are also the most successful.





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**PETER BECKER**, CHAIRMAN OF THE FOUNDATION DIU

**EVA BJERROM**, DISTINGUISHED ORGANISATION ANALYST, ALEXANDRA INSTITUTE

**MAGNUS BLIXT**, AUTHORISED PROFESSIONAL PRIMARY TEACHER, GLÖMSTA SCHOOL

**ULF BOMAN**, PARTNER, KAIROS FUTURE

**NINA DYBWAD**, LANDSCAPE ARCHITECT, NORCONSULT

**SUSANNA VON EYBEN**, INTERIOR ARCHITECT, WHITE ARCHITECTS AB

**MORTEN FISKER**, CHIEF ANALYST, CO-DEVELOPING LEARNING ENVIRONMENTS FOR THE FUTURE, SIGNAL

**DR. TOMI JAAKKOLA**, POSTDOCTORAL RESEARCHER, UNIVERSITY OF TURKU

**JÖRGEN JEDBRATT**, SENIOR PARTNER, KAIROS FUTURE

**MARKKU LANG**, PROJECT MANAGER, OULU UNIVERSITY TEACHER TRAINING SCHOOL

**ØYSTEIN LERUM**, PH.D. STUDENT, WESTERN NORWAY UNIVERSITY OF APPLIED SCIENCES

**ULRIKA MYHR**, CHILD SPECIALIST IN PHYSIOTHERAPY, LEARN TO MOVE

**MOLLY MÖLLER**, ARCHITECT, TENGBOM

**MADELEINE NORDENKNEKT**, ARCHITECT, STUDIO MANAGER, LILJEWALL ARCHITECTS

**STIG PETTERSEN**, DEALER MANAGER, GLAMOX LUXO LIGHTNING

**SIV MARIT STAVEM**, CAND.PAED/SCHOOL PLAN, NORCONSULT

**FREDRIK TORBERGER**, CONSULTANT & FUTURE STRATEGIST, KAIROS FUTURE

KINNARPS EMPLOYEES

**ELISABETH SLUNGE**, GLOBAL RANGE & COMMUNICATIONS DIRECTOR

**IDA HERMANSSON**, MARKETING & COMMUNICATIONS MANAGER

**ANDERS LARSSON**, NEXT EDUCATION MANAGER

**SOFIE DAHLBERG**, RANGE MANAGER

**JENS O JOHANSSON**, DESIGN MANAGER

**JESSICA CANDEMAR**, PROJECT MANAGER

**JENNY HÖRBERG**, INTERNATIONAL PRODUCT MANAGER

**HELLE BLAEDEL**, PRODUCT MANAGER

**ANNE REINHOLDT**, ARCHITECT

**AASE MARIE SLETTEN**, PROJECT LEADER

**JOSEFIN BRATELL**, SALES

**KRISTER JONSSON**, PRODUCT DEVELOPMENT MANAGER AT MATERIA

**VANJA FRIGÅRD**, MANAGER TENDER AND PROJECT SUPPORT

**LISELOTT BERGHOLM-SLOTTE**, MARKETING MANAGER

**LEENAMARI KAIVAARA-PARTANEN**, ACCOUNT MANAGER

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## ABOUT KINNARPS

Kinnarps is a Swedish interior design group which offers innovative and inspirational total solutions for working environments. Our head office is located in Kinnarp, in western Sweden, where the company was founded in 1942 by Jarl and Evy Andersson. We are still a family-owned company and today are a European leader in our industry and represented in some 40 countries.

Our starting-point is sustainability, well-being and prosperity for those who use the environments we create. We currently furnish all kinds of workplaces – offices, schools/educational establishments and healthcare facilities. We monitor the entire process. From idea and production to distribution and installation. All in order to offer our customers maximum efficiency, high quality and the lowest possible environmental impact.

There are many environments we feel strongly about. And educational environments is one of them. Creating solutions that shape future generations is a huge honour for us. As we see it, schools are not only one of the biggest workplaces in society – they are also one of the most important! A place where all can prosper and business can thrive.

Learn more about Kinnarps at [www.kinnarps.co.uk](http://www.kinnarps.co.uk)



