ARCADA

A Culture of Sustainability and Innovation in Professional Higher Education

Hållbar utveckling och innovation som kultur inom professionsinriktad högskoleutbildning

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www.arcada.fi

FÖRORD

Högskolan Arcada har formulerat sin Vision2025: Nytänkande för hållbar samhällsutveckling. Det är en uppfordrande formulering, men just nu aktuellare och nödvändigare än någonsin.

Den 13 november 2017 publicerade Union of Concerned Scientists tillsammans med över 15 300 forskare och vetenskapsmän från 184 länder ett nödrop benämnt Worlds Scientists' Warning to Humanity: A Second Notice. Det är frågan om en uppföljning 25 år senare till en tidigare varning från 1992 med samma namn. Därför "Second". Rapporten påvisar att den ursprungliga varningen, om inte klingat för döva öron, i varje fall inte lett till tillnärmelsevis tillräckliga åtgärder. Av de tio klimatindikatorer som följs upp är det endast det s.k. ozonhålet som definitivt har kunnat åtgärdas under uppföljningsperioden.

Det är inte särskilt riskabelt att förutspå att klimatfrågorna kommer att få en större tyngd inom forskningspolitiken och den internationella forskningsfinansieringen. Den pragmatiska syn som vi inom yrkeshögskolerörelsen i Finland har haft gällande forsknings- och innovationsverksamheten har hittills inte i tillräcklig grad beaktat klimatfrågorna. För Arcadas del innebär den nya visionsformuleringen att vi nu kommer att bedöma allt det vi gör i relation till hållbar utveckling.

I den föreliggande publikationen belyses frågan om hållbarhet och innovation ur olika perspektiv, i de flesta fall utgående från case Arcada. Jag hoppas att den här skriften skall inspirera läsarna till nytänkande och nya initiativ.

Det krävs handling av oss alla för att livet på jorden skall fortleva i den form vi nu känner till.

Helsingfors den 20 november 2017

Henrik Wolff
Rektor

INNEHÅLL/CONTENTS

Introduktion/Introduction

Camilla Wikström-Grotell[i], Nathalie Hyde-Clarke[ii]

Arcadas Strategi 2025 *"I framkanten"* uppmärksammar i visionen betydelsen av nytänkande för hållbar samhällsutveckling. Som professionshögskola har och tar Arcada ett speciellt ansvar för att medskapa relevanta lösningar för ett hållbart samhälle i samverkan med andra högskolor, organisationer och företag inom den offentliga, privata och tredje sektorn. Idén bakom denna rapport är förankrad i ett behov av att samla de initiativ som hittills gjorts för att skapa en kultur kring hållbar utveckling i högskolan och som avstamp för att identifiera framtida utvecklingsbehov. Samlingsverket riktar sig till en bred målgrupp: medarbetare och studenter på Arcada samt externa samarbetsparter inom olika branscher.

This collection starts with an analysis of a collection of key university texts that traditionally outline the core strategic objectives and goals. Kiukas, Tigerstedt and Wikström-Grotell review governing documents of Arcada University of Applied Sciences in order to determine the extent to which they adhere to the concepts of Education for Sustainable Development (ESD). The findings show that while many of the documents are consistent, there are themes that should be addressed in more detail. This is a good foundation from which to start the discussion throughout the book, as it is these gaps that are largely addressed by a number of the chapters that follow.

The next three chapters all consider the value that sustainable development brings to the university environment and its affiliated academic community. Hyde-Clarke considers how sustainable development strategies are changing the way universities market their campuses based on tenets that appeal to students and encourage them to engage in relevant campaigns. The chapter provides an overview of sustainable marketing, referring to actual examples on the Arcada campus as evidence of theory in practice. Wessman builds on these examples in the third chapter when he presents the management system and philosophy that informs various Green Office initiatives adopted by universities. While many of the recommendations are designed to enhance well-being, there are challenges that must be overcome for the programme to be successful in the long run. Villikka, Wikström-Grotell and Lejonqvist close this section by highlighting the value of sustainable development for social marketing efforts that aim to improve the welfare of related communities through inclusion, engagement and participation. Their argument demonstrates the importance of a multi-faceted approach that is maintained and developed across the organization.

Shifting the focus to research and open data, Von Boguslawski and Björk introduce the central beliefs and rationale that inform calls for open science, and how this supports sustainable development in knowledge creation. They do recognise that this approach is not without obstacles, and present an engaging debate into the values of such a system. Träskman builds on these ideas by examining the emergence of open innovation in higher education and the challenges of managing innovation in the "open" –

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highlighting questions of assessment and impact when measuring the performance of learners and higher educational institutions.

Arola and Jeglinsky provide the bridge that links sustainable development in research to practices in teaching. They describe the concept of universal design and how it can be applied in a UAS to support students´ competencies to work for a more sustainable and inclusive society. They point out the importance of focusing on interdisciplinary collaboration based on the UD principles in both teaching and research.

Piippo highlights dialogue as a phenomenon from different perspectives, and points out the importance of striving for dialogical relations and dialogical content in educational practices. Stocchetti questions the impact that ESD actually has on curriculum development, in light of concerns about existing political power structures. He emphasizes the importance of a more critical attitude, especially in higher education. Despite these reservations, Andersson and Makkonen-Craig argue that there is sufficient evidence to demonstrate a necessity to address environmental changes in educations, and present several courses where those issues are explored and solutions identified. They argue that even as technology moves to a heavier reliance on robotics, the human element remains key to sustainable development. Villikka, Lejonqvist and Paakkonen present how a collaborative programme in Global Health may address resource concerns and promote sustainable development. By harnessing many of the tools identified throughout the book, they demonstrate that 'good practice' transcends international boundaries and is capable of positively affecting generations for many years to come. In the closing chapter, Bäck describes how an international design competition may foster learning for sustainable development and entrepreneurial thinking by using a student driven, interdisciplinary, collective and critical approach to problem solving.

Vi vill tacka alla skribenter som med sakkunskap och stort engagemang bidragit till detta samlingsverks tillkomst. Speciellt gläder det oss att inslagen representerar högskolans verksamhet på bred front och därmed ger en mångsidig bild av de initiativ som tillsammans skapar en kultur kring hållbar utveckling på högskolan.

Hållbar utveckling i en professionshögskola: ett pedagogiskt perspektiv på styrdokument

Carina Kiukas[i], Christa Tigerstedt[ii], Camilla Wikström-Grotell[iii]

Sammandrag

Syftet med artikeln är att granska riktgivande styrdokument för högskolan med fokus på aspekter av hållbar utveckling. Konceptet *Utbildning för hållbar utveckling*, (Education for Sustainable Development ESD), som betonar pedagogiskt arbete som kärna i verksamheten används som teoretisk referensram. Studien tillämpade innehållsanalys som metod för att granska dokumenten. Resultaten visar att högskolans nuvarande styrdokument enskilt innehåller aspekter som är samstämmiga med ESD. Ett integrerat förhållningssätt mellan olika perspektiv på verksamheten som de olika dokumenten ger saknas däremot delvis. Resultatet kan utgöra en grund för ett fortsatt utvecklingsarbete på högskolan.

Abstract

The purpose of this article is to review the governing documents for the Arcada University of Applied Sciences focusing on aspects of sustainable development. The concept of *Education for Sustainable Development (ESD)*, which emphasizes the pedagogical work, is used as a theoretical framework. The study applies content analysis as method to review the documents. The results indicate that the current management documents contain aspects that are consistent with the concept of ESD. On the other hand, an integrated approach between the different perspectives on the work that the various documents provide is partly missing. The results can provide a base for continued development work at Arcada.

Nyckelord: hållbar utveckling, ESD, pedagogisk verksamhet, högre utbildning

1   INTRODUKTION

Hållbar utveckling kan granskas ur olika perspektiv. Den internationella debatten har pågått alltsedan Brundtlandkommissionen poängterade betydelsen av att den nuvarande generationen tillfredsställer sina behov utan att äventyra kommande generationers möjligheter. Konceptet förankras i mänskliga behov, som är svåra att entydigt fastställa, men fundamentalt omfattar miniminivån tillräckligt med mat och vatten, skydd mot väder och vind, skydd mot våld och sjukdomar, tillgång till utbildning, möjlighet att försörja sig, rättvisa och vänner. Hållbar utveckling innebär således att säkerställa mänskligt välbefinnande och skapa en fungerande samhällelig, kulturell och ekonomisk utveckling. FN tar fram fyra etiska principer: 1) ekologisk eller fysisk bärkraft, 2) global rättvisa, 3) generationsrättvisa och 4) medborgerligt deltagande (Världsnaturfonden WWF, 2008).

Undervisnings- och kulturministeriet lyfter fram hållbar utveckling som en ledstjärna för högskoleutbildningen i avtalen med högskolorna. Hållbar utveckling är ett koncept som funnits med i Arcadas verksamhet alltsedan början av 2000-talet. Green office och Campus green utgör etablerade koncept i och med att Arcada beviljades kvalitetsstämpel år

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2011. I en högskola med ett brett utbildningsutbud inom social- och hälsovård, ekonomi, teknik och kultur är möjligheterna för att lyfta fram de substantiella frågorna mångsidiga. Betydelsen av det nordiska välfärdssamhället och globala frågor som klimatförändringen, hållbar energiproduktion, ökade samhällsklyftor och den ökade andelen äldre är centrala aspekter inom hållbar utveckling, som har lyfts fram under de senaste åren.

Inom pedagogiken har utvecklingen gått från ett fokus på att lära ut kunskap om hållbarhetsfrågor mot reflektion över vad en hållbar syn på utbildning och lärandet innebär, (Unesco, 2003, 2005, Världsnaturfonden WWF 2008). För det finländska högskoleväsendet och Arcada har Bologna processen varit central när det gäller utvecklingen av utbildning som grundar sig på ett kompetensbaserat närmelsesätt (Wikström-Grotell, 2014). Ett lärande för hållbar utveckling karakteriseras på en övergripande nivå av demokratiska arbetssätt, kritiska förhållningssätt, ämnesövergripande samarbeten, mångfald av pedagogiska metoder, delaktighet och inflytande från studenter och livslångt lärande. Den gemensamma pedagogiska grunden för Arcada finns i studieplansdesign och synen på lärandet som beskrivs i den studiepedagogiska policyn (Arcada, 2016). Centrala principer handlar bl.a. om aktivt och progressivt lärande, studenten som subjekt och delaktig, individuella och flexibla studiestigar samt kollektiv och dialogisk syn på självstyrt lärande.

I en tid av omfattande förändringar i högskolevärlden blir det synnerligen centralt att reflektera över olika aspekter av hållbar utveckling i förhållande till det pedagogiska utvecklings- och förändringsarbetet. Ett sätt att undersöka hållbart lärandet är att utgå från högskolans centrala styrdokument. Denna studie beskriver hållbar utveckling från ett pedagogiskt perspektiv. Syftet är att granska gemensamma styrdokument och riktlinjer så att aspekter av hållbar utveckling kan utgöra en gemensam grund för det fortsatta pedagogiska utvecklings- och förändringsarbetet på Arcada. Studiens frågeställningar är:
1) Hur tas hållbarhet i utbildning och lärande i beaktande i högskolans övergripande och pedagogiska styrdokument och riktlinjer?
2) Hur kan aspekter av hållbar utveckling i utbildning och lärande i gemensamma styrdokument och riktlinjer synliggöras och stärkas?

2   TEORETISK INRAMNING

Diskussionen om hållbar utvecklig har funnits inom högre utbildning ända sedan 1970-talet. De första internationella avtalen undertecknades på 1990-talet (Tilbury, 2011). Diskursförändringen från Environmental Education (EE) till Education for Sustainable Development (ESD) (UNESCO, 2003, 2005) innebar ett starkare fokus på pedagogiska koncept och lösningar. Istället för att enbart se sin uppgift som att informera människor om miljöfrågor blev det också viktigt att ta ställning till hur man lär sig. ESD talar för att vi behöver gå mot en utbildning som även omfattar att utveckla sitt kritiska och reflektiva tänkande i förhållande till transformation och förändring som bör vara hållbar. Fokus ligger således på lärande för förändring. På 2000-talet har ESD fått stor genomslagskraft

över hela världen i och med att FN slog fast perioden mellan 2005 and 2014 som specifikt årtionde för detta (Decade of ESD).

UNESCOs (*United Nations Educational, Scientific and Cultural Organization*) beskrivning av ESD har legat som grund för denna studie;

> ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society. (UNESCO, 2017)

Angående innehållet i utbildning och lärande resultat handlar det om att integrera innehåll i form av t.ex. klimat förändring, krishantering samt hållbar konsumtion och produktion i studieplanen. En annan central aspekt är att stöda lärande och kompetensutveckling med fokus på systematiskt och kritiskt tänkande, samarbete och ansvar i förhållande till framtiden. En utveckling av de lärmiljöer som används innebär förutom de fysiska miljöerna även den sociala miljön som betonar betydelsen av dialog som verktyg för fördjupat lärande. Nätbaserade och virtuella miljöer är en naturlig del av de arenor som inspirerar till att arbeta för hållbar utveckling. Den samhälleliga förändringen omfattar en strävan efter att stöda alla som lär sig, oberoende av ålder och lärande kontext, att själva vara drivkraften och aktiv i sin egen utveckling så väl som av utvecklingen i det samhälle de är en del av. Målet är att möjliggöra en övergång till en hållbarare ekonomi och samhällsstruktur både när det gäller det lokala och när det gäller det globala. För att detta ska ske krävs dels kunskap, färdigheter och kompetens, men även motivation till att ta i bruk en livsstil som är hållbar. Målet är en globalt ansvarig medborgare (Global citizens) i en värld med hållbara värderingar och strukturer (Green society) (UNESCO, 2017).

ESD är ett mångfacetterat koncept. Ju mer komplext något är desto större risk finns det för att det förblir tomma ord och inte leder till de fördjupande förändringar som förväntas. Detta än något som uppmärksammats i litteraturen kring ESD (se t.ex. Robottom, 2013). Då olika diskurser inom ramen för hållbar utveckling lever parallellt och koncept med specifikt fokus på klimatförändring och miljöfrågor (EE) uppfattas som konkretare och därmed lättare att greppa tenderar denna typ av koncept att få synlighet på ett annat sätt än ESD.

För att nå upp till ambitioner om hållbar utveckling i linje med ESD krävs nya genomgripande tankemodeller (Fullan, 2010; Jones et al., 2010). Forskning om pedagogisk utveckling inom högre utbildning (Barr & Tagg, 1995; Clegg, 2015; Gibbs, 2013) och pedagogisk utveckling eller förändring generellt (Fullan & Hargreaves, 2013; Fullan, 2014; Stoll et al., 2006) kan erbjuda detta, eftersom dessa forskningsområden bygger på uppfattning om att det har betydelse hur vi undervisar, inte bara vad vi undervisar. En utveckling som bygger på forskning är alltså viktig. Det räcker inte med bara en typ av lösning, t.ex. teknisk utveckling eller nya policy dokument. Det krävs även förändring i tankesätt, värderingar och förhållningssätt till förändring överlag.

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Arcadas pedagogiska utveckling är likartad med de trender i pedagogiskt utvecklingsarbete inom högre utbildning som beskrivs av Gibbs (2013). Han framhåller att; a) Utvecklingen har gått från att ha ett fokus på vad som sker i klassrummet till att ha ett fokus på lärmiljön i allmänhet, b) från att ha haft ett fokus på enskilda lärare i utvecklingsarbetet har fokus mer och mer flyttats över på lärarlag, avdelningar och på ledning av undervisning, c) huvudidén är att vi övergår från fokus på undervisning till fokus på lärande, d) intresset för små enskilda metoder minskar och det intressanta blir att fördjupa förståelsen kring större, komplexa, integrerade multipla metoder, e) fokus flyttar från metod till strategi, f) fokus flyttar från kvalitetssäkring mot kvalitetsförbättring och g) fokus ställs på transformering av praktik i ny riktning.

Unesco föreslår fyra centrala linser vid användningen av ESD; en integrerande lins, en kritisk lins, en transformativ lins och en kontextuell lins (UNESCO, 2012). Dessa linser eller perspektiv kan användas såväl lokalt som globalt. I vårt fall innebär det integrerade perspektivet att vi valt att se på olika centrala dokument som belyser högskolan och dess verksamhet. Avtalet med ministeriet innehåller ett nationellt perspektiv, de övriga dokumenten synliggör högskolan som helhet och även olika delar eller perspektiv av högskolans verksamhet. Vår analys är ett försök till en kritisk granskning av var vi står i dag och avsikten är att vi genom denna artikel kan bidra till förändringsarbetet. Att leva i förändring eller transformation är ett genomgripande perspektiv då vi förhåller oss till denna utveckling, även i denna studie, som ständigt pågående. Det kontextuella perspektivet finns indirekt i förståelsen av att ESD konceptet kan och bör förverkligas på olika sätt beroende t.ex. på vilken utbildningsbransch det är fråga om.

I sin globala översikt över hur framgångsrikt ESD etablerats konstaterar Tilbury (2011) att det man hittills uppnått inte är kopplat till kärnan i högre utbildning. Det ställs vidare stora krav på högre utbildning som fält för att nå de mål man ställt upp (Se även Wals, A.E.J. 2014). Maders (2009, 2012) verktyg för utvärdering av ESD visar på det komplexa i att utveckla högre utbildning med ESD som grund och betonar olika aktörers medverkan på olika nivåer. Modellen (Figur 1) visar på att utvecklingen behöver beröra 1) ledarskap och vision, 2) sociala nätverk i förhållande till det övriga samhället, 3) utbildning och lärande, 4) forsknings integrering och 5) delaktighet. Därtill har modellen olika nivåer av integrering av de olika perspektiven mot en transformativ praktik.
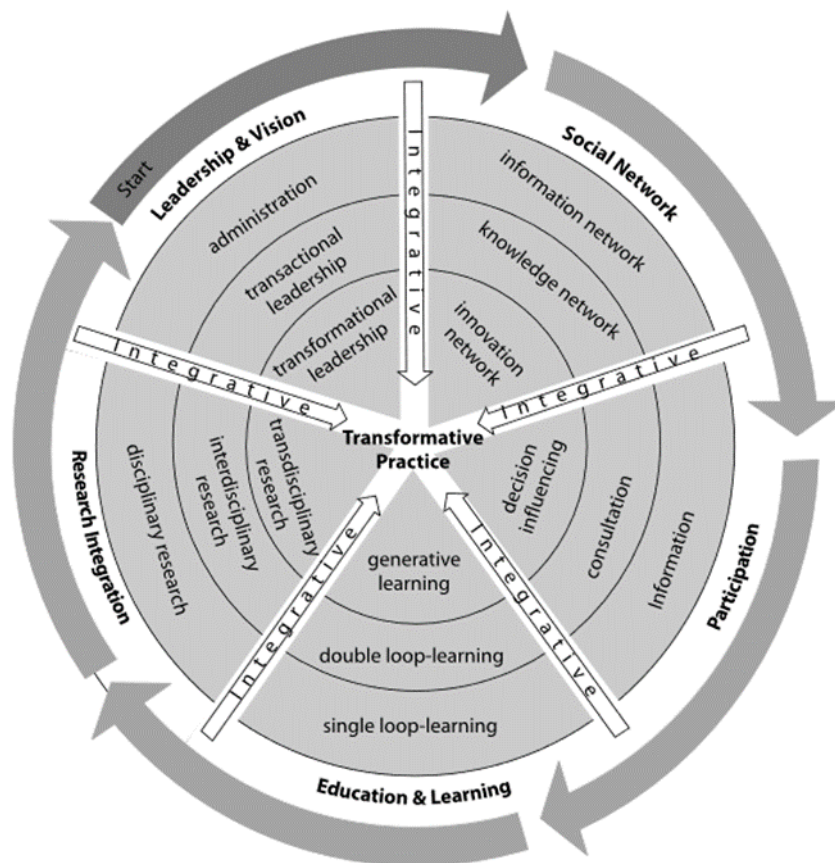
Figur 1. Modell för integrativ utveckling (Mader, 2012, 83)

Mochizuki & Yarime (2016) beskriver tre nivåer av hållbar utveckling inom högre ut-
bildning (Tabell 1). Den första nivån som tar fasta på utbildning om hållbar utveckling
är innehållsbaserad. Denna nivå kan kopplas till ett multi-disciplinärt grepp där det en
identifiering och sammanfattning av vad som är relevant kunskap inom olika discipliner
på allmänna problem i kopplade till hållbar utveckling. Den andra nivån omfattar utbild-
ning för hållbar utveckling och fokuserar utveckling av kritiskt tänkande och problemlös-
ning. Nivån kopplas till ett interdisciplinärt grepp som integrerar kunskap från olika di-
scipliner. Slutligen beskriver modellen utbildning som hållbar utveckling som omfattar
en helt ny syn som är trans-disciplinär och främjar aktivt samarbete i hela samhället.

Tabell 1. Tre nivåer av hållbar utveckling inom högre utbildning och vetenskap om hållbar utveckling (Mochizuki, Y. & Yarime, M. 2016, 19)

ESD	Sustainability Science
'education about sustainability' ➔ *content based sustainability literacy*	**'Multi-disciplinarity'** identifies and assembles relevant knowledge and expertise in traditional academic disciplines for addressing sustainability problems
'education for sustainability' ➔ *a critical questioning of assumptions; contribution to problem-solving*	**'Inter-disciplinarity'** connects and integrates disciplinary knowledge and expertise to advance basic understanding of the complex, dynamic interactions of human–environment systems.
'education as sustainability' ➔ *a shift of worldview*	**'Trans-disciplinarity'** promotes active collaboration with various stakeholders throughout society, organising processes of mutual learning among science and society.

3 MATERIAL OCH METOD

Studien som är deskriptiv bygger på dokumentanalys av centrala styrdokument och riktlinjer. Materialet valdes för att ge en mångsidig och heltäckande bild av högskolans verksamhet. I detta skede granskades inte studieplaner, innehållet i enskilda kurser och forskningspublikationer. Det ekonomiska reglementet, säkerhets- och informationspolicyn och de språkpolitiska riktlinjerna bedömdes som icke relevanta i förhållande till studiens syfte och exkluderades därmed från materialet.

Följande dokument har analyserats:
1. Arcadas avtal med UKM 2017 -2020
2. Arcadas instruktion (godkänd av styrelsen 14.10.2015)
3. I framkanten- Arcadas strategi och vision 2025 (godkänd av styrelsen 19.4.2017)
4. Arcadas verksamhetsplan 2017
5. Arcadas ledningsmanual (version 9.2.2017)
6. Jämställdhetsplan (godkänd av högskolestyrelsen 20.3.2017)
7. Pedagogiska policyn (version 18.1.2016)
8. Examensfordningar för läsåret 2017-2018.

Studien tillämpade innehållsanalys som metod för att granska dokumenten. Innehållsanalys täcker ett brett urval av kvantitativa eller kvalitativa tekniker för att systematiskt och objektivt identifiera speciella kännetecken för texter och kan tillämpas för att identifiera, organisera, kategorisera eller särskilja data (Alvesson & Sköldberg, 2009). Dokumenten analyserades och tolkades med ett deduktivt grepp utgående från ett analysinstrument

som modifierats enligt definitionen av ESD (UNESCO, 2003, 2005). Eftersom innehålls-analysen innehåller tolkning av text är närmelsesättet kvalitativt. Fokus i studien är på det manifesta innehållet med inslag av latenta tolkningar (Graneheim & Lundmark 2004). Analysen (se Figur 2) omfattade kategorierna 1) innehåll i studierna (generellt och specifikt), pedagogik och lärmiljöer (aktivt student-centrerat lärande, innovativa lärmiljöer, nätstött lärande), 3) samhällsengagemang och delaktighet (hållbart samhälle, världsmedborgare) och 4) kompetensmål och läranderesultat. Analysen utfördes så att dokumenten i sin helhet lästes av samtliga skribenter som utgående från analysverktyget gjorde en första bedömning av det meningsbärande innehållet i texterna. Sedan jämfördes analysresultaten. Då olikheter i tolkning förekom bildades en samsyn på basen av dialog och ny granskning av texten.

4 RESULTAT AV ANALYS OCH TOLKNING AV CENTRALA DOKUMENT

Resultaten beskrivs utgående från övergripande strategiska och verksamhetsstyrande dokument (1-3), pedagogiska styrdokument (4-5) och administrativa styrdokument (6-8). De beskrivs på en övergripande nivå i Figur 2.

Innehåll / Material	Allmänt	Specifikt	Aktivt Student-centrerat lärande	Innovativa lärmiljöer Nätstött lärande	Hållbart samhälle	Världs-medborgare	Kompetens-mål Lärande-resultat
Avtal med UKM 2017-2020 (1)	■	■			■		
Arcadas strategi och vision 2025 (2)	■		■		■		
Arcadas verksamhets-plan 2017 (3)	■			■	■		
Pedagogisk policy (4)	■		■		■		■
Examensfordringar (5)	■	■	■		■	■	■
Arcadas instruktion (6)	■						
Ledningsmanual (7)	■		■		■		
Jämställdhetsplan (8)	■						

Figur 2. En översikt av studiens resultat[i].

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[i] Färgad ruta innebär att kategorin i fråga förekommer i texten.

4.1 Strategiska och verksamhetsstyrande dokument

Arcadas avtal med UKM (1). ESD förekommer allmänt i avsnittet som behandlar visioner för alla högskolor. I visionerna talar man om att lösa globala problem och att vara proaktiv för att reagera på förändringar i världen. Här nämns specifikt globalisering, digitalisering internationalisering och befolkningsutveckling. För yrkeshögskolornas del anges som mål att skapa förutsättningar för små och medelstora företag och generellt att kunna reagera på förändringar i enlighet med arbetslivets behov. För den pedagogiska verksamheten tas kompetensexport och livslångt lärande samt forskning för att utveckla kompetensen i samhället rent generellt upp: "*Högskolorna stöder det nationella humankapitalets tillväxt*" (UKM, 2016, s. 3). Under avsnittet om högskolesamfundet som resurs ser man jämställdhet och mångfald som ledord för högskolornas personalpolitik. För Arcadas del nämns vikten av hållbart samarbete i huvudstadsregionen och strategiskt partnerskap. Dessutom beskrivs hälsoteknologi, öppna innovationer, tjänstedesign, Big Data och hållbar utveckling som nya och växande områden.

I framkanten- Arcadas strategi och vision 2025 (2). Strategin innehåller en omvärldsanalys och betonar betydelsen av att högskolan reagerar på förändringar i samhället. Visionen i sig talar för ett hållbart perspektiv: "*Nytänkande för hållbar samhällsutveckling*". Ansvarstagandet syns i uttalande som "*Vi medskapar relevanta lösningar för ett hållbart samhälle*". Strategin utgår från en etisk plattform som är förankrad i studentcentrerat lärande, förändringsvilja och initiativförmåga, öppenhet, ansvar och tolerans samt samhällsengagemang för hållbar utveckling. EDS som perspektiv framkommer inte i de kvantitativa målen och kvalitativa mål ingår inte i omfattande utsträckning. Strategin innehåller även prioriteringar för åren 2017-2020. Här nämns personalens välmående, hållbar utveckling som forskningsfokus och kompetensförsörjning. Det framhålls vidare att hållbar utveckling bör lyftas upp som genomgående tema inom samtliga utbildningar. Vad detta konkret innebär är otydligt eftersom det inte framkommer hur begreppet hållbar utveckling definierats.

Verksamhetsplan 2017 (3). Arcada har en utsedd ansvarsperson (prefekt) som ansvarar för hållbar utveckling på högskolan. I verksamhetsplanen ser man även att prefekterna ansvarar för hållbar utveckling beträffande forskningsverksamheten inom sitt eget verksamhetsområde. Planen innehåller klara målsättningar, verkningar och åtgärder. Hållbar utveckling av utbildningserbjudandet och forskningsfokus på teman kring hållbar utveckling uttalas. Beträffande forskning nämns globala utmaningar och hållbar samhälls- och miljöutveckling. För utbildningarna är målet att alla utbildningar har anpassat sig till hållbar utveckling 2017, men vad det betyder är diffust. Annat som tangerar hållbarheten är strävan efter en hållbar helhetslösning för den svenska högskoleverksamheten i Helsingfors. Rent generellt fokuserar planen på forskningsverksamhetens betydelse för hållbar samhälls- och miljöutveckling och de stora globala utmaningarna medan det pedagogiska perspektivet (ESD) inte ingår.

4.2 Pedagogiska styrdokument

Pedagogisk policy (4). Den pedagogiska policyn beskriver Arcadas syn på lärande och pedagogiskt arbete generellt. Ledande ord gällande lärandet är aktiv, flexibel, självstyrd och individualiserad. Vidare nämns kollektivt lärande och en hållbar samhällsutveckling, som sammankopplar individens lärande till en större helhet med samhällsförankring och ett holistiskt angreppssätt. Lärandet ses i ett framtidsperspektiv och en ledande tanke är förändring.

Det egna ansvaret hos studenten är central liksom ett brukarorienterat närmelsesätt: "*brukaren är med i formuleringen av det problem som skall lösas*". Den studentcentrerade synen innebär att studenten är del av kunskapsutvecklingen och att alla är medansvariga (s.3). Detta vidareutvecklas till att inbegripa förståelsen av att studenten är med i samhällsskapandet och kan vara medskapare av sin egen framtida arbetsplats. Ett steg mot detta kan vara den entreprenörsanda som nämns i texten och som beskrivs som att utveckla kritiskt tänkande med hjälp av självreflektion.

Också i detta dokument uttalas att utbildningen skall fokusera på teman och problemlösning med samhällsrelevans. Samverkan med samhället är ledord i synen på lärandet. Digital kompetens tas upp som en av de nya kompetenserna. Aktivt och livslångt lärande med beaktande av mångfald och flexibilitet och valfrihet i tid och rum omnämns också.

Examensfordringar för 2017-18 (5). Examensfordringarna innehåller tydliga, specifika och preciserade mål för hållbar utveckling både som generella och yrkesspecifika kompetenser. Inom vissa utbildningar som energi- och materialteknik och hälsofrämjande är det av tematiska skäl tydligare konkret uttalat hur ESD ingår i utbildningen. Exempel på begrepp som förekommer i examensfordringarna som tangerar ESD är: livskontroll, utveckling, ansvar, självständig, kritiskt, samhällsutveckling, förändring, helhet, medskapare, holistisk, reflektera och social delaktighet. Kompetensmålen för studenterna betonar livslångt lärande och förmåga att kunna lära sig även efter avslutade studier. Vidare betonas ansvarstagande och möjligheter till påverkan i samhället. Studierna ses som självständiga och inom många utbildningar lyfter målen upp det livslånga lärande och de kompetenser som studenterna skall ha efter avslutad utbildning: studenterna ska vara sakkunniga, professionella och placera sig i arbetslivet i uppgifter som motsvarar utbildningen.

Vissa utbildningar har kurser eller kompetensområden med namn som tydligt beskriver ESD temat*: Global ekonomi, Sustainable engineering och Hälsofrämjande*. Inom logistiken talar man om miljökonsekvensbedömningar och i turism om hållbar turism. Inom grundstudier kommer man in på teman som förståelse av globala aspekter, etiska aspekter, hållbarhet och interkulturella aspekter. Examensfordringarna innefattar också en masterutbildning som heter *"Global health",* där flera tematiska aspekter av ESD beskrivs. Vidare finns det en studiemodul i *"Hållbart ledarskap"*. Kulturproducentutbildningen talar om hållbar ekonomisk, social, kulturell och ekologisk utveckling. Inom Film och TV

kommer förmågan att kritiskt granska förhållanden mellan politik, marknad, makt och media i samhället fram. Analysen visar att det i några av de granskade examensförordningarna inte förekommer attribut relaterade till ESD.

Vidare innehåller examensfordringarna kompetensmål om att se människan, arbetslivsrelevans, nära verkligheten, nära arbetslivet osv. Man ser därmed fragment av både den pedagogiska policyn och strategin i examensfordringarna.

4.3   Administrativa styrdokument

Arcadas instruktion (6). Instruktionen för Arcada definierar allmänna ramar för verksamheten och lyfter inte konkret fram hållbarhetsaspekter. Dokumentet tangerar hållbarhetsaspekter eftersom betydelsen av jämställdhet och likabehandling samt hantering av etiska frågor ingår.

Ledningsmanualen (7). Ledningsguiden är ett verktyg för kvalitetsarbete för alla medarbetare på Arcada. Guiden beskriver verksamheten på en övergripande nivå och förtydligar medarbetarnas ansvar och roller. Utgångspunkten är att studenten och lärandet ligger i fokus. Manualen definierar indirekt hållbarhet och dess betydelse för Arcada: "*studenterna skall sysselsätta sig efter utexaminering och forskningen skall leda till samhälleligt mervärde och hållbar utveckling*" (s.8). Utgångspunkten för kvalitetsarbetet beskrivs som att "*Alla- så väl studenter som medarbetare - bidrar genom personligt ansvarstagande, gemensam aktivitet och en öppen kommunikation...*" (s. 8). Det personliga ansvarstagandet framkommer som en central ledstjärna, på en övergripande nivå som innefattar alla, medarbetare och studenter. Ordvalet medarbetare kan ses som ett uttryck för det personliga och gemensamma ansvaret i verksamheten. I punkt 3.5 fortsätter man med att skriva "*varje medarbetare ansvarar själv för kvaliteten i sin verksamhet*" (s. 8). Detta är också ett uttryck för att ansvarstagande, självständighet och självstyrning utgör utgångspunkter i verksamheten. Vidare talar man om samarbete med arbetsliv och omkringgivande samhälle och ser det som en viktig utgångspunkt för utveckling av högskolan.

I punkt 4.2 (s.11) kommer man in på jämställdhet och etnisk och social mångfald bland personalen. I texten omnämns vidare personalens välmående, arbetsmängd, möjligheter till att vara kreativa och innovativa. Kompetensutveckling ses som centralt för utveckling, vilket framkommer som ett konkret mål: 2025 skall 50 % av den undervisande personalen vara doktorer. Däremot blir det mera otydligt när man i texten söker efter hur det skall ske och hur välmående som en följd av kompetensutveckling kan uppnås. I 5.5.3 (s.18) återkommer man till välmående och talar om förebyggandet av arbetsohälsa och metoden *"Ta till tals".* Här nämns också att anställda ansvarar för att se till att konflikter och problem kommer till ledningens kännedom för att kunna lösas på sikt. Gällande rekrytering framhålls vikten av uppföljning och system för att få medarbetare att stanna inom orga-

nisationen, vilket står för värderingar som värnar om en hållbar personalsyn och kontinuitet och vikten av välbefinnande i arbetet. Rent konkret nämns trivselmätningar och HR-enhetens arbete, samt det nya ledningsverktyget IMS.

Ledningsmanualen refererar till Arcadas pedagogiska policy som styrdokument för studieplansdesign, lärande och pedagogiskt arbete (s.13). Beträffande kompetensen och lärandet betonas studenternas kompetens att utveckla rutinerna i arbetslivet. Lärandet skall vara kompetensbaserat och innehålla teman och problemlösning med samhällsrelevans. Vidare betonas dialog och en studentcentrerad syn. Forskningens betydelse för hållbar samhällsutveckling och samverkan mellan forskning och utbildning betonas också. Som ett led i långsiktighet i lärandet betonas valideringssystem och inkludering av det man kan eller lärt tidigare. Också betydelsen av digital pedagogisk kompetens framkommer.

Jämställdhetsplan (8). Jämställdhetsplanen är ett övergripande dokument som baserar sig på lagar och direktiv, vilket ger texten en distanserad form, med lite utrymme för specifika åtgärder och handlingsplaner. Jämställdhet mellan kön, etniska och sociala grupper, anställda och studenter omnämns. Likaså behandlas löne- och ansvarsfrågor. Den holistiska synen och kopplingen till livet utanför arbetet anger en helhetssyn på medarbetarna: *"Arcada är en trygg arbetsplats där alla anställda ges möjlighet till meningsfulla arbetsinsatser med beaktande av sin arbetsförmåga, familje- och livssituation"* (s. 7) trots att tematiken inte mera ingående behandlas. Vidare sägs att *"Jämlikhet på Arcada innebär att skapa en god lärandemiljö och arbetsplats, där medarbetare och studenter känner meningsfullhet, glädje och gemenskap i arbetet och vill utveckla verksamheten och sig själva"* (s. 6). Här ingår ett utvecklande och delaktigt perspektiv på verksamheten.

Jämställdheten diskuteras på olika nivåer för anställda och studerande. Omfattningen och djupet i dokumentet för dessa två målgrupper varierar. I inledningen av dokumentet (s. 3) sägs med hänvisningen till Lagen om jämställdhet mellan kvinnor och män (5a § 609/1986) att särskilt avseende ska fästas vid antagningen av studerande, ordnandet av undervisningen, skillnaderna i inlärning och bedömningen av studieprestationer samt vid förebyggande och undanröjande av sexuella trakasserier. Helhetsintrycket av dokumentet är att dessa frågor och studentperspektivet hanteras ytligt, djupare analyser och konkreta åtgärdsförslag saknas. Dokumentet tar upp lika bedömning av studieprestationer oberoende av kön, etnisk tillhörighet eller utbildning och vidare anges att minst ett lärandemål i en kurs på varje utbildning ska betona jämställdhet och likabehandling ur ett utbildningsspecifikt perspektiv. Olikheter i krav på thesis forum och tydliggörandet av principerna för jämställdhet och likabehandling beträffande praktik anges på ett övergripande plan som utvecklingsområden.

5 RESULTATDISKUSSION

Resultatet visar att högskolans nuvarande styrdokument enskilt innehåller aspekter som är samstämmiga med konceptet för utbildning för hållbar utveckling (ESD) enligt Unesco (2005, 2012). Hållbarhet och relaterade koncept som värdegrund framkommer i många av de strategiska och verksamhetsstyrande dokumenten så som strategin, visionen och verksamhetsplanen. En integrerad helhetsförståelse mellan olika perspektiv på verksamheten som de olika dokumenten ger saknas däremot delvis. En tydlig definition på hållbar utveckling saknas och med tanke på hur ofta ordet hållbar utveckling förekommer i de olika dokumenten kunde detta vara förtydligande. Den pedagogiska policyn och strategin är relativt korrelerade på punkter som berör hållbarhet i utbildningssammanhang.

Förutom i de strategiska och verksamhetsstyrande dokumenten syns ESD i Arcadas pedagogiska styrdokument. Ibland är beskrivningarna emellertid så allmänna att det blir oklart vad det skulle kunna innebära i form av implementering. För att komma åt detta borde de enskilda kursbeskrivningarna studeras. Tydligast ser man detta i examensfordringarna. Policydokument i sig är dock inte gjorda i syfte att vara konkreta handlingsplaner eller visa på innehåll i undervisning och lärande resultat.

Kopplingen mellan strategiska och verksamhetsstyrande dokument och tillämpning i pedagogiska styrdokument och administrativa dokument är inte alltid tydlig. Styrdokumenten kan uppfattas som svåra att ta till sig då de till viss del kan ses som ytliga frasformuleringar. Exempel på konkreta tillämpningar kom i denna analys fram i den pedagogiska policyn, i strategin och i examensfordringarna. Fullan et al. (2013, 2014) och Stoll et al. (2006) uttrycker att det är viktigt i arbete med hållbar utveckling inom högre utbildning att se på HUR man undervisar och inte bara VAD man undervisar inom utbildningsinstitutioner. På denna punkt kan man säga att den pedagogiska policyn och också examensfordringarna i ett flertal ämnen har beaktat detta HUR. Detta sker t.ex. när man talar om självstyrt lärande och det egna ansvaret i att framskrida i studierna. Olika examinationsformer omnämns t.ex. som ett sätt att stöda detta HUR.

Analysen kan också relateras till Mochizuki & Yarimes (2016, 19) indelning i tre nivåer av hållbarhet i utbildning (ESD). På en högskola, speciellt en professionshögskola kommer man lätt till första nivån bara pga de kurser man undervisar i på de olika utbildningarna. Detta eftersom kurstemat med lätthet kan vara hållbarhet, t.ex. hållbar turism, miljölogistik, etik osv. Detta är utbildning om hållbarhet. I denna analys ser man att detta förekommer, speciellt i examensfordringarna, men också i styrdokumenten då man talar om och definierar hållbarhet för Arcada. Nivå två enligt Mochizuki & Yarime (2016) är utbildning för hållbarhet. Detta kan fortfarande relateras till kursinnehåll, men här kan man även betrakta t.ex. den pedagogiska policyn där man tar ställning till centrala pedagogiska aspekter som avses stöda detta. Förverkligandet av en utbildning eller lärande kan här exemplifiera nivån. I den pedagogiska policyn framkommer också digitaliseringen som viktig att förstå och beakta. Denna är en del av den globala utvecklingen

och en aspekt av hållbar utveckling in högskolorna. Den tredje nivån är organisering av processer för ömsesidigt lärande eller utbildning som hållbarhet. Om man ser dessa som delvis fördjupande eller ökande i form av djupgående hållbarhets tänkande så kan man skönja även den tredje nivån i en del önskvärda handlingsformer eller intensioner som omnämns i de analyserade dokumenten. Handlingsformerna är emellertid önskvärda och det kan tänkas vara svårt att nå insyn i detta genom en dokumentanalys. Synen på människan och t.ex. uppfordran till eget ansvar över livet och möjlighet till att påverka kan relateras till denna nivå.

I relation till Maders (2012) modell för hur man kan utvärdera hållbarhet i utbildningen (ESD) kan man säga att Arcadas hållbarhets ambitioner och planer på tre punkter kan sammanfalla med Maders modell: Leadership & Vision, Education and Learning, Research integration. All dessa tre diskuterades på ett eller annat sätt i styrdokumenten eller också så identifierades de under analysens gång på basen av innehållet i dokumenten, d.v.s. vid tolkningen av innebörden i det som t.ex. planerades i strategin eller vad som krävdes i examensfordringarna.

6 SLUTSATSER

I denna studie granskades övergripande strategiska och verksamhetsstyrande dokument (avtalet med UKM, strategi och VPL), pedagogiska styrdokument (pedagogisk policy och examensfordringar) och övergripande administrativa dokument (instruktion, ledningsmanual, jämställdhetsplan). Verksamhetsplanen, strategin och visionen samt den pedagogiska policyn tangerar de flesta delområden som enligt Unesco ingår i hållbarhet i högskoleutbildning. Världsmedborgarskapet är det delområde som tangeras minst i styrdokumenten. En fortsatt studie kunde även omfatta en närmare analys av studieplaner och kursbeskrivningar. Det kunde även vara meningsfullt att studera integreringen av aspekter av hållbar utveckling i forskningsverksamheten i form av t.ex. hur publikationer omfattar detta perspektiv. Fortsatt forskning kunde även ta i beaktande implementeringen av denna värdegrund i arbetskulturen och det konkreta arbetet. Förståelsen om hur lärare och forskare arbetar konkret med hållbarhet kunde fördjupas genom en intervjustudie. Studenternas delaktighet i högskolan är en grund för delaktighet i samhället, i detta sammanhang som världsmedborgaren. Detta utmanar till att ta med ett tydligt studentperspektiv på forskning om hållbarhet i högre utbildningen.

KÄLLOR

Alvesson, M. & Sköldberg, K., 2009. *Reflexive methodology: new vistas for qualitative research*. London: Sage.

Arcada, 2016. *Pedagogiska policyn (version 18.1.2016)* Tillgänglig 12.9.2017 https://intra.arcada.fi/sv/pedagogiskt-arbete/pedagogiska-policyn)

Barr, R.B. & Tagg, J., 1995. From teaching to learning: A new paradigm for undergraduate education. *Change*, 27(6), pp.12-25.

Clegg, S., 2015. Adventures in meaning making: Teaching in higher education 2005–2013. *Teaching in Higher Education,* 20(4), pp. 373-387.

Fullan, M. & Hargreaves, A. eds., 2013. *Teacher Development and Educational Change*. London: Routledge.

Fullan, M. & Langworthy, M., 2014. *A Rich Seam. How New Pedagogies Find Deep Learning*. Stanford: Pearson.

Gibbs, G., 2013. Reflections on the changing nature of educational development. *International Journal for Academic Development*, 18 (1), pp.4-14.

Graneheim, U.H. & Lundmark, B., 2004. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today,* 24, pp.105-112.

Jones, P., Selby, D. and Sterling, S. eds., 2010. *Sustainability education. Perspectives and Practice across Higher Education*. London: Earthscan.

Mader, C., 2009. *Principles for Integrative Development Processes in Regions*. Graza: University of Graza.

Mader, C., 2012. How to Assess Transformative Performance towards Sustainable Development in Higher Education Institutions. *Journal of Education for Sustainable Development*, 6(1), pp.79-89.

Mochizuki, Y. & Yarime, M., 2016. Education for sustainable development and sustainability science: re-purposing higher education and research. In Barth, M., Michelsen, G., Rieckmann, M. & Thomas, I. eds., 2016. *Routledge Handbook of Higher Education for Sustainable Development.* London: Routledge.

Robottom, I., 2013. Changing discourses in EE/ESD. In Stevenson, R.B., Brody, M., Dillon, J., Wals, A.E.J. *International Handbook of Research on Environmental Education*. New York: Routledge.

Stoll, L., Bolam R., McMahon A., Wallace M., Thomas S., 2006. Professional learning communities: A review of the literature. *Journal of Educational Change*, 7(4), pp.221-258.

Tilbury, D., 2011. Higher Education for Sustainability: A Global Overview of Commitment and Progress. Higher Education´s Commitment to Sustainability: From Understanding to Action. Global University Network for Innovation. Tillgänglig 12.9.2017
https://s3.amazonaws.com/aca-demia.edu.docments/9551840/guni%20he%20in%20the%20world%204%20hes%20com-mittment%20to%20sus.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Ex-pires=1507875605&Signature=wqg6Y313f%2F8r3IIA4B1EepKPNt4%3D&response-content-disposition=inline%3B%20filename%3DTilbury_D._2011_._Higher_Education_for_S.pdf

UNESCO, 2003. *"United Nations decade of education for sustainable development (2005-2014)", Framework for the International Implementation Scheme, 32 C/INF 9.* Tillgänglig 12.9.2017 http://unesdoc.unesco.org/images/0013/001311/131163e.pdf

UNESCO, 2005. *UN Decade of Education for Sustainable Development 2005-2014. International Implementation Scheme*. Tillgänglig 12.9.2017 http://unesdoc.unesco.org/images/0014/001486/148654E.pdf

UNESCO, 2012. *Shaping the Education of Tomorrow: 2012 Report on the UN Decade of Education*. Tillgänglig 12.9.2017 http://unesdoc.unesco.org/images/0021/002166/216606e.pdf

UNESCO, 2017. *What is ESD?* Tillgänglig 12.9.2017 http://en.unesco.org/themes/education-sustainable-development/what-is-esd

Världsnaturfonden WWF, 2008. *Lärande på hållbar väg*. Tillgänglig 12.9.2017 http://www.wwf.se/naturvaktarna/source.php/1139007/Larande%20pa%20hallbar%20vag.pdf

Wals, A.E.J., 2014. Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes. *Journal of Cleaner Production,* 62, pp.8-15.

Wikström-Grotell, C., 2014. En kunskaps- och kompetensbaserad studieplansdesign som grund för aktivt lärande. I: Wikström-Grotell C & Tigerstedt C., red., 2014. Pedagogiska steg mot en kompetensbaserad studieplan, aktivt lärande och samhällsorienterad nyttoforskning. *Arcada Working papers* 17. pp.4-13.

MATERIAL I STUDIEN

1. UKM 2016. Arcadas avtal med UKM 2017 -2020 http://minedu.fi/ammattikorkeakou-lut-sopimukset Tillgänglig 12.10.2017
2. Arcada 2017. I framkanten- Arcadas strategi och vision 2025 (godkänd av styrelsen 19.4.2017) https://intra.arcada.fi/sites/default/files/documents/strategi/arcadas_stra-tegi_2025_-_i_framkanten.pdf) Tillgänglig 12.10.2017
3. Arcada 2016. Arcadas verksamhetsplan 2017 https://intra.arcada.fi/sv/hogskolan/verk-samhetsplan Tillgänglig 12.10.2017
4. Arcada 2016. Pedagogiska policyn (version 18.1.2016) https://intra.arcada.fi/sv/peda-gogiskt-arbete/pedagogiska-policyn) Tillgänglig 12.10.2017
5. Examensfordningar för läsåret 2017-2018 https://intra.arcada.fi/sv/hogskolan/riktlinjer Tillgänglig 12.10.2017
6. Arcada 2015. Arcadas instruktion (godkänd av styrelsen 14.10.2015) https://intra.ar-cada.fi/sites/default/files/documents/instruktion/yrkeshogskolan_arcada_ab_instrukt-ion_14_10_2015.pdf Tillgänglig 12.10.2017
7. Arcada 2017. Arcadas ledningsmanual (version 9.2.2017) https://intra.arcada.fi/sites/de-fault/files/documents/verksamhet/arcadas_ledningsguide.pdf Tillgänglig 12.10.2017
8. Arcada 2017. Jämställdhetsplan (godkänd av högskolestyrelsen 20.3.2017) https://intra.arcada.fi/sites/default/files/documents/arbetarskydd/plan_for_jamstalld-het_och_likabehandling_intraversion.pdf Tillgänglig 12.10.2017

Sustainable Development in University Communication and Marketing Strategy

Nathalie Hyde-Clarke[i]

Abstract

Sustainable development has become a core strategic thrust for many universities around the world. As the new generation of students share an interest in ecological matters and social welfare, it is not surprising that tertiary education institutions are incorporating this philosophy in internal and external marketing initiatives. This paper presents sustainable marketing as a viable option, and discusses how it may be implemented and appear on campus in order to influence relevant stakeholders (students and staff). Examples are taken from the current practices and material adopted by Arcada University for Applied Sciences.

Sammandrag

Hållbar utveckling har blivit en central strategisk drivkraft för många universitet runt om i världen. Eftersom den nya generationen studenter delar ett intresse för ekologiska frågor och social välfärd är det inte förvånande att högskolor införlivar denna filosofi inom interna och externa marknadsinitiativ. Denna artikel beskriver hållbar marknadsföring som ett alternativ och diskuterar hur konceptet kan genomföras och synliggöras på campus för att påverka relevanta intressenter (studenter och personal). Exemplen är hämtade bland den praxis och det material som tillämpas i högskolan Arcada.

Keywords: sustainable development, communication, marketing, university

1 INTRODUCTION

It was a University Communications and Marketing initiative: recycle the old Arcada student recruitment banners into carrier bags and pencil cases, using a reputable brand in ethical and ecological clothing, Global Hope, and make these available for purchase during key student events (Opening and Graduation ceremonies). It was an instant success. The campaign resonated with the student population on a number of levels. They recognized both brands as being reputable. They associated the brands with each other in terms of responsible parties interested in sustainable development. The items for purchase were affordable, and immediately useful and pertinent to their environment – and the University banner's colours originally chosen to be eye-catching and attractive transferred well to their new purpose.

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Figure 1. The Arcada Global Hope Initiative 2017

It is not often that a strategy to promote sustainable development manifests in such a literal way. Often, it is the lack of material output that determines the effectiveness of objectives and goals in this regard. In the Communications and Marketing sector, this strategy often interprets into efforts to create paperless or electronic document management options. At the same time, it is important to note that student and community interests and expectations also play a significant role in how information is distributed. In Finland, the nation brand is associated with a strong interest in the environment and ecological welfare of its state. As a University of Applied Sciences in Finland interested in attracting both local and international students, it is therefore expected that more emphasis may be placed on this strategy in order to resonate with the national brand orientation. This need for a collective and dedicated approach is further amplified by the collective marketing of universities by the Finnish National Agency for Education who adopt a natural outdoors setting for many of their online images and rationale[i]:

- Live in the most peaceful and sustainable country in the world (Fragile States Index, 2016)

- Study in the best higher education and training system in the world (World Economic Forum, 2015)

- Live in the healthiest ecosystem in the world (Environmental Performance Index, 2016)

- Breathe the third cleanest air in the world (World Health Organisation, 2016)

- Improve your skills in the most innovative country in the world (World Economic Forum, 2015)

It is therefore not surprising that sustainable development is one of the four core strategies adopted by Arcada University of Applied Sciences since 2000, and is highlighted in the following way on the University website[ii]:

> Arcada promotes sustainable development in all its activities, in accordance with Finland's social partnership for sustainable development. For Arcada, sustainable development, in addition to ecological sustainability, also includes economic, cultural and social sustainability. Sustainable development has been integrated in both education and research activities, and in regional cooperation. *(Translation from Swedish)*

Sustainable development can be understood in many ways, but it generally implies that "renewable resources should be used wherever possible and that non-renewable resources

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[i] www.studyinfinland.fi
[ii] www.arcada.fi/sv/om-arcada/hallbar-utveckling

should be … (e.g. reduced and recycled) to extend their viability for generations to come" (Hall, et al., 2010, p. 440). This article examines sustainable marketing as it pertains to communication policy at tertiary education institutions, using examples of practices adopted by Arcada University of Applied Sciences, Helsinki.

2   SUSTAINABLE MARKETING

The theory of market orientation suggests that there is an organization culture that identifies and generates the most effective behavior and information required to create and respond to customer needs. It is possible therefore that the values assumed by a collective of individual actors can affect and be expressed at the institutional level as it adapts to the market (Heikkurinen & Bonnedahl, 2013). That said, organisations are capable of being both reactive and proactive in terms of influence in their related communities. While the need to consider sustainable development may be in part in response to current customer/student preferences and national agendas, as a sector that supports and encourages innovation and entrepreneurship, universities of applied sciences are also positioned to play a leading role in promoting sustainable development through education and research. In this way, sustainable marketing may be both a foundation for, and enactment of, social change.

Marketing has proven to be an adept method of influencing individuals in terms of cognitive, emotional and value biases (Varey, 2010). In light of overarching forces of capitalism, commercialisation and subsequent consumerism, there is sufficient evidence to suggest that the persuasive techniques utilized in marketing have in fact exacerbated existing consumption practices. Given an established history of this trend, it is therefore easy to tend to associate marketing with exactly those outcomes. However, it stands to reason, that when provided with sufficient incentive to do so, similar techniques may also advance alternative ideologies and behaviourial patterns more compatible with sustainable development initiatives. According to Varey (2010), there are different approaches to achieve this objective: social marketing; ecological marketing; green marketing; environmental marketing; and then, sustainable marketing. While all share a common goal to increase social responsibility and awareness, they are slightly different in how they target the audience. Social marketing tends to the long-term welfare of society in connection with consumer needs and wants. It is closely aligned to corporate social responsibility models. Ecological, green and environmental marketing tend to focus more on actual impact in terms of preservation, conservation and protection of natural resources. Sustainable marketing combines these two approaches, by both addressing the desire to reduce consumption, manage waste, and create social and economic well-being. This requires a shift in brand orientation from seeing the end-user as a customer to seeing them as a stakeholder in a shared community. An organisation's communication strategy should therefore be geared towards building and maintaining relationships with all stakeholders while promoting sustainable development practices.

Given an international movement towards adapting orientation and strategy in light of shifting philosophies and expectations amongst stakeholders, it is not surprising that sustainable initiatives have become part of competitive advantage analyses (Crittenden, et al., 2011). Since consumers tend to couple consumption with emotional reward (satisfaction, happiness and accomplishment), there is evidence to suggest that the market will

tend to follow the organization most likely to meet those needs. The more satisfied the stakeholder is with regards to their own consumption and its subsequent environmental impact, the more they are likely to engage with that organization – and often loyalty is related to quality of experience and service, not cost. It could and has, in fact, been found that in certain cases, more ecological practices in the manufacturing phase of a product were generally accepted as making the final product justifiably more expensive (Gordon, et al., 2011). This did of course result in some corporations making less authentic claims of being environmentally-friendly in order to boost sales and economic growth, and there were and are numerous allegations of 'greenwashing' where corporations have been found wanting. In the end though, such misleading communication strategies have created discontent amongst a significant amount of consumers who appear willing to shift suppliers in order to secure services and goods that more closely resonate with their own beliefs and tenets (Nyilasy, et al., 2014).

Essentially, sustainable marketing should create and support positive relationships and outcomes through strategic management practices. The more an organization engages with its stakeholders, the more accountable the organization becomes towards recognizing and assessing their interests, recognizing the impact management decisions have on those interests, and thus communicating relevant activities and projects that are in line with those interests (Felix & Ogbor, 2014). The inclusion of social and environmental concerns in management decisions and organisational operations is a result of stakeholder orientation (Heikkurinen & Bonnedahl, 2013).

It is equally important to note that while organisations take responsibility for initiatives and activities, the stakeholders/market must respond in a way that still allows the organization to benefit and grow (Heikkurinen & Bonnedahl, 2013). In other words, the main business objectives should still be met. This is often a challenging aspect for more ardent ecologically-minded stakeholders to reconcile. Corporations are willing to opt for more costly solutions in the interests of sustainable development, provided they themselves are also sustained in the process. It is unusual to find situations where entities engage in such practices expecting nothing in return. Of course, benefits can be measured in different ways and based on different outcomes – in some instances, reputation management may be sufficient to justify the policy or practice. In other instances, the organization recognises that although the initial start-up or conversion costs may be high, the shift to renewable resources may pay dividends in the future.

The installation of solar panels is a good example of balancing high immediate costs with long term benefits. While expensive to install, solar panels can decrease the cost of electricity and heating in the long term. They are also very visual symbols of an organisation's intention to actively engage with sustainable resource options, thereby garnering positive responses and reviews from interested parties. In 2017, Arcada installed solar panels on its roof, and sent out news bulletins informing staff, students and the media that they anticipated that in the future, the panels would produce 10% of energy used. An image of the panels appears below:

Figure 4. Solar panels, Arcada 2017

Regardless of the intended or envisaged outcome, in order for stakeholders to engage, the strategy and related initiatives must be clearly communicated to them. Well-informed consumers are more likely to be committed to the same objectives. Communication includes, amongst others, effective marketing of sustainability concerns based on management decisions, community dialogues and feedback mechanisms.

3   SUSTAINABLE MARKETING INITIATIVES ON CAMPUS

Often seen as fertile ground for debating and enacting levels of social change, universities typically address sustainable development with students in the following ways: encourage the use of public transport, bicycles or walking; discourage excessive photocopying; encourage recycling or overall decrease of waste; and present several energy-saving routines or options that may be employed in the relevant learning environments. In order to remind students of the need to adopt such habits on a long term basis, visual reminders and cues appear in public spaces around campuses.

Below is an image of a recycling bin that has been placed in the main foyer of Arcada, directly in front of the Info Desk (Reception). Note the colourful signage that includes both icons and text detailing which part should be used depending on the waste item. It is also significant that the bin is also placed next to the canteen. Students queuing for lunch must walk past it. The bin therefore serves many purposes given its placement. It is a receptacle for rubbish, and an immediate visual confirmation of the University's commitment to sustainable development practices for those entering the campus, as well as being a reminder for mindful waste practices in a food environment. Interestingly, it is also given a priority status as it is located in the same space as other very important services, such as first aid, the main University electronic bulletin board, and the reception area.

Figure 3. Recycling bins in the main foyer of Arcada 2017

The current generation of student, known as Millennials, seem more brand aware and brand conscious than the earlier generations (Krishnan, et al., 2014). This is largely due to a combination of advanced media technologies that allow more access to corporations, their strategies and production practices, coupled with determined marketing drives by those corporations to build and maintain brands in the public sphere. Millennials also appear to share a particular interest in 'mindful consumption' which increases their desire to know about and engage in sustainable practices. Internal and external communication should resonate with that desire in order to be effective in influencing change in attitude and behavior. According to *the 2013 Millennial Report*, a four step approach should be implemented when marketing social causes: inspire; give options; be transparent; and en-courage peer-to-peer engagement (Achieve & The Case Foundation, 2013). The posters promoting Green Office practices at Arcada clearly meet those needs. Through the use of simple, yet engaging, images, students are shown two different behaviours and outcomes. In both cases, a 'best practice' option is presented. In the first instance, it is provided through text in light of the illustration of an undesirable outcome, and in the second, it is positively reinforced through the image of anticipated peer approval. The posters are placed at the back of the toilet doors: a good location given the message of the first half.

Figure 4. The back door of the toilet cubicle with three messages: Turn off the light (blue sticker); How much water are you wasting? (Top of poster); and Why not take the stairs? (Bottom of poster). Arcada 2017

Considering the audience most likely to be influenced by this form of communication campaign, Lim (2016) recommends that a sustainability marketing model includes five dimensions: economic; environmental; social; ethical; and technological. When taking Millenial preferences into account, "the economic dimension adopts an anthropocentric philosophy, in which the goal is to maximise customer and organisational satisfaction" (Lim, 2016, p. 243). However, in sustainable marketing this is not suffcient, it should be combined with the other four. The environmental dimension calls for a healthy connection and symbiotic relationship with natural and ecological resources. The social dimension required for inidvidual orientation in order to inform, motivate and engage people across and within communities. It must be clear that the objective is to achieve long-term social change and not just recurring episodic efforts that do not build towards a more holistic approach. The technological dimension is interesting, as it can be used in a multitude of ways, as: a channel of distribution; a resource; and solution. The ethical dimension should systematise and recommend patterns of behaviour that support sustainable development initatives. Below is an example of an electronic bulletin that was sent to all students and staff highlighting the importance of the entire community's participation in sustainable development initiatives in order to secure the best outcome. Note the emphasis on actual concrete results, as opposed to the more philosophical approaches often adopted by organisations. Actual achievements and targets are more appealing.

Figure 5. Online communication to all staff and students about 'mindful' food servings. Arcada 2017.

4   CONCLUDING REMARKS

As has been discussed throughout this paper, it is not enough though for universities to simply communicate new patterns of behavior in order to influence their market positively, sustainable practices must be readily apparent throughout the organisation's culture and strategy. The strategy should also be communicated using a marketing mix that is apparently relevant and visible to the intended audience – in this case, a combination of online media and traditional visual prompts serve to expose stakeholders to a continuous stream of reminders and suggestions to adopt alternative consumption practices. The outcome of those new routines must also be clearly outlined, in terms of immediate effect, short-term effect and long term impact. In this way, sustainable marketing may effectively move a philosophical tenet to a lived experience that has concrete impact in immediate communities and the surrounding environment. It is also largely accepted that once individuals adopt new habits in one environment, they are likely to replicate them elsewhere. In this way, universities are not only able to affect their own student body and their sustainable practices on campus, but should also be able to encourage those practices to be replicated in greater society and into the future.

REFERENCES

Crittenden, V. et al., 2011. Mareket-oriented sustainability: a conceptual framework and propositions. *Journal of the Academy of Marketing Science,* Volume 39, pp. 71-85.

Felix, O. & Ogbor, J., 2014. The Quest for Sustainable Development: Strategies for Managing Stakeholder Relationships. *European Journal of Business and Management,* 6(35), pp. 179-186.

Gordon, R., Carrigan, M. & Hastings, G., 2011. A framework for sustainable marketing. *Marketing Theory,* 11(2), pp. 143-163.

Hall, J., Daneke, G. & Lenox, M., 2010. Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing,* Volume 25, pp. 439-448.

Harrison-Walker, L. J., 2014. Manifestations of strategic brand orientation. *Academy of Marketing Sciences Journal,* 18(1), pp. 203-216.

Heikkurinen, P. & Bonnedahl, K. J., 2013. Corporate responsibility for sustainable development: a review and conceptual comparison of market- and stakeholder-oriented strategies. *Journal of Cleaner Production,* Volume 43, pp. 191-198.

Hult, G. T., 2011. Market-focused sustainability: market orientation plus!. *Journal of the Academy of Marketing Science,* Volume 39, pp. 1-6.

Hunt, S., 2011. Sustainable marketing, equity, and economic growth: a resource-advantage, economic freedom approach. *Journal of the Academy of Marketing Science,* Volume 39, pp. 7-20.

Krishnan, V., Sullivan, U., Aurand, T. & Gordon, G., 2014. Socially responsible brands: an assessment among millenials. *The Journal of Contemporary Business Issues,* 20(1), pp. 56-66.

Krishnan, V., Sullivan, U., Aurand, T. & Gordon, G., 2014. Socially Responsible Brands: An Assessment Among Millenials. *The Journal of Contemporary Business Issues,* 20(1), pp. 56-65.

Lim, W., 2016. A blueprint for sustainability marketing: defining its conceptual boundaries for progress. *Marketing Theory,* 16(2), pp. 232-249.

Mitchell, R., Wooliscroft, B. & Higham, J., 2010. Sustainable market orientation: a new approach to managing marketing strategy. *Journal of Micromarketing,* 30(2), pp. 160-170.

Nyilasy, G., Gangadharbatla, H. & Paladino, A., 2014. Perceived greenwashing: the interactive effects of green advertising and corporate environmental performance on consumer reactions. *Journal of Business Ethics,* Volume 125, pp. 693-707.

Varey, R., 2010. Marketing Means and ends for a Sustainable Society: A Welfare Agenda for Transformative Change. *Journal of Macromarketing,* 30(2), pp. 112-126.

Green Office Initiatives in a Study Environment

Lars Wessman [i]

Abstract

Higher education has a social responsibility to teach and carry out research on sustainability, as a major contributor to wellbeing and development of society. Arcada formulated its first strategy for sustainable development in 2009 and joined the Green Office program in the year 2010, a program administrated by the World Wildlife Fund (WWF). Green Office is a practical environmental management system for offices introduced by the Finnish WWF branch office. The aim for the program is to reduce the ecological footprint and greenhouse gas emissions of the working place and its personnel. This article will shortly present the history and birth of the term sustainable development and the objectives of the Green Office program. Furthermore, sustainable development as a core strategic aim and the integration of Green Office activities into the study environment of Arcada are described.

Sammandrag

Högre utbildning har socialt ansvar för att undervisa och forska i hållbarhet och därmed bidra till ökat välbefinnande och samhällsutveckling. Arcada formulerade sin första strategi för hållbar utveckling år 2009 och gick med i det gröna kontorsprogrammet 2010, ett program som administreras av World Wildlife Fund (WWF). Green Office är ett praktiskt miljöledningssystem för kontor som introducerades/administreras/leds av Finlands WWF-filial. Målet för programmet är att minska arbetsplatsens och personalens ekologiska fotavtryck och växthusgasutsläpp. Denna artikel presenterar hur termen hållbar utveckling uppstod samt målen för det gröna kontorsprogrammet. Vidare beskrivs hållbar utveckling som ett centralt strategiskt mål och tillämpningen av aktiviteter inom det gröna kontorsprogrammet i studiemiljön på Arcada.

Keywords: Green Office, sustainability, education

1   WHAT IS SUSTAINABLE DEVELOPMENT?

The term sustainable development was introduced in the report *Our Common Future* published by Oxford University Press in 1987 and released by the Brundtland Commission (Our Common Future). Sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The two key concepts of sustainable development are: 1) the concept of "needs", in particular the essential needs of the world's poorest people, to which they should be given overriding priority; and 2) the idea of limitations which is imposed by the state of technology and social organization on the environment's ability to meet both present and future needs. *(Kates, Parris & Leiserowitz, 2005)*. Due to the work of the Brundtland Commission, the issue of sustainable development is generally on the agenda of international and national institutions, as well as corporations and city efforts. The definition gave light to new perspectives on the sustainability of an ever-changing planet with an ever-changing population.

A meeting was held 1992 in Rio de Janeiro Brazil where more concrete initiatives and goals were set. A comprehensive plan of action, known as Agenda 21 came out of the

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meeting. The agenda entailed actions needed globally, nationally, and locally in order to make life on Earth more sustainable going into the future (Agenda 21, 1992). After the Rio de Janeiro Earth Summit conference in year 1992, the agenda 21 was launched. The agenda entailed actions to be initiated globally, nationally, and locally to make life on Earth more sustainable going into the future. At the early stage when discussing sustainability, the focus was very much on environmental sustainability but later social, economic and cultural sustainability have been included as major categories when discussing sustainability. The term sustainable development was originally closely linked to environmental sustainability but nowadays the concept is broader and mostly divided into four categories, economic, environmental, social and cultural, however with a strong interdisciplinary nature of the categories.

Economic sustainability. No one these days seriously denies the need for sustainable business practices. Even those concerned about only business and not the fate of the planet recognizes that the viability of business itself depends on the resources of healthy ecosystems—fresh water, clean air, robust biodiversity, productive land—and on the stability of just societies. Happily, most of us also care about these things directly. The problem is simple. It is generally cheaper to buy the product that has a worse impact on its environment than the equivalent product that does less harm. Higher cost to planet does not translate to higher price to customer. The concept of sustainability has evolved across three eras. In the beginning, it was an operational concern, consisting of largely defensive efforts to reduce companies' environmental footprints and cut waste. That evolved into a more strategic stance — let's call it Sustainability 2.0. The focus shifted from cost reduction to innovation, and initiatives began to consider whole value chains. Now we're amid another overhaul of the concept, in which considerations of impact pervade all the decision making of firms (Chouinard, Ellison & Ridgeway, 2011).

Environmental sustainability has become more important to government and businesses over the last 20 years, leading to great improvements in the number of people willing to invest in green technologies. Evidence is strong that we are exceeding and eroding the earth's carrying capacity, that there are limits to growth on a finite planet. Effects are interactive, complex, unpredictable and escalating, as we head for a global average temperature rise of more than 2 degrees centigrade over pre-industrial levels. Sometimes 'environmental', 'social' and 'economic' are termed to be the three pillars of sustainability. But this is problematic as it suggests they are equivalent and can be traded. Environmental sustainability is the context within which social and economic life happen. Also, social inequity directly affects environmental viability (Environmental Sustainability, definition of, Financial Times Lexicon).

Social sustainability is about identifying and managing business impacts, both positive and negative, on people. The quality of a company's relationships and engagement with its stakeholders is critical. Directly or indirectly, companies affect what happens to employees, workers in the value chain, customers and local communities, and it is important to manage impacts proactively. Businesses' social license to operate depends greatly on their social sustainability efforts. In addition, a lack of social development, including poverty, inequality and weak rule of law, can hamper business operations and growth. At the same time, actions to achieve social sustainability may unlock new markets, help retain and attract business partners, or be the source for innovation for new product or service lines. Internal morale and employee engagement may rise, while productivity, risk man-

agement and company-community conflict improve. The first six of the UN Global Compact's principles focus on this social dimension of corporate sustainability, of which human rights is the cornerstone. Our work on social sustainability also covers the human rights of specific groups: labour, women's empowerment and gender equality, children, indigenous peoples, people with disabilities, as well as people-centered approaches to business impacts on poverty. As well as covering groups of rights holders, social sustainability encompasses issues that affecting them, for example, education and health (Social Sustainability, United Nations Global Compact).

Cultural Sustainability. Culture is about who we are and what shapes our identity. No development can be sustainable without including culture. In September 2015, the United Nations General Assembly adopted the "2030 Agenda for Sustainable Development", with 17 ambitious, universal goals to transform our world (Culture for Sustainable Development, United Nations Educational, Scientific and Cultural Organization, UNESCO). UNESCO ensures that the role of culture is recognized through many of the Sustainable Development Goals (SDGs), including those focusing on quality education, sustainable cities, the environment, economic growth, sustainable consumption and production patterns, peaceful and inclusive societies, gender equality and food security. From cultural heritage to cultural and creative industries, Culture is both an enabler and a driver of the economic, social and environmental dimensions of sustainable development. UNESCO's work promoting cultural diversity, and UNESCO's Culture Conventions, are key to the implementation of the 2030 Agenda for Sustainable Development.

Finland has a long tradition of promoting sustainable development both in domestic policies and in international development cooperation. Finland is committed to continuing these efforts also in the future and was among the first countries to establish a National Commission on Sustainable Development, only one year after the 1992 United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro. From the very beginning, there was a broad consensus that the Commission should be led by the Prime Minister and have wide stakeholder membership. This has been the leading 'modus operandi' in Finland now for 23 years.

Various programs on sustainable development have been implemented since mid-1990s, programs, which led to the adoption of a comprehensive National Strategy for Sustainable Development 2006 (Towards Sustainable Choices. A Nationally and Globally Sustainable Finland). The latest strategy for sustainable development (The Finland we want 2050. Society's Commitment to Sustainable Development) was adopted in December 2013 and updated in April 2016 to be in line with the 2030 Agenda for Sustainable Development. (UN Sustainable Development Platform, UN High Level Political Forum on Sustainable Development (Voluntary National Review, Finland, 2016).

2 SUSTAINABLE DEVELOPMENT IN HIGHER EDUCATION INSTITUTES (HEI)

Education for sustainable development (ESD) has been one of the top priorities in national policy documents and on the global agenda since the Earth Summit in Rio in 1992. It was again brought to the forefront of international attention at the United

Nations (UN, 2002) World Summit on Sustainable Development in Johannesburg 2002.

The Global Higher Education for Sustainability Partnership initiative aimed to make sustainability an integral part of college and university curricula around the world.
However, though that over the past 20 years, many United Nations summits have been held, focusing on population, social development, women, urbanization, food, and other topics most social and environmental trends have grown worse. The Higher Education Sustainability Initiative (HESI) was created in 2012 in the run-up to the United Nations Conference on Sustainable Development (Rio+20) by a consortium of UN entities. Today with commitments from over 300 universities from around the world, HESI accounts for more than one third of all the voluntary commitments that were launched at Rio+20. Through its strong association with the United Nations, HESI provides higher education institutions with a unique interface between education, science, and policy making.

The overall objectives of the HESI network is to commit partner HEIs to teach sustainable development across all disciplines of study, encourage research and dissemination of sustainable development knowledge, establish green campuses, support local sustainability efforts and engage and share information with international networks (UN Sustainable Development Platform, Higher Education Sustainability Initiative). Arcada University of Applied Sciences (UAS) is a member of the Baltic University Program (BUP), which is a network of about 225 universities and other institutes of higher learning throughout the Baltic Sea region. The network is coordinated by the Baltic University Program Secretariat a part of Uppsala Centre for Sustainable Development (Uppsala CSD) at Uppsala University, Sweden. The Program focuses on questions of sustainable development, environmental protection, and democracy in the Baltic Sea region. The aim is to support the key role that universities play in a democratic, peaceful and sustainable development. This is achieved by developing university courses, support inter disciplinary research co-operations, and by participation in transdisciplinary projects in cooperation with authorities, municipalities and others (The Baltic University Programme).

3   SUSTAINABLE DEVELOPMENT IN ARCADA UAS

Arcada formed its' first strategy and action plan for sustainable development in October 2009 formulated as below. The work on sustainable development should be based on a commitment from all levels of the organization and in a long term contribute to and promote a sustainable society. The process is conducted at three levels: sustainable development in everyday life - practical and concrete (Green Office), sustainable development in education and research and sustainable development as part of our relationship with the world and the local community.

In 2014 the strategy was re-formulated and an action plan was developed. "*Sustainable development in Arcada*" will begin in autumn 2014 and will run for three years. The goal for 2017 was that Sustainability will permeate the organization and be an integral part of our daily work, in all teaching and research, and the university's relationship with the outside world and the local community.

The structure and timetable for the work was designed in four steps:

- The first step was awareness creation (2014-2015) that is to build and disseminate knowledge in the organization, to make students and employees aware of sustainable development and to initiate some projects at different levels of the organization and create a strategy and action plan for Arcada societal commitment to sustainable development.
- The second step (2015-2016) was to integrate sustainable development at all levels in the organization and sustainable development integrated into curricula
- The third step (2016-2017) was to implement and communicate the new curricula and to integrate sustainable development in the study guide, to communicate sustainable development at Arcada's website and to integrate sustainable development in research and build research networks working for sustainable development. In April 2014 Arcada submitted Arcada's Society's Commitment to Sustainable Development to the Ministry of education and Culture.
- The fourth step was to make sustainability part of all our students learning.

Learning Outcomes: Education about sustainability: students will understand the founding principles of sustainability as including environmental, social and economic aspects and be aware of how it relates to their chosen degree course.

Education for sustainability: students will understand and be able to critically reflect on how the knowledge and skills they develop within their chosen degree course can help them become responsible global citizens being sustainability literate making them more resilient and able to prosper in an uncertain future. In practice, the education for sustainability strategies and activities should lead to the following results (University of Gloucestershire, 2011):

- *students are capable of envisioning alternative futures*

- *techniques for working collectively towards positive and democratic change*

- *participatory engagement to explore shared and divergent interests and needs*

- *challenges to the mindsets and priorities that drive unsustainable development*

- *graduates who understand their professional responsibilities in this area*

4   GREEN OFFICE AS PART OF SUSTAINABLE DEVELOPMENT.

The Green Office program (GO) launched by the Finnish branch office of World Wildlife Fund (WWF) is very much a program related to the first pillar of sustainable environment that is environmental protection working for sustainable solutions related to decreased consumption of natural resources and thus decreased carbon consumption. The GO program has been running for 15 years in 2017 and it currently includes 403 offices from 150 organizations, with some 57,500 employees (Figures: April 2017). WWF GO is a practical environmental management system for offices. It helps you to reduce the ecological footprint and greenhouse gas emissions of your office and it is suited to all sizes of offices and all kinds of organizations in the private and public sector. Even small actions can

make a difference if enough people are involved. Office premises hold a key position in energy consumption and in environmentally sustainable working methods and solutions. Green Office motivates your office staff to act in an environmentally friendly way in everyday tasks. Because the scheme also improves environmental awareness and creates savings, it benefits the companies as well as the environment. GO aims at sustainable development and combating climate change. The environmental program helps offices meet the UN's Sustainable Development Goals (SDGs). With the help of the GO environmental management system, offices have many ways to meet the Sustainable Development Goals (SDGs). The aim of the UN's goals is to take account of environmental, human, and economic concerns. The GO program is directly related to most of the SDGs (Table 1). The practical measures we help you with pay attention to the goals relating to the environment and wellbeing, such as fighting climate change, conserving biodiversity, and developing sustainable forms of livelihood. In addition, the annual fee for the Green Office network is used to fund WWF's work around the globe. WWF is an international organization with many partners and a strong pedigree in global action. Green Offices are directly involved in supporting all the UN's Sustainable Development Goals (WWF Green Office).

Table 1. Sustainable development goals and recommendations of Green Office (WWF Green Office).

Objectives	Green Office recommendations
Good Health and wellbeing	GO encourages companies to promote the wellbeing of their personnel, for example by promoting everyday exercise and a good working atmosphere. Among other emphases of the program are indoor air quality and ecological cleaning chemicals.
Clean water and sanitation	The environmental program always includes at least one measure for reducing water usage. This could be, for example, using water-saving devices, or cutting water consumption through monitoring.
Affordable and clean energy	Energy conservation is important and is also one criterion of the program. Green Office strongly recommends switching to renewable energy.
Decent work and economic growth	GO encourages business models that make sustainability a priority, with the understanding that economic growth can be compatible with caring for environment.
Industry, innovation and infrastructure	Adoption of clean and environmentally friendly technologies and production processes. Sustainable production processes and innovations.
Sustainable cities and communities	GO encourages the use of public and non-motorised transport instead of private cars. This contributes to the development of public transport systems. Waste treatment management contributes to the development of public waste recycling systems. GO also emphasizes energy efficiency and sustainability in property management.

Responsible consumption and production	GO encourages sustainable use of natural resources are recommendations and advice on switching to renewable energy and making energy savings. One GO criterion is procurement instructions that consider the ecological and ethical aspects of office supplies and other work-related products. GO requires annual reporting, which allows the model to be integrated into monitoring and reporting. The results can be used in corporate responsibility reporting
Climate action	GO aims to curb climate change by practical means, such as by reducing work commuting and energy emissions from offices. The program increases staff knowledge of climate change and means to prevent it.
Life below water	Green Office recommends the use of WWF's country guides on sustainable seafood , which help to ensure responsible consumption by favoring certified (MSC, ASC) fish products. Pollution of the seas can be prevented with the help of sorting and recycling of waste
Life on Land	Another GO criterion is drawing up a responsible procurement manual. GO encourages companies to reduce consumption of paper favoring responsibly produced (FSC-certified) paper products. We also recommend the use of other FSC-certified wood products in the office. GO promotes maintenance of biodiversity
Partnerships for the goal	The GO program helps to promote sustainable development and supports the UN's common goals. The annual fees paid by GO are used to support WWF's work. In this way, goals can be achieved not only directly in offices through informed choices, but also indirectly, through WWF's activities.

5 ARCADA AND GREEN OFFICE

Arcada has been involved in WWF's Green Office programs since 2010. Sustainable development awareness should result in concrete actions and behavior patterns in our everyday actions in the current building, both at the organizational and individual level. A Green Office team were formed with key persons considering the objectives agreed upon to develop and follow-up the Green Office program. During the first meeting with WWF, it was decided which indicators were to be followed up and the first environmental program and principles were formulated for the Arcada Green Office program. The indicators to be followed up in Arcada were: energy consumption, electricity consumption, water consumption and paper consumption (Table 2).

Table 2. the indicators followed up and the development in Arcada.

Measures taken	Responsible person	2010	2011	2012	2013	2014	2015	2016
Energy consumption (heat) (MWh)	Jörgen Wiik, personnel,students	2212	2419	2342	2377	2468	2453	2235
Percentage change comapred to 2010			9,4 %	5,9 %	7,5 %	11,6 %	10,9 %	1,0 %
Electricty consumption (kwh)	Jörgen Wiik, personnel,students	1999913	1975984	1798765	1775702	1831672	1607699	1641673
Percentage change comapred to 2010			-1,2 %	-10,1 %	-11,2 %	-8,4 %	-19,6 %	-17,9 %
Water consumption (m3)	Jörgen Wiik, personnel,students	6759	7408	6778	6615	6473	5020	5404
Percentage change comapred to 2010			9,6 %	0,3 %	-2,1 %	-4,2 %	-25,7 %	-20,0 %
Paper consumption	Personnel,students	1500000			1116500	1027272	900299	890455
Percentage change comapred to 2010					-25,57 %	-31,52 %	-39,98 %	-40,64 %

The table shows that Arcada has been most successful what comes to increase the paper consumption as we have moved much of paper based routines into a digital environment-we have also been able to decrease electricity and water consumption. We have not been able to decrease the energy consumption as this would demand very heavy and expensive measures. The variation in energy consumption is very much dependent on weather conditions.

Some of the activities are of continuous natures such as monitoring and complying to waste legislation, acquisition of necessary sorting dumpsters, information on sorting principles displayed, dumpsters for office machines and other office waste, delivery of hazardous waste to recycling centers and usage of recyclable cartridges for printers and copy machines.

Through the Green Office program some target measures were initiated such as the green electricity contract and the installment of waterless urimats in 2013, in 2016 the swimming pool was emptied /shut down and converted into classroom and a solar cell system with a production capacity of 12500 kWh per annum was installed.

6 DISCUSSION

When implementing the Green Office e-program in Arcada we faced some challenges. One of them was the communication / information on the Green Office program within the organization. Green Office has its own web page campus green on Arcada website with information related to green campus. However even though the information is available on the website it proved difficult to communicate with personnel and students because they seldom read /find this page on Arcada intra site.

Another challenge was the changing consumption pattern and attitudes among personnel. The commitment of the personnel to change their own consumption habits and especially

changing from private cars to public transports or bicycles have been quite challenging. We have not implemented education in sustainable development for personnel yet.

A third challenge was the follow up of indicators related to the carbon foot print in climate calculators especially in the field of energy and transports is almost an impossible task as we do not have any system to follow up the indicators requested for on an organizational level.

The objective to integrate sustainability aspects into present curricula and especially to get a cross-sectional/interdisciplinary approach has proved to be slower and more challenging than anticipated. The Green Office program postulates that the companies should stick to the indicators once agreed upon when starting the Green Office pro-gram. As minimizing the carbon footprint is the overall objective of the Green Office program new indicators supporting this objective could be introduced.

REFERENCES

Agenda 21, United Nations sustainable development. 1992. https://sustainabledevelopment.un.org/content/documents/agenda21.pdf Retrieved September 2017

Chouinard, Y., Ellison, J. & Ridgeway, R. 2011. The sustainable economy, *Harvard Business Review*, 10, pp. 52-62

Environmental sustainability, definition of, *Financial Times Lexicon*. http://lexicon.ft.com/term?term=environmental-sustainability Retrieved September 2017

Robert, KW., Parris, TM. & Leiserowitz, A. 2005. What is sustainable development? Goals, indicators, values, and practice, environment science and policy for sustainable development, 47(3), pp. 8-21, environmentmagazine.org Retrieved April 2017

Social sustainability, United Nations Global Compact, https://www.unglobalcompact.org/what-is-gc/our-work/social Retrieved September 2017

Culture for Sustainable Development, United Nations Educational, Scientific and Cultural Organization, (UNESCO) *http://en.unesco.org/themes/culture-sustainable-development,* Retrieved October 2017

Report of the World Commission on Environment and Development: Our Common Future. http://www.un-documents.net/our-common-future.pdf, Retrieved October 2017

The Baltic University Programme, http://www.balticuniv.uu.se/index.php/about-us, Retrieved September 2017

UN Sustainable Development Platform, UN High Level Political Forum on Sustainable Development, Voluntary National Review 2016, Finland, https://sustainabledevelopment.un.org/memberstates/finland, Retrieved June 2017

UN Sustainable Development Platform, Higher Education Sustainability Initiative (HESI) https://sustainabledevelopment.un.org/sdinaction/hesi, Retrieved 2017

University of Gloucestershire /Education for Sustainability*: A Guide for Educators on Teaching and Learning Approaches, http://www.glos.ac.uk/docs/download/Sustainability/Education-for-Sustainability-A-Guide-for-Educators-on-Teaching-and-Learning-Approaches.pdf, Retrieved September 2017

WWF Green Office, https://wwf.fi/en/green-office/what-is-green-office, Retrieved June 2017

Creating Value through Sustainable Development in Higher Education

Denise Villikka[i], Camilla Wikstrom-Grotell[ii], Gun-Britt Lejonqvist [iii]

Abstract

In the past, governments have been reluctant to take a stand on sustainability issues due to possible political ramifications. More recently, sustainability issues can be seen imbedded into government strategic initiatives; however, as the mindsets of consumers and government policy continue to shift, deepening divisions on how to address issues like Climate Change while maintaining economic growth continue to hamper progress. Focusing on the social side of marketing and sustainability provides a tool that stakeholders can use to target individual behaviors thus promoting wellbeing while developing a culture. In order to accomplish this, a sustainable marketing approach requires a break away from the dominant positivist managerialist epistemology in consideration of ideas and influences from other areas such as political science, psychology, sociology, anthropology and ecology. Therefore, a plan that is multifaceted and research driven with clear and measurable objectives derived from its core and communicated to stakeholders through critical marketing, would support the efforts of educational institutions in their goal toward building a culture of sustainability through social inclusion and participation. This article examines certain aspects of the sustainability initiatives offered by one higher education institution located in Helsinki, Finland, followed by recommendations.

Sammandrag

Förr såg man i regeringssammanhang en motvilja i att ta ställning till hållbarhetsfrågor beroende på möjliga politiska konsekvenser. På senare tid har hållbarhetsfrågor inkluderats i regeringars strategiska initiativ. I takt med att konsumenternas åsikter och regeringars policy förändras kan man se allt större skillnader i hur man ser på frågor som klimatförändringar och de utmaningar som krav på ekonomisk tillväxt innebär för en gynnsam utveckling. Att fokusera på den sociala delen av marknadsföring och hållbarhet ger verktyg som intressenterna kan använda för att kartlägga och möta individuella beteenden och därmed främja välbefinnande i utveckling av kulturen. För att nå dit, kräver en hållbar marknadsföring ett avsteg från den dominanta positivistiska ledarskapsepistemologin och idéer och inflytande från andra områden som statsvetenskap, psykologi, sociologi, antropologi och ekologi. En mångfacetterad och forskningsdriven plan med klara och mätbara mål med utgångspunkt i verksamhetens kärna, kommunicerad till intressenterna genom kritisk marknadsföring skulle stöda utbildningsinstitutionerna i deras mål att bygga en hållbarhetskultur genom social inklusion och delaktighet. Denna artikel lyfter fram vissa aspekt av de hållbarhetsinitiativ som tagits av en högre utbildningsinstitution i Helsingfors, Finland. Artikeln avslutas med rekommendationer.

Keywords: Wellbeing, Sustainability, Higher Education, Campus Culture, Social Marketing

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1   BACKGROUND

1.1   Marketing: A Bridge toward Sustainability

According to the OECD (2002), sustainability is defined as "the consumption of goods and services that meet the basic needs and quality of life without jeopardizing the needs of future generations". Another way of looking at sustainability is by considering the *what,* in the question, *what can we do to save our planet and future generations*? Where sustainability is the *what*, marketing is the *how*. Marketing has a central role in tackling such challenges as climate change, production and consumption, energy and resources because, at the core, is the power to influence human behavior (Gordon et al.*,* 2011). Indeed, harnessed responsibly, this power can encourage a population to change consumption practices that are influenced through social norms and lifestyle choices. Some examples include: saving energy; eating healthily; reuse; buying Fair trade; and recycling. The results of supporting such changes on a societal level then foster economic development and raise the living standards of the vulnerable members in society. Within an organization, well-being is nurtured through lifestyle changes, such as, stress management, eating healthy and regular exercise (Gordon et al.*,* 2011; Fisk, 2001).

Until recently, governments have been reluctant to engage with individuals on sustainability issues, preferring to focus their efforts higher-up in the supply chain. When governments or companies choose this approach, the term *up-stream* is used. According to Gordon (2011), up-stream social marketing seeks to encourage policymakers, communities, regulators, managers and law makers to adopt new policies, or organizations to make improvements to their services and practice, rather than focusing on individual behavior change (Gordon et al., 2011). Emissions targets for the motor industry, is one example as it is viewed as being *less risky* in electoral terms (Gordon et al., 2011). Now however, sustainability issues are imbedded in government strategic initiatives, as seen for example by the 26 key priorities published by the Government of Finland on February 2016. One of the 26 key priorities is that cooperation between business life and higher education institutions will be strengthened in order to facilitate bringing innovations to the market. An avenue toward this end is through sustainable marketing, as it not only deals with delivering value to stakeholders but also involves the formation and strengthening of relationships in the business world and in society (Martin & Schouten, 2014). The two main challenges in adopting sustainability practices is the belief by decision makers that anchoring sustainability at the core of operations costs more or organizations do not have the expertise needed to create nor maintain a living sustainability strategy. In order to reach reconceptualization, two main imperatives could be examined. The first has to do with designing and supporting a culture and related processes in ways that assure all processes are environmentally and socially benign within an organization, and are adopted through a culture of sustainable consumption as a deeper concept. Together, these form a network of values where social justice and respect for the environment are the norm (Martin & Schouten, 2014).

1.2 Fostering Engagement through Social Marketing

A Focusing on the social side of marketing and sustainability provides a tool that stakeholders can use to target individual behaviors, thus promoting sustainability and developing a culture. Further, delivery agents such as the third sector could also be crucial toward this end (Gordon et al., 2011; Sancha et al., 2016). Employees who feel that they have an impact on social and environmental issues while at work are twice as satisfied with their job, than those who do not (Sancha et al., 2016). Therefore, through social inclusion and active participation, stakeholders have the ability to nurture wellbeing at the workplace. Additionally, through assessment and open communication, the performance of employees can improve.

In addition to the ability to effect individual behavior change delivered by targeted interventions, social marketing can also be used in the upstream environment. Upstream social marketing can involve media advocacy, influencing policy change, regulation and law making and building an evidence base. The latter activity involves research, which is used to investigate the impact commercial marketing has on society, and is termed '*critical social marketing*' (Hastings, 2009). Not only does this concept has roots in Lazer and Kelley's 1973 definition of Social Marketing, it is used today as seen in this statement by Gordon (2011) "Social marketing is concerned with the application of marketing knowledge, concepts, and techniques to enhance social as well as economic ends" (Gordon et al., 2011). Therefore, by adopting social marketing techniques, organizations can communicate their plan for sustainability and stimulate participation through behavior change and new policies.

1.3 Sustainability within Finnish Higher Education

In 2011, the Finnish government enacted a major reform that changed the structure of higher education. Universities decreased from 20 to16, and universities of applied sciences decreased from 30 to 26. Additionally, higher education institutions were given clear objectives as to how they should operate based on the needs of their region. The new funding model shifted towards a performance-based compensation, meaning where earlier universities were compensated as students began their studies, compensation is now given as the student moves through their studies, upon completion and according to student feedback. The hope is that these changes will facilitate regional stability (Ministry of Education and Culture, 2012; Ministry of Social Affairs and Health, 2011:6). The change in how higher education institutions receive money has stimulated the adoption of performance based funding models that look at productivity when planning for the future (Bergmann, 2009).

The leading agency for the development of sustainability in Finland is The Baltic University Programme (BUP). There is a network of approximately 225 universities and other higher education institutions throughout the Baltic Sea region. The network includes: Belarus, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden and more marginally Czech Republic, Norway, Slovakia, and Ukraine. This programme was established in the early 1990's and continues to focus on issues centered on

sustainable development, environmental protection and democracy in the Baltic Sea region. Their aim is to support universities in nurturing sustainable development through the provision of courses that support interdisciplinary research/cooperation and by participation in transdisciplinary projects in cooperation with municipalities and government agencies. Each year just under 10,000 students participate in courses offered through this agency and affiliated partners. Arcada University of Applied Sciences is a member of this agency and as such, their faculty has access to courses and resources to support teaching and learning (BUP, 2017).

2 CASE ORGANIZATION: ARCADA UAS

Arcada University of Applied Sciences received their operating license by the Government of Finland in 1996. The latest degree statutes entered into force on April 1, 2017 and are based on the Finnish Polytechnics Act 932/2014 and the Polytechnics Decree 1129/2014. It is considered to be a relatively small campus with approximately 193 faculty serving 2,443 students. The university has four departments, as seen in the table below. The departments are Business Management and Analytics, Energy and Materials Technology, Health and Welfare, and, Culture and Communication (Arcada, 2017). The vision of Arcada is, "Innovative thinking for the sustainable development of society". With the mission and values being, "Arcada is a Swedish University of Applied Sciences that promotes a bilingual Finland, offers demand-oriented professional education and conducts applied research" (Arcada, 2017).

The vision of Arcada is, "Innovative thinking for the sustainable development of society" with the mission being, "Arcada is a Swedish University of Applied Sciences that promotes a bilingual Finland and offers demand oriented professional education and conducts applied research" (Arcada, 2017). Below are the value statements that guide everyday activities at Arcada.

Table 2. Arcada's value statements

Student-centered learning	"Arcada emphasizes closeness between students and personnel. Thus, education and research activities are viewed holistically as they foster a community of learning and development regionally, internationally on government and local levels.
Community involvement for sustainable development	"Arcada conducts reputable research on a regional and international level within select fields and the results are available through Open Access initiatives. Additionally, competence development is considered to be a key issue as educators train future workers."

Willingness to change and an enterprising spirit	"Arcada functions as an important meeting place for new ideas in creative co-operation with experts from different fields and environments. The research and development work is relevant for the development of society as it crosses boarders using multidisciplinary approaches."
Transparency and responsibility	"Well-planned, web-supported education promotes both transparency and accessibility. In a changing world, Arcada offers a stable study and working climate where good leadership supports co-workers' professionalism and the sense of community at the UAS."

(Source: Arcada 2017)

The value statements depicted above in table 2 seem to support the vision and mission of this educational institution.

2.1 Sustainability initiatives at Arcada

One of the advantages of creating a strategic plan for sustainability is that it helps to capture the mission, vision and values of an organization and communicate them to different stakeholders (GBI, 2017). According to Gordon (2011), linking an organization's strategic plan for sustainability with the critical marketing paradigm, which naturally entails analyses of marketing theory, principles and techniques using a critical theory based approach, will allow institutions to challenge dominant thinking in such a way that sustainability becomes a key goal located in the center of operations instead of on the fringes (GBI, 2017). Below is Arcada's strategy for sustainability, which was originally published in the Swedish language but was translated to English for the purposes of this article:

> Arcada promotes sustainable development in all its activities, in accordance with Finland's Social Association for Sustainable Development. For Arcada, sustainable development in addition to ecological sustainability includes economic, cultural and social sustainability. Sustainable development has been integrated in both education and research activities and in regional cooperation (Arcada 2017).

Working towards sustainable development has been a strategic choice for Arcada since the early 2000s, and has been an important part of the university's social responsibility and a central part of quality and development work. Arcada, as an educational institution, drives the work for sustainable development forward in society and critically reviews how sustainable development is realized. Sustainable development has been included as a central aspect in all curricula. We strive for Arcada's students and employees to develop the ability and willingness to work for sustainable development locally and globally. In accordance with UNESCO's Education for Sustainable Development, Arcada assumes that teachers use and develop innovative methods that encourage students to include a multidisciplinary, holistic and critical approach in their studies.

Arcada has entered into digitization of operations to streamline operations while reducing environmental impact through smart IT and communications solutions, as well as electronic document management. Opportunities for distance work are given to both students and employees. Arcada has increasingly been involved in the use of electronic publications, books and databases. Sustainable development is realized in Arcada through a systematic and conscious work with the goal of sustainable development being an integral part of the university's education and research activities, in our relationship with the outside world and the local community and in everyday life - practical and concrete.

With a growing campus, Arcada has become increasingly important to think sustainable and long-term. Arcada has purposefully worked toward this aim. As part of Arcada's Sustainable Development work, Arcada was granted WWF Finland Green Office certification on 1 June 2011. With approved certification, Arcada is working towards increased eco-efficiency with annual follow-up. Arcada aims to reduce electricity, heat and paper consumption, and reduce water consumption. Green Office is a concrete environmental program aimed at reducing carbon dioxide emissions and reducing our corporate / office ecological footprint with improved eco-efficiency as a target. Green Office Certified Organizations and their employees are committed to continually do their best to improve the environment, reduce the ecological footprint, and prevent unsustainable consumer behavior (Arcada Sustainability plan, 2017).

3   DISCUSSION

Though sustainability has been the focus of much attention in recent years as the mindsets of consumers and government policy continue to shift, deep divisions remain on how to address issues like climate change while maintaining economic growth (Gordon et al., 2011). Thus, the term 'sustainability' is scattered across strategic plans as it is used it to describe any number of things regarding an organizations operations. The question remains, to what extent do the words in strategic plans translate into actions? To combat this, strategic plans should not only be communicated with different stakeholders but they should facilitate collaboration through nurturing a culture that facilitates initiatives on every level of an organizations operation.

As a result of this focused investigation the following recommendations are offered to assist this educational institution in the development of their sustainability initiative. Through this focused investigation, it is clear that Arcada could benefit from clear strategic imperatives through the creation of a strategic plan that would firstly define sustainability initiatives clearly and then communicate them with greater transparency to stakeholders. Without a plan with indicators for measuring progress, it does not seem reasonable that sustainability at this, or indeed any, higher education institution would progress in a systematic way but rather happen haphazardly. Additionally, due to the ambiguity in communicating sustainability initiatives, it could be interpreted by others that Arcada views sustainability as an added feature that is located on the fringes of operations, instead of a core aspect as intended. Through a functioning plan for sustainability that is transparent and accessible, in not only the Swedish language but also in English, Arcada could showcase their initiatives in such a way as to communicate their genuine commitment towards sustainable development to stakeholders.

Creating a strategic plan for sustainability and communicating it to stakeholders in such a way as to influence society and an organization in a positive way takes expert help and support. Otherwise, unanticipated negative results may occur (Gordon et al., 2011). At present, the sustainability initiatives of Arcada seem to focus on *upstream* initiatives that aim at altering structural conditions at the organizational level through reducing energy inefficiencies. Some examples are the recent addition of sun panels and led lighting, as well as moving toward Green Office principles. According to Gordon et al. 2014, locating practices within a social as well as an environmental context has a better chance of achieving long-term positive outcomes. Therefore, by adding downstream initiatives at Arcada, a more holistic approach could not only nurture a sustainable culture but could foster wellbeing on campus. However, it can be expected that not everyone will embrace the attempts of leadership to change the *status quo*. Gordon et al. (2011) continues to explain that different segments within an organization may interpret the initiatives as a type of social engineering as leaders attempt to bring their agenda to life. Thus, social marketing is used to outline strategic plans in such a way as to stimulation participation long-term through the creation of a culture. This is made possible because social marketing is linked with behavior change. From a grassroots perspective, social marketing can be thought of as the megaphone that is used to carry the organizations strategic initiatives to those who are involved in day-to-day implementation of the plan. Strategic plans that use a social marketing concept, have the added advantage of communicating their initiatives in such a way that impacts behavior through the changing of values within the organization. In essence, social marketing can be thought of as a tool that allows others to buy in to an organizations sustainability initiatives. Because values and beliefs are located at the core of an individual's identity and guide their human action/interaction changes may take time. However, though progress may seem slow, lasting change is possible as new ways of thinking and working together are shared and practiced creating a working culture that is sustainable. Taking all of these factors together, it is recommended that Arcada use a two-pronged approach using upstream and downstream initiatives together with social marketing as a catalyst to communicate and maintain participation in their future sustainability initiatives.

Creating a culture on campus that supports sustainability should also outline plans on how to monitor and evaluate progress. Some organizations use audits or yearly evaluations to monitor indicators; however, according to Sancha et al. (2016), audits can offer a critique like that of a snapshot. They neither show a holistic picture nor communicate the deeper connections of participants. Another limitation of traditional audits is that they have not been found to improve performance but not communication and collaboration, which are key as they nurture relationships. Therefore, by switching to a model that focuses less on encouraging unnecessary consumption and more towards encouraging collaboration and wellbeing, Arcada could begin to nurture a culture that is inclusive and holistic in nature and thus begin to highlight their desire to thrive alongside society and the environment as they find new and innovative ways of doing business (Gordon et al., 2011).

4 CONCLUSIONS

There seems to be two main types of sustainability initiatives. One focuses on building a culture stemming from the core of operations with clear plans communicated to stakeholders in order to support their participation, or there are sustainability initiatives on paper that have little impact on daily operations as they haphazardly ripple through the organization. Therefore, in order for sustainability to become a reality, it must be present at every level of an organization (Martin & Schouten, 2014). The approach toward building sustainability can be supported through social marketing as it is not only well placed to change people's immediate behaviors, but has potential as a tool for changing values that are consistent with prevailing institutions and then recreating this in daily behavior. Therefore, a plan that is multifaceted and research driven with clear and measurable objectives derived from its core and communicated to stakeholders through critical marketing, would support the efforts of this educational institution in its goal toward building a culture of sustainability on campus.

Anderson (2010) writes, "We are changing people's hearts, changing the culture of companies, changing the culture of industries and maybe over time we can change the culture of a culture". Therefore, the words of Glenn Thomas, "*get up, there is lot's to do,"* seem logical as even the best plans are brought to life by people. Indeed, through passionate participation and through the adoption of a science-based economic system that is sustainable, life on our planet can change for future generations (Martin & Schouten, 2014).

REFERENCES

Arcada University of Applied Sciences, 2017. URL: https://www.arcada.fi/en/about-arcada

Arcada University of Applied Sciences, 2017. Sustainability Plan. URL: https://www.arcada.fi/sv/om-arcada/hallbar-utveckling

Bergmann A., 2009. Public Sector Financial Management. Financial Times. Prentice Hall. England: Pearson Education Limited.

Baltic University Program, 2017. URL: http://www.balticuniv.uu.se/index.php/about-us

Fisk, G., (2001) 'Reflections of George Fisk: Honorary Chair of the 2001 Micromarketing Conference', Journal of Macromarketing 21(2): 121–2.

Global Strategic Alliances, 2017. URL: https://www.globalreporting.org/Information/about-gri/Pages/default.aspx

Gordon R., Carrigan M., & Hastings G., 2011. A Framework for Sustainable Marketing. Marketing Theory 11(2) 143-163.

Martin D., & Schouten J., 2014. The Answer is Sustainable Marketing, When the Question is: What can we do? UK: Sage.

Ministry of Education and Culture. Finnish Polytechnics Act 932/2014. URL: https://karvi.fi/app/uploads/2016/05/5-Polytechnics-Act.pdf

Ministry of Education and Culture. Polytechnics Decree 1129/2014 URL: http://www.oph.fi/download/174370_International_joint_degrees_2016.pdf

Ministry of Education and Culture: Education and Research Development Plan, 2012. Helsinki. URL: http://www.oph.fi/download/148961_The_Education_and_Research_Development_Plan.pdf

Ministry of Social Affairs and Health, 2011. Socially Sustainable Finland 2020: Strategy for Social and Health Policy. Helsinki. URL: https://julkaisut.valtioneuvosto.fi/handle/10024/74057

OECD, 2002. Towards Sustainable Household Consumption? Trends and Policies in OECD Countries. Paris: OECD

Porter M., 2013. Why Business Can Be Good at Solving Social Problems. TED Channel: URL: https://www.youtube.com/watch?v=0iIh5YYDR2o

Sancha C., Gimenez C., & Sierra V., 2016. Achieving a socially responsible supply chain through assessment and collaboration. Journal of Cleaner Production 112, pp. 1934-1947. URL: http://www.sciencedirect.com/science/article/pii/S0959652615005302

Sterling Insights, Inc., 2010. URL: http://www.sterlinginsights.com/resources/sustainability/tomorrows-child-poem

Open Science and Data: Reproducibility, Power Shifts, and Possible New Threats

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Abstract

Open science is surely one of the currently most discussed topics in scientific publishing. The importance of the discussion has been realised, but there is still controversy around the degree of openness and if the promised results are to be that prominent or more marginal. This article aims at an overview of this debate and consequences of increased openness including a more in-depth look at specific talking points such as a power shift in publishing dynamics, as well as a mention of some less discussed negative possible consequences of open access to science. Further, clear connections between open science and sustainable development are discussed.

Sammandrag

Öppen tillgänglighet till vetenskapliga resultat är ett av de mer diskuterade ämnena idag. Diskussionen ses som väsentlig och aktuell men det råder fortfarande skilda uppfattningar kring öppenhetens omfattning, och huruvida den utlovade effekten kommer att uppnås. Den här artikeln presenterar en översikt av denna debatt och konsekvenser av ökad öppenhet, samt en mer igående insyn i specifika tema såsom eventuella skiften i maktstrukturer i publikationsdynamiken. Vidare lyfts eventuella negativa aspekter av denna öppenhet fram. Tydliga kopplingar mellan öppen tillgänglighet och hållbar utveckling kan även skönjas och några av dessa diskuteras i artikeln.

Keywords: Open Access, Open Data, Open Science, Peer-review, Reproducibility, IT Security

1   WHY OPEN SCIENCE?

Open science and open access have become interesting topics and implicit assumptions for many researchers. Scientific results should be available to anyone and the results reproducible as well as build on previously documented research findings. Even if technological limitations were stronger before, with physical documents, financial limitations have been constraining research more recently. That is why the openness in science has been discussed and (rightfully) emphasized greatly in the last years.

This openness is needed in many ways and forms. The first step in the open science process has usually focused on the publications. In order to be able to reproduce any results on a wide scale, the methods, research focus and the results need to be available for a large audience. Finding outlets to meet this demand on open access is not difficult. The more serious question is how they contribute to scientific excellence. As in any movement, there are people who 'ride the wave' with more selfish agendas; predator publishing companies that forsake thorough peer-reviewing processes, attracting researchers that are only interested to increase their article count, to pay for their publications with the implicit

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assumption that all articles will be accepted. This need not be a characteristic of open access publications, in fact there are many serious outlets that also accept some form of open access, without extra costs. This is, of course, a quite recent trend, but an increasing number of journals are adopting this practice.

Even if openness concerning publications have progressed quite far, openness when it comes to data, data-structure, open source software (research methods for instance) are not as widespread like open access to publications. This entails that reproduction of results are possible, but not without effort as every scientist needs to set up the experiment, gather the data, implement the methods (etc.) over again. This will be a main focus, we assume, in the following years.

In this paper, we focus on reproducibility of research results in open access outlets, on the dissemination process and its impact as well as some possible concerns (or threats) related to open science and the future sustainability of research. Finally, we make some conclusions on the findings.

2 REPRODUCIBILITY AND DISSEMINATION

2.1 Reproducibility crisis and peer-review

Two key components of scientific activity are constituted by the possibility of cumulative improvement of a discipline, and the reproducibility[i] of previous results in order to corroborate them. The former becomes impossible in case the latter fails. The peer-review process has for a long time been the *de facto* method employed to ensure that results published, for example in scientific journals, conform to a sufficient scientific standard of practice (methods, reporting of results, ethics etc.) so that these results constitute an actual contribution to the field in question and are verifiable (*i.e.* reproducible) by the scientific community. The significance of this process is easily realised, as questionable results obtained as a result of lacking reasoning or methodology within such fields as psychology, physics, medicine, and several social sciences (to name but a few) could not with moral and scientific confidence be applied in practice or policy. And within the arts, humanities, theoretical sciences, etc. the contribution of such results to the scientific body of knowledge and understanding would be harmful.

The on-line open access *arXiv* (arxiv.org, maintained by Cornell University Library) has within some scientific disciplines at least partially replaced the dissemination function of peer-reviewed journals. Instead, within these subjects the role of these journals are towards "quality stamping" results already published and freely available on arXiv. Thus, in some cases, the only reason to publish in a peer-reviewed journal is to acquire such a quality stamp – reaching your target audience is carried out through other channels.

Some important governmental organisations also mention good scientific practice and international peer-review of research results as the primary methods of quality assurance

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[i] "Reproducibility" is here used synonymously with "replicability" and "repeatability" for brevity.

of their research activity, for example it is explicitly stated in the strategy of the Natural Resources Institute of Finland (Luonnonvarakeskus, 2017).

However, Baker (2016) elucidates how a questionnaire answered by 1 576 researchers showed that 90% of respondents see a significant or slight reproducibility crisis (52% and 38% respectively) in their own field. Perhaps surprisingly, less than 31% of the respondents viewed irreproducibility as an indication of a published result being probably wrong, while published results retained a substantial degree of trust.

Thus, the peer-review process is generally seen as providing sufficient reliability of published research, even though it does not, in the light of Baker (*ibid*.), result in a high reproducibility rate of these published results, outlined at the beginning of the section as a key component of scientific activity. This can be contrasted with, for example, systems in mathematical logic: One counter example to an axiom or theorem is enough to bring down the entire system (as in a contradictory system anything is provable) and thus a proposed system must fulfil several strict conditions such as consistency, completeness, and soundness in order to be scientifically employable.

This, at face value somewhat overly pragmatic, approach towards (ir-) reproducibility is perhaps not entirely lacking a good argument in its favour. As pointed out by Leek and Peng (2015), just because a result is reproducible does not mean that it is correct – variables might have been omitted in the study, data might be missing, or the experiment might have been poorly designed in the first place. They point out that the task of identifying these flaws now rests on the reviewers, which results in a heavy work load (sometimes excessively so) to such an extent that the quality of the process suffers. They propose a method of preventing these problematic analyses being carried out at all, based on a combination of education (e.g. MOOCs), higher number of trained analysts in the scientific community, and the identification of relevant tools and software.

It is important to realize, trivially, that just because reproducibility does not guarantee that published results are correct, a result that is seemingly *irreproducible* surely does not inspire much confidence, thus there is a clear case in favour of increasing reproducibility.

Hence, open access (OA) to research and data would constitute a strong complimentary corroborative platform to peer-reviewing as the latter alone is not necessarily robust enough for the scientific discipline's development (as discussed above) nor are peer-reviewed journals alone sufficient for the dissemination and impact of science in society (discussed below).

2.2   Dissemination and societal significance of research

When the new European Code of Conduct for Research Integrity (ALLEA, 2017) was published, the European Union's Commissioner for Research, Science, and Innovation Carlos Moedas stated (European Commission, 2017):

> The public needs full trust in science, and this can only be achieved if the highest level of research ethics and integrity are guaranteed. This goes hand in hand with our Open Science agenda to ensure open access to scientific publications and data.

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This is but one example of how open science today is linked to the current prevalent discussion on reliability of research (and, by extension, to 'fake news' i.e. in this case that results from scientific research being disregarded in favour of whatever is more convenient for either personal beliefs or for promoting a political agenda.) A recent example was discussed in the Finnish newspaper *Helsingin Sanomat* (Junkkari & Teittinen, 2017): Allegedly, researchers had presented, to the Finnish government, findings indicating the positive effects of investing in early childhood education. These results were dismissed by a minister stating that the "findings cannot hold." [i]

Similar dismissal or disregard of scientific research could, in the long run, have a discrediting effect on research within societal and political discourse, and the statement from Moedas above (i.e. that "the public needs full trust in science") suggests that already there is a shift towards an even stronger burden of proof on researchers to show that their results are valid and of significance to decision making. The fact that results are published in peer-reviewed scientific journals seems to be carrying diminished weight in this context. Easily available open data would contribute to render such dismissals much less effective, as they could be rebuked by pointing to the accessibility of relevant openly available data sets (communicating that open data is indeed openly available and free. The long-term effect would be to reduce the number of such attempts at discrediting or dismissing research, while also making sure that data made available by scientists holds up to scrutiny.

Open Access publication is intrinsically connected to the dissemination of research. The open accessibility of research is relevant for not only the spread and influence of scientific knowledge outside of academia, but also within it as institutions, especially smaller ones, need to prioritize between journal subscriptions due to diminished funding, resulting in some publications becoming less accessible to their staff.

In 2016, the association Open Knowledge Finland[ii] began collecting data on fees paid to publishers for publication, subscriptions etc. by universities. As figure 1 shows, not only are the costs themselves significant, but they have increased steadily since 2010. Costs paid by institutions per publisher are available on the government funded Open Science and Research – Avoin Tiede project's website.[iii]

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[i] In a famous case in December 2015, the Finnish Prime Minister Juha Sipilä stated in a television interview on the governments planned reforms, how "all sorts of docents state how this and that is not allowed." ("Löytyy kaiken maa-ilman dosenttia, jotka kertovat, että tätä ja tätä ei saa tehdä.") See for example (Tamminen, 2015).
[ii] https://fi.okfn.org/
[iii] http://openscience.fi/publishercosts. More information on the costs can be found here: http://openscience.fi/-/trans-parency-and-openness-to-scientific-publishing-the-finnish-research-organisations-pay-millions-of-euros-annually-to-the-large-publishers

Figure 1. Academic publisher costs paid by Finnish research organizations (Ministry of Education and Culture of Finland and its Open Science and Research Initiative 2014-2017)

3   A POWER SHIFT IN SCIENCE DUE TO OPEN ACCESS?

In light of the above trend, we have thus seen the following. The peer-review process currently enjoys an established position as a "quality stamp" for research even if it, on a general level, does not result in a high level of reproducibility of research, previously identified as a key component of scientific activity. This position is not questioned even when attention is drawn to this very clear lack of reproducibility (within certain disciplines to a high degree, see Baker, 2016).

Scientific publishing has been good a business niche (with the "bonus" that peer-review in a majority of cases is carried out free of charge) as the "publish-or-perish" mindset remains prevalent and the volume of yearly scientific publications keep rising (van Noorden, 2014) despite increased publisher costs and slow economic growth. In this sense, publishers have not outpriced themselves so far, but the limit seems to have been nearly reached.

A significant shift towards open access publishing would severely disrupt this market, and journals that would resist adoption of open access principles would soon become less attractive – first for researchers and then, consequently, for subscribing institutions. A collective move by the scientific community towards publishing in, and offering peer-review services for, open access journals exclusively would in this respect force journals that want to remain relevant to adopt open access principles.[i] Open access publishing would still incurs costs for the publishers (layout, administration, proof reading etc.) but these could be shared across institutions, amounting to much lower amounts than current subscription costs.

A forceful attempt at addressing these concerns regarding the publishers' business model was made in 2015 by the Max Planck institute, in a white paper where they proposed a

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[i] One example of this movement being underway already some years ago is the Cost of Knowledge initiative - see www.thecostofknowledge.com

large-scale shift for journals towards a completely open access model. (Schimmer, Geschuhn, and Vogler, 2015)

Changes are already taking place, as researchers, universities, and their libraries' consortium in Finland are currently engaged in heated negotiations over subscription costs with major scientific publishers – several researchers have signed a petition in which they agree not to review, or publish in, journals published by some major publishers unless a reasonable agreement is reached (Laine et. al. 2016). Similarly, tough negotiations have been taking place in Germany (Vogel, 2016).

A substantial number of international scientific publications are today made available through the *sci-hub* website in the so-called deep web, a part of the internet not indexed by search engines (so you have to know the exact address of the site you want to visit) and accessible only by particular browser software. From the point of view of science taken in the broad perspective as an activity aiming to improve and understand humanity and "make the world a better place", it is perhaps a bit disappointing to see these challenges taking place and researchers driven into the "internet underground" in order to counteract rising subscription fees (Himmelstein et. al. 2017). Obviously, researchers cannot make do without reading each other's publications and the threshold for acceptable publication/subscription fees seems to have been reached while, equally obviously, no feasible alternative market with similar business opportunities seems to exist for scientific publishers – hence these disagreements.

Publishing in journals with as high impact factors (or in other ways considered as premier publications in their field) as possible remains a key target for researchers and research groups. Why then, a research group might ask, should they publish a work that could be accepted in a high impact journal in a "second-best" publication just because the former lacks open access options and the latter does not? There are several ways to address this issue. First, as we pointed out previously, the impact factors and similar rankings for OA journals will rise as more researchers switch to publishing in these journals (although this shift will not take place in the short run). Second, major research funders (the European Commission for their Horizon 2020 program, or, in Finland, The Finnish Academy) now require OA publishing by projects they are funding, and other funders may well follow suit, thus pushing journals that want to remain relevant towards open access practices. Third, the peer-review process does today not necessarily guarantee high quality research, even in high impact journals, as "spoof" papers (e.g. the Sokal hoax, SCIgen-software generated papers accepted to conferences and for publications, and the "Boyle & Lindsay" paper[i].)

In a transition phase towards open access, there is a small possibility of a prisoner's dilemma-type scenario, i.e., that when some scientists refrain from publishing in non-open high-impact journals, it creates an incentive for other scientists to opportunistically do just that, as the publishing threshold could be expected to diminish and present a possibility for quick and easy gains. However, the current discussions concerning major publishers' subscription fees has shown a remarkable resilience and group spirit in the scientific community, as seen in researchers committing to refuse to referee articles for, or edit, these targeted publishers' journals.

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[i] See e.g. http://www.skeptic.com/reading_room/conceptual-penis-social-contruct-sokal-style-hoax-on-gender-studies/

Openly available data can be investigated by the scientific community and compared against conclusions publications have drawn from the data – this offers, especially in the long run, the possibility for a more efficient corroboration and quality assurance.

4 CONNECTIONS BETWEEN OPEN SCIENCE AND SUSTAINABLE DEVELOPMENT

In the previous sections, we have given some examples of how OA contributes to sustainable development from an economical point of view (for universities and research institutions) and from a social point of view (wider availability, applicability of research results and data, accelerating and amplifying their impact). Due to the latter point, an indirect contribution to ecologically sustainable development can be inferred.

We can also point out quite direct links to sustainable development. Jean-Claude Guédon has stressed[i] that without open access there cannot really be any sustainable development. The reason for this, is that the current academic accreditation model of publishing in highly rated peer-reviewed journals and raising one's impact factor and number of citations, effectively prevents sustainable development from being as effective as it should (and could) be: This accreditation model creates incentives to publish within such areas that are covered by high impact journals. This type of science he calls *global* – it is practiced by such scientists that are willing to "fit in". The publishers thus, in a way set the agenda for research programmes. He juxtaposes this with what he calls *universal* science, which means the autonomy to define research programmes, which would create a more diverse and rich base for scientific pursuits. As an example of how this leads to results not in line with sustainable development, Guédon posed the question: "Why is it that our current scientific system was faster at creating Viagra than a vaccine for Ebola? Is that the way science should proceed?" (Smith, 2015). One of the points he tries to make is that a great body of science, due to the current accreditation models, concerns itself with even severe threats such as the Ebola virus only when it becomes a threat to rich countries – prior to that they are not high-impact topics.

As Guédon notes (ibid.), the survival of our species may depend on the knowledge we produce (and, we may add, are able to implement) in the next few decades, so this question concerning who is setting the research agenda and why is far from trivial. Issues such as ecological and agricultural problems might not become a topic of interest for scientists until in a very severe state.

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[i] For an accessible example, see his webinar organised by *COAR* and its partners at https://www.coar-repositories.org/news-media/summary-of-the-sustainable-development-goals-e-forum-discussion/

5 POSSIBLE CHALLENGES WITH OPEN SCIENCE AND CONCLUSIONS

In the open science movement, there are strong assumptions concerning the effects openness will have. In general, it seems that more democratized and open science becomes, the better the world will be. It is a problematic assumption. The fundamental challenge is that the world is more complex, and majorities and openness does not always guarantee the best decision-making. Let us step back and look at openness in a broader perspective. Closed regimes, like North-Korea, are surely a threat for the neighboring countries (and perhaps the whole world). With openness and freedom of press, transparency in politics etc., it can be convincingly argued that the leadership would be forced by the people to abandon the dictatorship. However, free movement within the European Union has not been without problems, and unexpected peaks in migration numbers (e.g. in 2015) drove some countries to re-introduce border controls (temporarily, but still) or urge other countries to do so. Another example comes from cybersecurity: assume a scenario where all codes are open source. This situation would undoubtedly lead to a situation where malware production could take new widely unseen proportions, enabling every hacker to send software viruses in every direction. A third example is found in bio-terrorism; even if the smallpox is widely erased from the global map, the structure of the virus is well known, documented in an open form. No significant funds are needed to create the virus, though it should occur in a laboratory environment, opening up the unvaccinated world for potential smallpox terrorist weapons.

Thus, the question one could raise is the almost clichéd issue of *restriction.* It is clear that not all of science can be openly available without *any* restriction, and, indeed, no one is to our knowledge seriously advocating such a state of affairs. Yet, where should the lines be drawn? Who should be allowed to decide where to draw them, and who should be responsible for the actual drawing?

Let us dwell briefly on some famous cases that exemplify this issue of restriction. Consider the plethora of documents, intended to remain available to a chosen audience only, published publicly by the site WikiLeaks, and the files describing US cyber surveillance released in 2013 by Edward Snowden. Both WikiLeaks and Snowden remain constantly in the headlines today: The former in discussions on involvement in leaking emails of the Democratic National Committee and thus possibly influencing the 2016 USA general election; the latter on developments of international cyber security, in particular the cyber surveillance and internet monitoring of citizens carried out by state agencies.

The release of this data in the open by Snowden, WikiLeaks, or 'whistleblowers' has wildly disparate effects, many of which may not immediately be realised. On the one hand, the release could generate a general increase in citizens' knowledge and political awareness as they "raise a curtain" that has shrouded methods and tools employed by the agencies in question in the governance of a nation. *Per se,* this should be intrinsically good in a democracy, as, in theory, the more aware the population is of governance methods, the more legitimizing the voting process becomes. In short, if the people have more information on who they are voting for, then they can more accurately select a candidate whose views they agree with and thus the voting results legitimacy increases.

On the other hand, it may have the opposite effect. The interpretation of the 'leaked' data can be an extremely complex process; the information leaked may not be complete and thus not represent the "big picture" and the background of the issue at hand. In these cases, there may indeed be a shift in disposition among a population towards their leadership and this shift can also have effects in regional or national elections, but whether democracy or legitimacy is the winner is not a question with a straightforward answer. The leaked information may, for example, be used aggressively for a political agenda for opportunistic duping instead of increasing knowledge.

The information on governments' cyber surveillance – does this being available publicly make a nation better or worse off? On the one hand, it may increase awareness but on the other hand, it may decrease security (even international cooperation or trade) as it makes it more difficult for intelligence agencies to operate. Worth noting also is, that increased cyber surveillance and tightening of related legislation might lead to a more insecure society, as e.g. terrorists will become even more meticulous in making sure their communications remain private, thus making them more difficult to track. Existing surveillance methods are not accurate enough, as individuals may be incorrectly flagged (Alvarez, 2010). It could also be generally argued, that cyber security 'backdoors' into systems with data believed by their owners to be 100% encrypted intrinsically constitutes a decrease in internet security and privacy.

It is natural that the targeted stakeholders (government agencies, companies, international institutions, politicians) themselves disapprove of the public release of documents they have marked as classified and will argue against such leaks. Likewise, their competitors or political opponents will in most cases argue in favor of the release. Thus, to again emphasis this research's dilemma, exactly where and how do we restrict access to data? Who draws this line? How can we judge objectively the decision process to be conducted in a manner which is in accordance with the principles it intends to define? Appealing to legislation is too easy an answer and does not solve the issue as both agents at the end of a 'leak' might be in the wrong (or in the right) according to existing laws, and legislation, if anything, is a good tool but a poor master. Leaks might lead to sudden power structure changes where vacuums are quickly filled, but not always in the foreseeable or intended way.

In conclusion, we see that open access to scientific results and data would benefit not only the scientific community but also society as a whole in the form of a more informed community, which, in turn, affects policy and decision-making. The scientific community benefits from open access through it being a corroborative complement to peer-review (a process that is not without faults) as it enables increased reproducibility and scrutiny, and as it increases dissemination and availability of knowledge. Open access has become a heated discussion topic in connection with increased subscription fees by major publishers, where scientists are effecting review and editing boycotts of some publishers in response to the latter's stance during pricing negotiations. On the flipside, openness of results and free access to data and information is not challenge-free, as science and information throughout history has been (and will be in the future) used for malicious intent. A majority decision or complete transparency does not always guarantee good decision-making. 'Leaked' information e.g. by WikiLeaks and whistleblowers such as Edgard Snowden, might be both harmful and beneficial to different parties, are often part of even more complex wholes, and may also have unintended effects and generate possibilities

e.g. for political opportunism, making it difficult to argue that such leaks are always entirely positive. Hence, the familiar obfuscating, but important, question remains: How to decide, and who decides, the *limits* of open access, and in what sense precisely will it at that point be open?

REFERENCES

ALLEA – All European Academies, 2017. *The European Code of Conduct for Research Integrity*. [pdf]. Berlin: All European Academies. Available at: http://www.allea.org/wp-content/uploads/2017/03/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017-1.pdf Accessed 18 May 2017.

Alvarez, L., 2010. Meet Mikey, 8: U.S. Has Him on Watch List. *The New York Times,* [online] 13 January 2010. Available at: http://www.nytimes.com/2010/01/14/nyregion/14watchlist.html?mcubz=3 Accessed 6 September 2017.

Baker, M., 2016. Is There a Reproducibility Crisis? *Nature*, 553, pp.452-454.

European Commission, 2017. *Commission welcomes new European Code of Conduct for Research Integrity.* [Electronic Press Release]. 24 March 2017. Available at: http://ec.europa.eu/research/index.cfm?&na=na-240317-1&pg=newsalert&year=2017 Accessed 18 May 2017.

Himmelstein, D. S., Romero A. R., McLaughlin S. R., Tzovaras B. G. and Greene C. S. 2017. Sci-Hub provides access to nearly all scholarly literature. *PeerJ* [online] Available at: https://peerj.com/preprints/3100/ Accessed 14 August 2017.

Junkkari, M. and Teittinen, P., 2017. Keskustelutilaisuus päättyi riitaan: Taloustieteen huippuprofessori kyllästyi Suomeen, irtisanoutui ja palaa takaisin Ruotsiin – "Tutkimustiedolla ei ole täällä juuri mitään merkitystä". *Helsingin Sanomat*, [online] (last updated 6:47 AM on 18 May 2017). Available at: http://www.hs.fi/talous/art-2000005215252.html Accessed 18 May 2017.

Laine, H, Happonen, K., Lahti, L., Lehtomäki, J., Parland-von Essen J., Toivonen T. and Tolonen, M., 2016. The Cost of Scientific Publications Must Not Get Out of Hand, *tiedonhinta.fi Statement and Petition,* [online] (last updated 21 December 2016). Available at: http://tiedonhinta.fi/en/english/ Accessed 14 August 2017.

Leek, J. T. and Peng, R. D., 2015. Opinion: Reproducible research can still be wrong: Adopting a prevention approach. *Proceedings of the National Academy of Sciences*, 112(6), pp.1645-1646.

Luonnonvarakeskus, 2017. *Hyvän toimintatavan periaatteet – Code of Conduct.* [pdf] Luonnonvarakeskus. Available at: https://www.luke.fi/wp-content/uploads/2017/02/code_of_conduct_FI_verkkoon.pdf Accessed 9 May 2017.

Ministry of Education and Culture of Finland and its Open Science and Research Initiative 2014-2017, 2016. *Transparency and openness to scientific publishing: the Finnish research organisations pay millions of euros annually to the large publishers*, [online]. Ministry of Education and Culture of Finland and its Open Science and Research Initiative 2014-2017. Available at: http://openscience.fi/-/transparency-and-openness-to-scientific-publishing-the-finnish-research-organisations-pay-millions-of-euros-annually-to-the-large-publishers Accessed 18 May 2017

Van Noorden, R., 2014. Global scientific output doubles every nine years, *Nature Newsblog,* [blog] 7 May. Available at: http://blogs.nature.com/news/2014/05/global-scientific-output-doubles-every-nine-years.html Accessed 26 June 2017.

Schimmer, K., Geschuhn, K. K., and Vogler, A., 2015. Disrupting the subscription journals' business model for the necessary large-scale transformation to open access. *Max Planck Institute White Paper,* [online] Available at: http://pubman.mpdl.mpg.de/pubman/faces/viewItemOverviewPage.jsp?itemId=escidoc:2148961 Accessed 9 October 2017.

Smith, A., 2015. Alternative Open Access Publishing Models: Exploring New Territories in Scholarly Communication. *Report on the workshop held on 12 October 2015 at the European Commission Directorate-General for Communications Networks, Content and Technology,* [online] Available at: http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=14810 Accessed 9 October 2017.

Tamminen, J., 2015. Juha Sipilän sanat järkyttävät – "Yleisen vitsin kohteena". *Uusi Suomi*, [online] 12 December. Available at: https://www.uusisuomi.fi/kotimaa/146839-juha-sipilan-sanat-jarkyttavat-yleisen-vitsin-kohteena Accessed 18 May 2017.

Vogel, G., 2016. Thousands of German researchers set to lose access to Elsevier journals. *Science,* [online] Available at: http://www.sciencemag.org/news/2016/12/thousands-german-researchers-set-lose-access-elsevier-journals Accessed 14 August 2017.

Innovation and Education in the "Open"

Tomas Träskman[i]

Abstract

Thousands of learners (MOOCs), millions of more sustainable "sharers" (Sharing Economy), and crowds of innovative peers (Open Innovation) are more and more, organized on platforms. This working paper investigates the emergence of open innovation in higher education and challenges of managing innovation in the "open." In doing so, the working paper highlights some of the challenges in introducing innovation as a measure of the impact and performance of educational institutions.

Sammandrag

Tusentals studenter (MOOC's), miljontals mer hållbara "delare" (delningsekonomi) och massor av innovativa "peers" (Open Innovation) är alltmer organiserade på plattformar. I denna studie undersöks framväxten av öppen innovation inom högre utbildning och olika utmaningar i hanteringen av innovation i det "öppna". Därigenom synliggör studien några av utmaningarna för att införa innovation som ett mått på utbildningsinstitutionernas effekt och resultat.

Keywords: Open innovation, performance, sustainable development

1   INTRODUCTION: OPENING UP INNOVATION, WHAT IS THE VALUE AND MEASURE OF DOING THINGS TOGETHER

"Do you have the right to take others' ideas just like that?" I am in the middle of an email correspondence with a student that is upset that the idea she and a group of students from two other universities had developed in Omtänk innovation challenge, seemingly was stolen a year later. I explain to her that ideas are often "in the air" at a specific time, and individuals and groups often work on the same idea independently of each other. The one that succeeds is not necessarily the one who "discovers" the idea, but the one who commercializes the idea. She admits that they, even though they won the challenge and had commercial partners who offered support, did not pursue the idea into an innovation. After some reflection, she concludes on a happy note: "I guess we should be proud and happy, since the idea was really good and now someone is actually making it into reality!" I agree.

At the time of writing this, I try to find out if their idea and the work they did, left any other "traces." I find video streams with "pitches", newsletters and press releases from the different educational institutions involved announcing different achievements. It is interesting but hardly surprising that each university highlight their own students' performance: - it is value, it is impact, it is performance. However, what kind of performance are we dealing with here? In addition, who is "performing": the student, the educational institution, Finland, society, humanity?

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Sustainable development is often weaved together with science, cutting edge technology, public good, business and innovation. This is the case whether we are discussing small scale design interventions or geoengineering (Fleming, 2010). Sustainable development "happens" in hybrid contexts and epitomizes the fundamental problem of performance measurement, the idea that interests of measurers vary to a significant extent (Johanson & Vakkuri, 2018). This essay addresses the emergence and operationalization of innovation as a measure of the impact of educational institutions with the following three motivations. First, the current government initiative to boost innovation "Project 5" (Increased cooperation between higher education and industry to commercialize innovations" (valtioneuvosto.fi)) is an interesting phenomenon in its own right, as it points to an intensified productionist logic of academic labor in Finland, and a push for more innovation with "external" partners. The reasons for this intensification are manifold: the current competitive environment is characterized by elements such as advances in communication technology, a wealth of new organizational forms, shortening of product life cycles, more informed and demanding customers. Scholars from a variety of fields have suggested, that firms' sustainable competitiveness depends on two innovation outcomes, on the one hand, efficiency and, on the other hand, novelty/creativity. Efficiency regards, according to Lazzarotti, et al., (2017), things such as "the reduction of the innovation risks, the compression of both the costs for the development of new products/processes and the time to market; novelty regards things such as the introduction of new or significantly improved products/services or processes and the opening up of new markets." Since opening the innovation processes to different types of partners seems to be the right way for improving both sides of the innovation performance (Lazzarotti, et al., 2017), the locus of innovation shifts from firms to open networks. "Project 5", should accordingly be read in this light: industry needs access to open networks, and higher education can be a gate to such networks.

The second motivation is connected to the first. The operationalization of environmental sustainability as a goal (for an institution, society, the world) creates hybrids, where public and private actors aim to contribute to common good. In these policy levels networks different sets of institutional backgrounds, institutional logics, and decision-making rationales meet. This leads to ambiguities of accountability that in its turn might undermine performativity (Johanson & Vakkuri, 2018). A hybrid of public and private is expected to simultaneously respond to customer demand and to policy needs. In sustainable development green, market and industrial worlds combine in for example cleantech (Johanson & Vakkuri, 2018). However, cleantech also implies innovation performance. Therefore, activities should also respect the inspired world of creativity and exploration. However, sustainability is also dependent on culture, since if we do not change our "culture of consumption" the goal of environmental sustainability cannot be reached. Therefore, in environmental sustainability we encounter what Johanson & Vakkuri (2018) call, ambiguities in understanding the cause-effect relationships of complex policy interventions and collaborative governance.

The third motivation has to do with changes in innovation itself. When innovation, such as open innovation, moves from firms and institutions to open networks, it works according to a different logic than what we have been learning from earlier theorization on innovation. Digital platforms have changed the way a great many things, including innova-

tion, are organized. For example, on Apple's App Store hundreds of thousands of applications are developed by external parties and sold via the store. Online media, accommodation, transportation and labor have been the first to experience the consequences of the disruptive phenomenon of platform economy. In its wake, a number of complex societal issues, such as the reclassification of work, the design of new income distribution policies, the creation of new ownership models are being grappled in both popular and academic debate. With massive open online learning (MOOC's), we can also observe new ways of organizing education as platforms foster and organize meaningful interaction in an environment that is often more heterogeneous than what students might encounter in the classroom. MOOCs also support economic sustainability, since they serve to promote access to higher education for underserved students (Veletsianos, et al., 2015).

In education for sustainable development, students are involved in all of the "learning environments", described above. Especially in UAS' students work and innovate together with partners from the industry, in courses and projects (I describe some below), they contribute to sustainability goals, and often this does not happen in a traditional educational setting, but online, on different kinds of platforms. A student might be working with an outside partner, together with thousands of other peers on a platform, mentored by a teacher, in order to solve a problem (like food waste) that she/he encounters in her/his daily life. In such a situation, the student faces a blur of institutions, innovation systems, and society where no clear divisions can be made. Instead, we face even more ambiguity.

2 THEORETICAL CONTEXT: PLATFORM ORGANIZATION, HYBRIDS, AND OPEN INNOVATION

Thousands of learners (MOOCs), millions of more sustainable "sharers" (Sharing Economy), and crowds of innovative peers (Open Innovation) are more and more, organized on platforms. The disruptive phenomenon of sharing economy and platform organization is interesting for this essay, since the "evaluative infrastructures" on these platforms seems to create sense of the blur described above, and the "open" in open networks (Kornberger, 2016). Platforms layer different infrastructures and spaces on top of each other, which interfere or resonate with each other in multiple ways. This in its turn "reveal new socio-economic topographies that are shaped by heterarchical accounting practices (Kornberger, et al., 2017)." In addition to this, a lot that is happening on these platforms is pointing to a more economically and socially sustainable development. Disruptions identified on sharing economy platforms such as CoachSurfing, TaskRabbit, and BlablaCar, include more friendship (Parigi & State, 2014), production and consumption with greater intimacy, social connection, and self-direction (Frenken & Schor, 2017), infrastructures where "control is radically decentralized (Kornberger, et al., 2017)", and new forms of trust (Sundararajan, 2016). Such outputs could contribute to sustainability goals such as UNESCO's ESD goal to (through education) encourage individuals "to be responsible actors who resolve challenges, respect cultural diversity and contribute to creating a more sustainable world. (ESD, 2017)" Interestingly, the disruptions on these platforms also include more, but also weaker, friendship bonds (Parigi & State, 2014), domesticated marketplaces characterized by a "desire to build markets which foster and value artisanal, craft-like production" (Fitzmaurice, et al., 2016), and all this is happening

on platforms, whose "value-add is to provide an interface for interaction and controlling mechanism for transactions between tens of thousands, sometimes even millions of buyers and sellers who might never meet in person (Kornberger, et al., 2017, emphasis mine)." Therefore, we seem to be confronted by a phenomenon where people create social innovations on a global scale, but actually might never meet. Moreover, all this is happening in an environment that draws comparisons to William Morris 19th century organizational fiction in News from Nowhere, where "[t]hou shalt work in order to live happily (Morris, 2000)", and life is a neighborly, decentralized, environmentally aware, arts and crafts-orientated socialism. There is no ridicule intended in the lines above, just sheer fascination. Nevertheless, the phenomenon raises interesting questions, for example how are these masses of creative agents managed and organized?

Examples of the organizing of crowds and innovation are the many open innovation challenges such as Helsinki Challenge[i], OpenIDEO[ii], Nokia Open Innovation Challenge[iii], Uutisraivaaja Media Innovations Challenge[iv], RSA student design awards (RSA)[v], to name a few. Two of these examples are directly organized by (Helsinki Challenge) or aimed at higher education (RSA). All of the examples rely on a grammar of openness and collaboration to coordinate tasks and integrate outputs. In Nokia Open Innovation Challenge, "innovators" are invited to share their ideas, while Nokia grants them access to "co-innovation and joint business opportunities (NOIC, 2017). In the organizations' own words: "[w]e create the technology that connects the world and are looking to co-innovate with the ecosystem to invent disruptive technologies. (NOIC, 2017)." With this, Nokia wants to "enable a smart, safe and sustainable world." In the same vein, RSA invites students from all over the world to "tackle pressing social, environmental and economic issues through design thinking (RSA, 2017)." These examples could be understood as networks that innovate with the help of technology: i.e. innovation in networks. Kornberger, et al. mention with reference to Powell, et al., some examples. You can have learning networks such as those found in the bio-tech industry where a network is defined as set of inter-organizational relationships, as well as modular production networks arranged around common design rules (Sanchez & Mahoney, 2006; D'Adderio & Pollock, 2014 in Kornberger, et al., 2017). Hautamäki, et al. (2017) also point to these kind of networks between higher education, business partners and government as a solution for economic challenges that Finland is facing. The government "Project 5", also seems to favor this kind of conceptualization of innovation. But in OpenIDEO, the Nokia Challenge, and RSA we seem to encounter something of a hybrid between network innovation and an even more open innovation, since the organization is both hierarchical and heterarchical, both "internal" and "open". This makes things more complicated, since you encounter different relationships, and incentives for participation. In for example RSA, you find that the challenge works with both students, and "sponsors", such as Philips, Airbnb, and AEG. In order to illustrate potential tensions I turn to an incident when one year our UAS collaborated with RSA, and the challenge above materialized when students did not want to do certain briefs because "why would we give our ideas and work to a multinational investment bank?" This is according to Surowiecki (2005), one of the challenges

[i] http://challenge.helsinki.fi/
[ii] https://openideo.com/
[iii] https://www.nokia.com/en_int/about-us/news-events/open-innovation-challenge
[iv] http://www.uutisraivaaja.fi/
[v] https://www.thersa.org/action-and-research/rsa-projects/design/student-design-awards

in crowd sourcing: people want to participate and contribute, but they do not want to feel or be exploited.

3   DISTRIBUTED INNOVATION IN HIGHER EDUCATION

In this essay, I focus more on the kind of innovation that the examples mentioned above illustrate. I use the concept of "distributed innovation" in order to address this innovation. The conceptualization is Martin Kornbergers (2016), who observes that innovation such as co-innovation and open source have become increasingly popular as they harness "the wisdom of the crowds" (Surowiecki, 2005). In general, we can identify that value is more and more generated through the co-operation and interaction of people in decentralized value creation processes (Hautamäki, et al., 2017). However, these observations trigger further questions. First, what is this "value" that is generated through co-operation and interaction? Second, how is the value generated from distributed innovation and the work "done" on platforms measured, managed and valued? For example, OpenIDEO states that it is "a global community working together to design solutions for the world's biggest challenges" (OpenIDEO, 2017). However, how is this global community and its work together managed and what kind of performance are we to expect from this work? More-over, how does this community evaluate the results of distributed innovation and assess its qualities?

I propose a dialogue with accounting studies in order to better understand the innovation performance (creativity/efficiency) of distributed innovation. One of the reasons for do-ing so is that in higher education the novelty/creative part of innovation gets relatively much attention overshadowing questions of how efficiency and quality could be evalu-ated and controlled. This claim is grounded in an opportunistic perspective from experi-ences in my own UAS, as well discussions, meetings, and conferences with colleagues from higher education. In fast-paced innovation camps, or Hackathons (32-48 h), for ex-ample Accenture Public Service Hackathon (in collaboration with Aalto University)[i] and Junction[ii] , creativity in problem solving is at the forefront of all activities. Longer inno-vation projects like, Metropolia UAS' (Minno)[iii] and Laurea UAS' (LaureaSpinno), in-clude everything from tutoring, mentoring, study points, internships and partnerships with industry. However, in terms of impact and performance, it is striking how modest the above mentioned examples are. Boasting "1000 innovation projects" Minno presents only one realized innovation MoveZo-Game, while LaureaSpinno[iv] presents three startups (Digitalonmies, Cuckoo Workout[v], and Kantava).

The result of innovation done in higher education, is often a pitch, organized as an event which ends in a celebration. Helsinki Challenge, Omtänk, and for example Perustulohack are good illustrations of these kind of events. In terms of impact, it is not uncommon to encounter different, "live proto-types", often in the form of pop-up initiatives, living labs and events that register as "impact", on a multitude of measures (Pogaþara, & Žižek, 2016). Therefore, we register a lot of creativity and many contributions, but in terms of

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[i] https://into.aalto.fi/pages/viewpage.action?pageId=19639255
[ii] https://hackjunction.com/
[iii] http://www.metropolia.fi/tutkimus-kehittaminen-ja-innovaatiot/innovaatioprojektit/toteutuneita-projekteja/
[iv] http://spinno.fi/
[v] https://www.cuckooworkout.com/

the control of quality and efficiency, relatively little can be observed. Or… if something is observed it is short lived, like in the case of pop-ups.

Do not get me wrong, all the examples of innovation projects mentioned above produce huge amounts of enriching and inspiring results in terms of learning team-work, communication, idea generation, and research. The work done in them, support, Burcharth, et al., (2017 forthcoming) findings that open innovation performance is positively associated with autonomy, proactivity, ownership of problems, and intrinsic motivation. However, the commercialization that the government is asking for, relatively little can be detected. Since all the examples also illustrate collaboration between higher education and industry, it seems unnecessary to play the "blame game", when it comes to innovation performance. Instead, I propose an alternative route that builds on recent findings in platform economy and accounting research: distributed innovation.

According to Kornberger (2016), the primary function of organization design in distributed innovation systems is "not to actually organize production or to innovate, but to provide the conditions in which distributed innovators can do so" (Kornberger, 2016). There is a general change, where the locus of innovation shifts from firms to open networks. Horizontal integration between different professions, inclusion of stakeholders, communities and researchers is increasingly becoming the central theme in managing such innovation (Pogaþara, & Žižek, 2016). Interfaces and effective "architectures of participation," solve some of this integration and results in a wealth of contributions (Kornberger, 2016). The pitching events, forums, innovation camps, and, living labs mentioned above are what Kornberger calls "interfaces." An interface acts as a filter that structures access to and the exchange of information between two or more elements (for example students, teachers and industry representatives in a design challenge.) So actually, a lot of the focus in the examples mentioned above is on the interface. However, in order to also encourage participation, you, also need to provide a language for people to contribute to projects in the "open." If you compare the architecture of participation of Nokia Open Innovation Challenge, and OpenIDEO, the latter boasts a number of different designs where participants can communicate horizontally, articulate their ideas, build on each other's ideas, and contribute meaningfully to distributed innovation. Logging into Nokia Open Innovation Challenge, on the other hand, feels like entering an empty industrial hall or office building, where you find a mailbox, where you can submit your contribution, as soon as you have signed a copyright contract.

In addition to the organization of participation, the control of quality of the wealth it might produce, is still unresolved: how does one navigate these productions that no-one (in for example App Store, or Lego Mindstorms) asked for and how does one find those that are valuable and reliable? "Evaluative infrastructures", are according to Kornberger' the answer to this dilemma. An evaluative infrastructure co-evolves with distributed innovation when for example you "like", or "click" and fill the reviews that App Store or Play Store urges you to do. According to Kornberger evaluative infrastructures categorize and hierarchize otherwise overwhelming amount of new products, ideas, and experiences and through doing so support sense- and decision-making" (Kornberger, 2016). To sum up, Kornberger (2016), describes an organization design that "consists of multiple nested interfaces mediating between heterarchically organized, heterogeneous subsystems"; that offers "a language for external actors to become co-authors of novel ideas, products, and

technologies"; and, does not "directly control those who produce but provides evaluative infrastructures that order and hierarchize what is produced in "the open.""

4   NEW EMERGING SPACES OF VALUES, EVALUATIVE IN-FRASTRUCTURES

In the article "Evaluative Infrastructures: Accounting for Platform Organization", Kornberger, et al., (2017) take a step further in the exploration of this "new accounting regime", in which "new socio-economic topographies" are shaped by "heterarchical accounting practices (Kornberger, et al., 2017). Evaluative infrastructures include rankings, ratings, reviews, tests, audits, assessments and other evaluation mechanisms (Kornberger, 2016). Through their mechanisms and practices, "these evaluations constitute as their corollary orders of worth" (Kornberger, et al., 2017).

> These topographies neither represent calculative spaces (bookkeeping), nor concrete spaces (such as the factory floor) nor abstract spaces (such as the brand); rather, they are *emerging spaces of values* (trust in eBay; skills in LinkedIn; reputation in Airbnb) that are disclosed through evaluative infrastructures. (Kornberger, et al., 2017, emphasis added)

Therefore, a platform is an alternative mode of organizing economic activity as well as innovation. It does not calculate what is there but discloses new worlds, it creates "an openness where in things and people can show up" (Kornberger, et al., 2017). It has, for example, been suggested that platforms create distributed trust that in its turn creates social innovation (Botsman, 2016; 2017; Mazzela & Sundararajan, 2016). In research on economic sustainability, business performance and social performance are often treated as separate categories. The use of evaluative infrastructures as a tool for thinking could help us to produce an alternative economic performance, that is more sustainable then the current one. We seem to need such innovation since, the economy has now faced four decades of persistent decline in economic growth (Streeck, 2016), and instead of economic growth as a measure of progress, there has been calls for a "more human" economic performance (Gibson-Graham & Miller, 2015; Gibson-Graham, 2008). Such a measure could be the measure of both creativity and economy in a society where progress is "seen as people's perception of their own development as people and the value generated by accomplishing things together" (Neuvonen, 2017).

Hence, evaluative infrastructures and distributed innovation "are emerging spaces of values", such as skills and reputation, and the value generated by accomplishing things together. These values are not necessarily the commercial values that "Project 5" audits, but they are highly relevant values for institutions of higher education, so maybe they should be taken into consideration. A problem in the way innovation is organized, in for example the challenges mentioned above, is that the participants contribution is not visible, except if you happen to win the challenge. Through the valuation practices in evaluative infrastructures, reputation is made visible and valuable, which, in turn, motivates members to contribute (Kornberger, 2016). Kornberger (2016) describes this as a "scaffolding for people to build their careers in "the open.""

5   CONCLUDING REFLECTIONS

So to conclude, what kind of management, and what kind of performance could we expect, if higher education would organize their innovation in a distributed way? Well, firstly we need to be less naïve when industry approaches us (or vice versa) in order to co-innovate. Innovation is moving outside of the firm, and the students of our education institution represent "a crowd", and the relatively open network that industry is looking for. Therefore, in this case, we also hold the key to "access." Second, in order for the "architecture of participation" to work, the grammar for open-ended expression needs to be genuine and sincere. Participation in a heterarchical organizational design implies that each element (student, lecturer, industry representative) shares the same "horizontal" position of power and authority, each playing a theoretically equal role. In an evaluative infrastructure all elements are evaluated in rankings, reviews, awards, tags, bestseller lists etc. Therefore, not only students, but also teaching staff, and industry representatives would be evaluated according to their performance in the distributed innovation process. Reputation, as well as trust, is made visible. Through such visualizations, evaluations allow the buildup of cultural and symbolic capital. Above I stated a careful optimism as to some of the disruptions created by platform organization. Platforms could, and should, also be observed through a critical lens. The corrosive nature of a consumer- and competition-society, combined with populism and social media narcissism, might very well lead to dystopian scenarios of reality-distorting bubbles with little to do with any sort of transparency, collectivism or collaboration. More but weaker friendship relations might also be evidence of the sterilization of life? Higher education, like all pedagogy deals with potential, and not dystopia stripped from any possibility of genuine resistance. And what is at stake here is how the "open", and data generated from the "open" is organized. Kornberger, Pflege and Mouritsen (2017), note that eBay, like other platform organizations, is "notoriously secretive about its evaluative infrastructure; it is as if the evaluation seemed to be premised on the fact that its production has to remain secret in order to stay truthful." They also note that evaluative infrastructures approaches the phenomenon not "ideologically but, following Foucault, pragmatically: indeed, evaluative infrastructures are at play at Uber just as well as at its cooperative twin, the mobility platform LaZooz (Kornberger, et al., 2017)." Therefore, utopia or dystopia depend on how distributed innovation comes to be integrated into existing circuits of production and power. An example that could function as an illustration of distributed innovation performance, is The Finnish National Libraries crowdsourced project "Digitaalitalkoot." Digital Volunteers invited everyone to become a "part of restoring history." The challenge lay in deciphering and indexing difficult newspaper fonts used in Finland in the 1800's and the beginning of 1900's that was the decorative "German type." A design involving crowdsourcing and gamification, organized 100 000 visitors on a website, they contributed over 344 000 minutes of their time and completed over six and half million micro tasks. The Finnish National Libraries thankful response reads:

> We believe crowdsourcing holds the future. It enables libraries to share responsibility with our users and to appreciate their expertise. We learn to connect with a whole new group of people who want to give something back to the society (Ekholm, 2012).

The performance indicated in these lines, is one of sharing, responsibility and appreciation of expertise. The library builds a connection to "a whole new people": to the wisdom

of the crowd, which holds the future, but wants to give back to the society. Open innovation performance has its breeding ground in human cohabitation and human togetherness. This is efficiency, and it builds on dependence. Novelty and creativity is something that is in the horizon. This horizon can be reached, but sometimes, like in the case of my student, it is someone else who reaches it. Conscious of the fact that the innovation happens in an environment of human cohabitation, my student "is happy and proud."

REFERENCES

Botsman, R. 2016. Keynote & Q&A: Rachel Botsman; ; Economy, 3rd International Workshop on the Sharing. Winchester.

Ekholm, K. 2012. *Finnish Libraries Now: Hunt the Mole*. Retrieved September 9, 2017, from http://now.libraries.fi/mole.html#.WcALGcgjE2x

ESD, U. 2017. *Education for Sustainable Development*. Retrieved October 12, 2017, from http://en.unesco.org/themes/education-sustainable-development

Faehnie, M., Immonen, H., Mäenpää, P., Nylund, M., & Träskman, T. I. 2016. Jakamistalous ja verotus: Eväitäyteiskunnalliseen keskusteluun. *Arcada Working Papers*(4).

Fitzmaurice, C., Ladegaard, I., Attwood-Charles, W., Cansoy, M., Carfagna, L., Schor, J. B., & Wengronowwitz, R. 2016. Domesticating the market: moral exchange and the sharing economy. *Under review at Socio-Economic Review*. Retrieved September 5, 2017, from http://www.bc.edu/content/dam/files/schools/cas_sites/sociology/pdf/MoralMarkets.pdf

Fleming, J. R. 2010. *Fixing the Sky: the Checkered History of Weather and Climate Control.* USA: Colummbia University Press.

Frenken, K., & Schor, J. 2017. Putting the sharing economy into perspective. *Environmental Innovation and Societal Transitions, 23*(June), 3-10.

Frenken, K., Meelen, T., Arets, M., & Van de Glind, P. 2015. Smarter Regulation for the Sharing Economy. *The Guardian*, p. 20. Retrieved June 2, 2017, from https://www.theguardian.com/science/political-science/2015/may/20/smarter-regulation-for-the-sharing-economy

Gibson-Graham , J. 2010. A feminist project of belonging for the anthropocene, gender, place and culture. *A Journal of Feminist Geography, 18*(1), 1-21.

Gibson-Graham, J. 2008. Diverse economies: Performative practices for 'other worlds'. *Progress in Human Geography , 32(5),*, 613-632.

Gibson-Graham, J., & Miller, E. 2015. Economy as ecological livelihood. In K. Gibson, D. Bird rose, R. Fincher, K. Gibson, D. Bird Rose , & R. Finch (Eds.), *Manifesto for the Living in the Anthroposcene.* Retrieved 3 12, 2017, from http://www.communityeconomies.org/Publications/Articles-Chapters/rethinking-the-economy

Hautamäki, A., Leppänen, J., Mokka, R., & Neuvonen, A. 2017. *Uuden ajan työ ja toimeentulo.* Helsinki: Sitra/ Demos Helsinki. Retrieved September 7, 2017, from https://www.sitra.fi/julkaisut/uuden-ajan-tyo-ja-toimeentulo/#esipuhe-katse-kuopasta-ylos-mahdollisuuksiin

Johanson, J.-E., & Vakkuri, J. 2018. *Governing Hybrid Organizations: Exploring Diversity of Institutional Life.* Abingdon: Routledge.

Kornberger, M. 2016. The visible hand and the crowd: Analyzing organization design in distributed innovation systems. *Strategic Organization*, 1-20.

Kornberger, M., Pflueger, D., & Mouritsen, J. 2017. Evaluative Infrastructures: Accounting for Platform Organization. *Accounting, Organizations and Society (Forthcoming).*

Lazzarotti, V., Bengtsson, L., Manzini, R., Pellegrini, L., & Rippa, P. 2017. Openness and innovation performance: an empirical analysis of openness determinants and performance mediators. *European Journal of Innovation Management*.

Mazzela, F., & Sundararajan, A. 2016. *Entering the Trust Age.* Bla bla Car/ NYC Stern. Retrieved 2 21, 2017, from file: https://www.blablacar.com/trust

Mazzela, F., Surandarajan, A., DÉspous, V. B., & Möhlmann, M. 2016. How digital trust powers the sharing economy. *IESE.*

Morris, W. 2000. *News from Nowhere,.* Electric Book Company.

Neuvonen, A. 2017. *Rewiring Progress/Seuraava erä.* Retrieved September 9, 2017, from https://www.sitra.fi/en/publications/rewiring-progress/#introduction

NOIC. 2017. *Nokia Open Innovation Challenge*. Retrieved September 8, 2017, from http://www.nokia.com/en_int/about-us/news-events/open-innovation-challenge

OpenIDEO. 2017. *OpenIDEO*. Retrieved September 9, 2017, from https://openideo.com/

Pogaþara,, K., & Žižek, A. 2016. Urban Hackathon – Alternative Information Based and Participatory Approach to Urban Development . *Procedia Engineering Elsevier Ltd, 161*, 1971-1976.

Rachel, B. 2017. *Who Can You Trusat.* UK: Penguin Random House.

Schor, J. 2014. *Debating the Sharing Economy.* Retrieved April 21, 2017, from http://www.greattransition.org/publication/debating-the-sharing-economy

Stolle, D. 2001. Clubs and congregations: The benefits of joining an association. In D. Cook (Ed.), *Trustin society* (pp. 202-244). New York: Russel Sage Foundation.

Sundararajan, A. 2016. *The Sharing Economy: The End of Employement and the Rise of Crowd-Based Capitalism.* Cambridge: The MIT Press.

Surowiecki, J. 2005. *The wisdom of crowds* . Anchor : Doubleday.

Veletsianos, G., Collier, A., & Schneider, E. 2015. Digging deeper into learners' experiences in MOOCs: Participation insocial networks outside of MOOCs, notetaking and contexts surrounding content consumption. . *British Journal of Educational Technology, 46*(3), 570–587.

Universal design: en förutsättning för delaktighet och inklusion i samhället

Annikki Arola[i], Ira Jeglinsky[ii]

Sammandrag

Demografiska förändringar och visionen om ett rättvist samhälle betyder att produkter, service och miljöer ska vara tillgängliga för alla. Enbart genom detta kan alla medborgare känna sig inkluderade och delaktiga i samhällsaktiviteter. För att nå denna vision kan konceptet Universal Design användas som utgångspunkt när samhället utvecklas till att bli mer inkluderande. Universal Design konceptet baseras på sju principer vilka beskriver aspekter som bör beaktas för att skapa tillgängliga produkter och miljöer som är användbara för alla utan särskiljning. Som ett led i att stödja en hållbar samhällsutveckling har Sektionen för Hälsa och välfärd lyft fram UD som ett fokusområde. Målet är att utbilda olika professioner i att utnyttja UD principerna. För att nå detta är det viktigt att både undervisning och forskning fokuserar på gränsöverskridande arbete med utgångspunkt från UD principerna. Detta förutsätter att det finns tillgång till ändamålsenliga lärmiljöer där studerande har möjlighet att utveckla sin kompetens i reella situationer. Genom implementering av UD inom verksamhet och utbildningar på Arcada kommer studerande från högskolan med sin UD kompetens att vara föregångare i att arbeta för ett mer hållbart och inkluderande samhälle både på individ och på samhällsnivå.

Abstract

Demographic changes and the vision of a fair society mean that products, services and environments should be accessible for all. Only through this can all citizens feel included and involved in community activities. In order to achieve this vision, the Universal Design concept can be used as a starting point as society evolves into more inclusive. The Universal Design (UD) concept is based on seven principles that describe aspects that should be considered when creating accessible products and environments useful to all without distinction. As part of supporting sustainable social development, the Institution for Health and Welfare has highlighted UD as a focus area. The goal is to educate different professions in using the UD principles. To achieve this, it is important that both teaching and research focus on interdisciplinary collaboration based on the UD principles. This presumes access to appropriate learning environments where students have the opportunity to develop their skills in real life situations. Through implementation of UD at Arcada, students will be able to be the forerunner in working for a more sustainable and inclusive society, both at the individual and at society level.

Nyckelord: tillgänglighet, delaktighet, universal design, universal utformning

1 INTRODUKTION

Demografiska förändringar med allt fler äldre i samhället samt de uttalade rekommendationerna om jämlik delaktighet för alla (jmf regeringsprogrammet, FPA, Kaste) ställer krav på samhällsplanering och utvecklande av nya tjänster. Både samhällsplanering och utvecklande av nya tjänster skall vara hållbara i bemärkelsen att kunna jämlikt bemöta

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behoven hos alla medborgare. Universal design är en strategi vars mål är att miljöer, produkter, information, teknologi och service är tillgängliga för alla i samhället. Detta i sin tur främjar på ett hållbart sätt medborgarnas möjlighet till delaktighet och inklusion. En stigande åldersstruktur i framförallt västvärlden har lett till att det finns allt fler personer med funktionsnedsättning. Globalt sett finns ca. 650 miljoner människor med någon form av funktionsnedsättning. I de nordiska länderna, där den förväntade livslängden är över 70 år, spenderas ca. 8 år (11,5%) av individens levnadscykel med någon form av funktionsnedsättning (United Nations, 2006). Personer med funktionsnedsättning har lyft fram att de ofta upplever att miljöer, service och produkter är planerade så att de inte uppfyller deras behov. Detta har lett till många politiska initiativ för att öka tillgängligheten i samhället och därigenom förbättra individens möjligheter till delaktighet. Delaktighet förutsätter att olika miljöer, varor och tjänster i samhället är tillgängliga för alla medborgare. Tillgänglighet i sin tur definieras som en relation mellan funktionell kapacitet och en viss miljö (Iwarsson & Wilsson, 2006; Iwarsson & Ståhl, 2003). En persons förmåga att klara sig i en viss miljö är resultatet av interaktionen mellan den funktionella kapaciteten och de krav som omgivningen ställer på personens aktivitetsutförande. Med andra ord påverkas tillgängligheten av hur bra personens kompetens passar ihop med miljöns krav (Iwarsson & Ståhl, 2003).

Inklusion och delaktighet ses som en viktig del i hälsa och välbefinnande och i detta sammanhang ses Universal Design (UD) som ett led i att främja folkhälsa (Björk, 2015). Betydelsen av aktiv delaktighet som hälsofrämjande insats har även lyfts fram i flera nationella hälso- och välbefinnandeprogram i Finland (se bl.a. regeringsprogrammet, Kaste, välfärdsberättelsen). Även på Arcada lyfts detta fram genom att ett av profilområdena på institutionen för hälsa och välbefinnande är social delaktighet. Delaktighet som hälso- och välbefinnandeaspekt definieras på individnivå som personens möjlighet till att delta i utbildning, arbetsliv, hobby- och föreningsverksamhet, och genom detta få respekt, tillit och möjlighet att inverka på sitt liv. På samhällsnivå handlar det om att på jämlika grunder ha tillgång till utbildning, hälsovård, arbete, bostad och sociala relationer. Delaktighet kan indelas i tre dimensioner som anses vara förutsättningar för delaktighet: 1) inkomst och hälsa, 2) aktivitet, d.v.s. möjligheten att själv vara aktiv. En viktig del här är att ha möjlighet att få sin röst hörd och att ha tillgång till den samhällsservice man behöver. 3) Tillhörighet, d.v.s. möjlighet att höra till olika samfund och kunna engagera sig i samhället har visat sig vara avgörande då det gäller hälsa och välmående. De tre dimensionerna står även som en grund för demokrati, och då de är i balans ökar det jämlikhet och förebygger segregering i samhället (Raivio och Karjalainen, 2013).

Finland ratificerade FN:s konvention om rättigheter för personer med funktionsnedsättning så sent som 2016, vilket innebär att vi förbundit oss till att följa vissa regler gällande jämlik samhällelig tillgänglighet och delaktighet. Det finns dock mycket att göra för att öka förståelsen för hur samhället skall byggas upp och designas utan att samtidigt öka segregering och isolering. Det råder missförstånd kring vad tillgängliga miljöer betyder. Ofta förknippas detta med att det gäller speciallösningar för äldre och för personer med

funktionsnedsättning, att dessa speciallösningar är dyra och "institutionsaktiga", att det bara berör en liten del av befolkningen, och därför är "bortkastade pengar" (Björk, 2014; Connell et al., 1997). I Norden har Nordiska ministerrådet redan 2005 antagit en aktivitetsplan för att garantera att alla medborgare har möjlighet till aktiv delaktighet i samhället. Målet är att eliminera barriärer i det offentliga rummet, och samtidigt investera i hållbara och universella lösningar. Som ett resultat av detta togs universal design som koncept för att implementera tillgänglighet i offentliga utrymmen (Björk, 2015). När Norge var ordförandeland för Nordiska Ministerrådet 2012 togs ett initiativ till en stadga, en charter, för Universal Design (UD) (Björk, 2014). Detta sågs som ett steg i att eliminera barriärer och undanröja missförstånd kring vad tillgängliga miljöer är och hur de skapas. Chartret skulle finnas som bas i det strategiska arbete som de nordiska länderna gör för att genom UD implementera tillgänglighet och delaktighet i samhället. Chartret utgår från FN:s konvention om rättigheter för personer med funktionsnedsättning, och består av sju punkter: 1) att genom UD nå delaktighet och empowerment för alla, 2) att genom UD föra fram vikten av diversitet i samhället, 3) att genom UD garantera hållbara lösningar, 4) att säkra att riksdag och beslutsfattare tar ett ansvar för att stimulera utvecklingen av UD strategier, 5) att uppmuntra till mångprofessionellt och interdisciplinärt samarbete för att garantera omgivningsmässigt och ekonomiskt hållbara UD lösningar, 6) att genom UD vara innovativ och 7) att öka förståelsen för de fördelar ett UD angreppssätt medför (Björk, 2014).

2 UNIVERSAL DESIGN

Konceptet Universal design, UD, har utvecklats för att nå ökad tillgänglighet och delaktighet i samhället. Termen Universal design började användas på 1980-talet i USA av arkitekter och blev senare ett koncept som spreds till flera länder (Björk, 2015). Efter att konventionen för rättigheter för personer med nedsättningar hade ratificerats av flera länder blev konceptet Universal design globalt accepterat och definierat enligt följande: Universal design är ett angreppssätt som hedrar mångfald, som inriktar sig på att produkter, miljöer, program och service designas så att de är användbara för alla människor i största möjliga omfattning utan att det behöver anpassas eller specialdesignas. Universal design ska inte utesluta hjälpmedel för specifika grupper av människor i situationer där dessa behövs (United Nations, 2006).

Miljöer, service och tjänster har länge utformats så att de passar en genomsnittlig fysisk individ och då har det inte beaktats den mångfald som finns bland medborgare i samhället. Det har inte heller beaktats de olika livsskeden som medborgare har, som innebär att individer har olika funktionsförmåga under olika skeden i livet. Universal design ska ses som ett "mind-set" som strävar till att skapa och utveckla miljöer på ett sätt som passar alla i samhället, oberoende av funktionsvariation. För att strukturera detta angreppssätt har Centret för UD i North Carolina utvecklats sju principer, som fungerar som ram för att skapa tillgängliga miljöer (Conell et al., 1997). Den första principen tar fasta på rättvis

användning, vilket innebär att produkten eller servicen är användbar för samtliga individer utan att behöva special anpassas till särskilda grupper. Målet är att alla brukare ska kunna använda produkten eller servicen på samma sätt, identiskt eller likvärdigt. Genom denna princip skyddas integritet och stigmatisering undviks. Den andra principen fokuserar på flexibilitet vid användning av produkter och service. Här ligger tyngdpunkten på att skapa en produkt som är användbar oberoende av variation i funktionsförmågan. Den tredje principen beskriver att produkter och service ska vara enkla och lätta att använda, de ska baseras på ett intuitivt användningssätt, de ska vara lättförståeliga och oberoende av erfarenhet och kunskap. De ska även tillåta funktionsvariation gällande läs- och skrivförmåga samt koncentration. Fjärde principen fokuserar på att information ska vara perceptuellt tillgänglig, vilket innebär att nödvändig information kommuniceras på ett tydligt sätt, oavsett omgivningsvisa förhållanden eller individens funktionella kapacitet. Informationen presenteras på ett varierande sätt, med hjälp av taktil- verbal och visuell information vilket möjliggör utnyttjande av olika sinnen för att ta till sig informationen. I den femte principen poängteras vikten av att undvika olyckor och misstag och principen fokuserar på att det i produkter och service ska finnas tolerans för misstag om brukaren gör ofrivilliga handlingar. Designen ska vara sådan att den varnar för faror och fel och att det går att annullera åtgärder om dessa är felaktiga eller innebär fara. Den sjätte principen fokuserar på individens kapacitet i form av att omgivningar, tjänster och produkter ska utvecklas så att det kräver låg fysisk ansträngning vid användning. Brukaren ska kunna fungera i en omgivning obehindrat samt använda produkter och service bekvämt och med minimal ansträngning. Den sista, sjunde principen handlar om storlek och utrymmen för tillträde och användning. Fysiska utrymmen ska planeras så att där finns tillräckligt med utrymme att röra sig, tillräckligt med utrymme för manipulation av produkter samt att produkterna är lättåtkomliga utan onödiga hinder eller nivåskillnader. Designen ska även tillåta en variation gällande handstorlek och gripfunktioner och det ska vara möjligt att använda hjälpmedel utan att utrymmet begränsar användningen. De sju principerna lägger en grund för skapande ett hållbart och rättvist samhälle, ett samhälle som är tillgängligt för alla och som stöder delaktighet och inklusion.

Filosofin bakom UD poängterar starkt aspekter som hållbar utveckling, långsiktighet och ekonomiskt tänkande. Det innebär att det är billigare och mer hållbart att beakta UD principerna redan i planeringsskedet av produkter omgivningar och service än att i efterhand gå in och anpassa dessa till en specifika användargrupper. Fokus borde vara på att i alla skeden, från planering till beslutsfattande samarbeta med olika aktörer. För att uppnå hållbar utveckling är viktigt att förutom planeringen även fokusera på implementeringen och evalueringen av åtgärderna (Ginnerup, 2009). Beroende på fokus är olika aktörer viktiga kuggar i processen; personer med funktionsnedsättning, arkitekter, designer, ingenjörer, kulturmedarbetare, programmerare, professionella inom social- och hälsovård.

2.1 Universal Design i olika miljöer

Målet med Universal design är att konceptet ska kunna tillämpas inom alla områden i samhället: produkter, service, byggd miljö och nätmiljö. Samhällsservice är tjänster som tillhandahålls för invånarnas nytta. Tjänsterna innefattar bl.a. hälso- och sjukvård, utbildning, tillgång till rekreationsutrymmen samt transportsystem i samhället. Att tillämpa universal design principer gällande samhällsservice innebär att skapa servicen på ett sätt som tillåter flexibel åtkomst och användning av servicen. Det innebär att både den fysiska miljön kopplad till servicen och innehållet i servicen ska skapas med utgångspunkt från de sju principerna, vilket innebär att den fysiska miljön ska vara tillgänglig och att informationen presenteras på olika sätt genom utnyttjande av text, ljud och symboler. Dessutom bör bemötandet inom samhällsservice vara attitydmässigt tillgängligt.

Gällande användning av produkter, som uppfyller principerna för Universal Design, så kopplas tillgänglighet och användbarhet av produkten till personnivån. De principer som kopplas till detta har att göra med personens ergonomi och rörelseförmåga, perception och kognition. Dessa är faktorer som beskriver personens funktionsförmåga. En tillgänglig och användbar produkt möjliggör för personen att vrida handtaget, se signalen som är relevant för produkten samt höra kommandon och varningssignaler, som är kopplade till produkten. Utöver det är det viktigt att användarinstruktioner är så tydliga att de inte hindrar personen från att förstå hur produkten tas i bruk (Erlandson, 2008).

Den byggda miljön är en central del av individers möjligheter att vara delaktiga i samhället. Byggnader och omgivningar i samhället som uppfyller principerna för Universal Design är planerade så att det inte finns hinder i form av nivåskillnader, otydliga markeringar eller vilseledande konstruktioner, som kan orsaka tillgänglighetsproblem eller farosituationer. Byggnader konstrueras så att även personer med svagare funktionsförmåga kan uträtta de aktiviteter som är nödvändig och viktiga för personen. Med tanke på hållbar utveckling är det av största vikt att principerna för Universal Design beaktas redan i planeringsskede av olika byggnader. Riktlinjerna inom byggbranschen samt olika informationspaket om hur bygga tillgängligt ger viktig information som underlättar byggprocessen så att Universal Design principerna uppfylls (se bl.a. miljöministeriets direktiv för markanvändning och byggande, ESKE). I planeringsskedet är det viktigt att även beakta helheten så att detaljer i miljön som var för sig uppfyller tillgänglighetskravet, även gör det i den stora helheten. Att exempelvis markera en gångväg så att den blir tillgänglig för personer med synnedsättning mister sin funktion om man samtidigt bygger upp ett hinder på samma plats för att exempelvis hindra trafik från att köra in på ett område, se bild 1. Sådana icke-funktionella lösningar bidrar istället till att minska tillgängligheten med resultatet att miljön inte kan användas likvärdigt av alla.
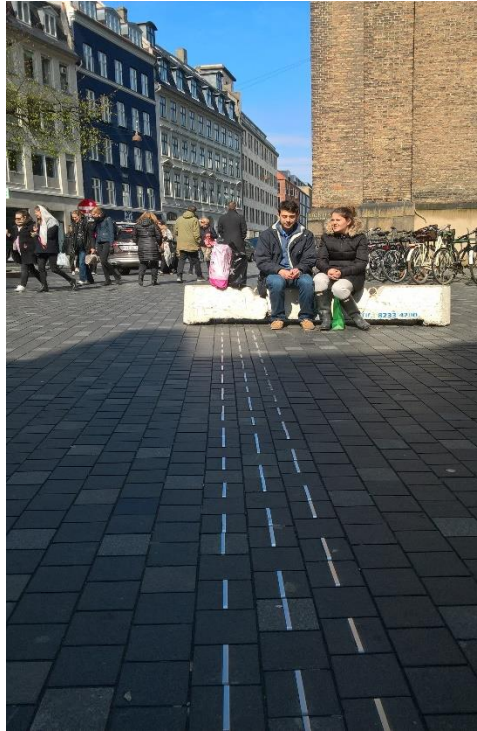
Bild 1: Användning av markeringar på gatan hindras av andra hinder i miljön. (bild: A. Arola)

Elektronisk tillgänglighet, eller e-tillgänglighet, innebär att informations- och kommunikationsteknologin skall vara sådan att alla skall kunna använda digitalt material på lika grunder. Idag följer vi i Finland ett EU direktiv för offentliga sektorn (European Commission, 2016) som skall öka e-tillgängligheten. Syftet med detta tillgänglighetsdirektiv är att garantera att alla medborgare i landet har möjlighet att på jämlik grund fungera i ett digitalt samhälle. Direktivet bygger på UD principer, och skall vara i bruk i hela landet senast 2019 (se även Funka, 2017). För att nå tillgänglighet i vårt digitala samhälle bör vi sträva till att utgå från användarnas behov, och skapa enhetliga system för informations- och kommunikationsteknologin. Det har alla användare nytta av oberoende av funktionsvariation. Det är viktigt att beakta både lätthanterbarhet och tillgänglighet, och se till att e-tjänsterna har båda egenskaperna, d.v.s. är både lätthanterliga och tillgängliga. Exempel på tillgänglighet inom informations- och kommunikationsteknologin är att text skrivs så att den med hjälpprogram skall kunna läsas högt, fontstorlek och kontraster skall kunna justeras, och bildmaterial skall vara tydligt. Att den är lätthanterlig och andra sidan betyder att det är lätt att röra sig mellan olika sidor, att program och innehåll är lätta att hantera och förstå.

Det finns en del lagar och standarder som skall garantera e-tillgänglighet, av vilka Web Content Accessibility Guidelines 2.0 (WCAG) är den kanske mest använda, och som också följer UD principer. Dokumenten i WCAG beskriver hur man når tillgänglighet genom innehåll såsom information, bilder och ljud, men också hur koda, strukturera och presentera för ett tillgängligt innehåll. Rekommendationerna är indelade tre nivåer, s.k. framgångskriterier, vilka bedöms enligt en tregradig skala med A (lägst), AA (medel) och AAA (högst). Det finns fem överenskommelser som skattas och som alla skall nå minst

A för att webbsidan skall anses vara tillgänglig (Webb Accessibility Initiative). Rekommendationerna delas ytterligare in i fyra principer: 1) Informationen skall presenteras så att den kan observeras. Det skall finnas alternativ för att presentera icke textbaserad information. 2) Användaranslutning och navigering skall vara kontrollerbar, vilket betyder att all funktion skall gå att kontrollera med tangentbord, att det finns tillräckligt tid att ta till sig informationen och det skall finnas olika sätt att navigera, hitta innehåll och bestämma sin positions. 3) Informationen skall förstås, vilket innebär att språket även förkortningar skall gå att tolkas till ljud eller text. Det skall även finnas tolerans för misstag. 4) Kompatibilitet mellan olika program och teknologier. (Tuominen, 2014)

Tillgänglighet gällande webbsidor betyder att de skall vara så lättnavigerade som möjligt, och alltför mycket information per sida skall undvikas. Utbildning för brukare i att använda olika webbtjänster samt utbildning för tjänsteleverantörer om hurudana olika hjälpmedel brukarna använder för att navigera på webben kunde utvecklas. (Kubitschke mfl, 2013; Tuominen, 2014)

2.2 Universal design som koncept på Arcada

Inom ramen för kompetensområdet Social delaktighet har institutionen för hälsa och välfärd tagit universal design som ett fokusområde. Vi ser att UD är en viktig aspekt med tanke på ansvarsfullt samhällsengagemang och hållbar utveckling. Arcada tar sitt ansvar gällande samhällsengagemang genom att både inom undervisning och forskning arbeta för innovativ tjänste- och produktdesign, som är tillgänglig för alla. Gränsöverskridande samarbete och samarbete med privata och offentliga organisationer är avgörande för detta arbetssätt. Därigenom medverkar vi till ökad delaktighet och inklusion av alla medborgare i samhället.

Genom att placera UD som en central del av att skapa tillgängliga miljöer, tjänster och produkter blir vi en föregångare gällande att etablera Universal Design som den enda godtagbara designen och skapar därmed en norm, istället för att endast anpassa specialanpassningar till utsatta grupper i samhället. Vi ser det som en etisk fråga att istället för att tala om grupper med specifika behov ändra tankesättet till att tala om mänsklig funktionalitet och användbarhet. Alla aspekter av mänsklig funktionalitet bör behandlas som en rättighet utan kategorisering eller stigmatisering. Genom att möjliggöra för olika personer att fungera på en högre nivå, som motsvarar deras kompetens, så kommer den individens värde, sett ur samhällelig synvinkel också att öka. Individer kan då, på ett mer självständigt sätt, bidra till samhället, vilket ökar nivån av delaktighet och inklusion.

2.3 Universal design för lärande

På institutionen för hälsa och välfärd har UD redan en längre tid implementerats i lärandet för de flesta utbildningsprogram. Eftersom UD handlar om tillgänglighet inom olika områden såsom service, kultur och information finns det utmärkta möjligheter att involvera studerande från olika yrkesområden på Arcada i arbetet att främja UD i samhällsplaneringen. Arbetet sker då aktivt över yrkesgränserna och tillsammans med olika intressenter

i samhället. För att kunna var föregångare på alla plan gällande Universal Design, och för att stödja tanken om mångfald som UD baseras på, så är förutsättningen att UD konceptet införlivas som helhet i studieaktiviteter och läroplaner på Arcada. Utgångspunkten är ett studentcentrerat lärande som inkluderar UD.

Utöver att studerande lär sig vad UD som koncept står för, och på så sätt kan bidra till samhällsutvecklingen både under studietiden och som alumn, bör även Arcada som högskola anamma UD i sin verksamhet. Insikt i att studerande representerar en mångfald betyder att de individuella behoven ser olika ut för olika individer. Det gäller att möta varje studerande som en individ, vilket i sin tur betyder att principen "one-size-fits-all" inte är gångbar. UD för lärande följer tre huvudsakliga principer: 1) fakta och innehåll presenteras så att den blir tillgänglig för alla, 2) studerande erbjuds möjlighet att redovisa kunskap på olika sätt och 3) att miljön är motiverande och engagerande. Principerna kan sammanfattas som att information, läromedel och studieaktiviteter beaktar mångfalden bland studerande. Detta möjliggör för studerande att på ett flexibelt sätt söka information och kunskap, ta till sig och bearbeta denna, samt uttrycka/visa sitt kunnande, sin kompetens på olika sätt. Miljöns betydelse för lärande ur ett UD perspektiv är central. Med miljö avses här både den fysiska miljön, servicemiljön, nätmiljön och den attitydmässiga miljön. Som högskola kan vi genom våra informationskanaler, vår verksamhet, vår fysiska miljö och vår attityd visa att vi jobbar för ett inkluderande samhälle både på individ och samhällsnivå (jmf t.ex. Aalto universitet).

3 UNIVERSAL DESIGN SOM GRUND FÖR NYTÄNKANDE OCH HÅLLBAR SAMHÄLLSUTVECKLING

Arcadas nuvarande strategi stäcker sig fram till 2025. Kärnan i strategin är att Arcada ska befinna sig i framkanten av förändring, vara engagerad i samhället och arbeta för en hållbar utveckling. En granskning av strategin och framtiden visar att UD som konceptet passar väl in i strategin och uppfyller gott den strävan vi som högskolan har. Att vara i framkanten av förändring för att svara mot de krav och förändringar som sker i omgivningen betyder att utbildning och övning kring UD utnyttjas för att minska klyftan mellan teori och praktik gällande implementering av UD på samhällsnivå. Arcada som högskola kan här föregå med gott exempel. Den nuvarande verksamheten, informationskanaler, servicemiljö och fysiska miljö kunde kartläggas enligt UD princip, för att åtgärda brister gällande tillgänglighetsaspekter.

En utmaning i att utveckla och implementera UD ligger i att se till att dess riktiga värde inte förminskas av bristande kunskap kring konceptet, i kombination med svag implementering i praktiken. För att detta ska undvikas bör mer forskning bedrivas, som visar på goda och bra exempel på hur UD kan implementeras på samhällsnivå (Björk, 2015). Det är också viktigt att fortsätta utvecklingen av UD genom att i forskning systematisera och skapa evidensbaserad kunskap kring UD och hur den på bästa sätt stöder delaktighet och inklusion. I framtiden är det viktigt att skapa gränsöverskridande forskningsprojekt

där UD blir den gemensamma referensramen så att de forsknings- och utvecklingsresurser som finns tillgängliga på Arcada utnyttjas på bästa sätt, med målet att skapa systematisk och tillförlitlig kunskap om UD och dess inverkan på tillgänglighet och delaktighet för medborgare.

Det är viktigt att också i undervisningen fortsätta att arbeta gränsöverskridande så att kompetens inom olika områden utnyttjas. Undervisningen bör tydliggöra de trender som syns i samhället gällande demografiska utmaningar, förändrade levnadsförhållanden och nya sätt att stödja individer i utsatta situationer. I arbetet med att främja delaktighet och inklusion är det nödvändigt att olika professioner arbetar tillsammans i reella och ända-målsenliga lärmiljöer. På det sättet skapas en naturlig plattform för studerande att tillsammans arbeta fram innovativa lösningar på samhällsnivå, som i sin tur främjar delaktighet och inklusion på individnivå. Konkret betyder detta att studerande bör ha tillgång till lärmiljöer som stöder de läraktiviteter som planeras. Ett UD Living-Lab är en sådan lärmiljö. Ett UD Living-Lab ger möjlighet till simulering av tillgänglighet i så autentiska situationer som möjligt, det ger studeranden möjlighet till att tvärprofessionellt öva, prova på, och innovativt utveckla lösningar för universellt designade miljöer och tjänster. En fungerade och reell lärmiljö i form av ett Living Lab stöder även den forskning som bedrivs inom UD.

Att implementera UD som koncept handlar i förlängningen om attityd, ett mindset att vilja bidra till en jämlik, tillgänglig, inkluderande högskola, med studerande som är införstådda i UD principerna och genom sin verksamhet bidrar till ett hållbart samhälle.

KÄLLOR

Björk E., 2014. A Nordic Charter for Universal Design. *Scandinavian Journal of Public Health, 42,* 1-6.

Björk, E., 2015. A new theme within public health science for increased life quality. *Scandinavian Journal of Public Health, 43* (16_suppl), 85-89.

Connell, B. R., Jones, M., Mace, R., Mueller, J., Mullick, A., Ostroff, E., Sanford, J., Steinfeld, E., Story, M. & Vanderheiden, G. 1997, *The principles of universal design* [www], uppd. 01.04.1997, Tillgänglig: https://www.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm

ESKE, Esteettömyyskeskus. https://www.invalidiliitto.fi/esteettomyys/esteettomyyskeskus-eske. Hämtat 14.9.17.

Erlandson, R. 2008. *Universal and Accessible Design for Products, Services, and Processes.* Boca Raton: Taylor & Francis Group

European commission. 2016. Directive (EU) 2016/2102 of the European Parliament and of the Council on the accessibility of the websites and mobile applications of public sector bodies. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016L2102. Hämtad 14.9.17

Funka, 2017. Strategiskt uppdrag för den Finska regeringen. http://www.funka.com/vara-upp-drag/kunder-berattar/funka-i-strategiskt-uppdrag-for-den-finska-regeringen/. Hämtad 11.9.17.

Ginnerup, S. 2009. *Achieving full participation through universal design*. Strasbourg: Council of European publishing.

Iwarsson, S. & Ståhl, A. 2003. Accessibility, usability, and universal design - Positioning and definition of concepts describing person-environment relationships. *Disability and Rehabilitation,* 25, pp. 57-66.

Iwarsson, S. & Wilson G. 2006. Environmental barriers, functional limitations, and housing satisfaction among older people in Sweden: A longitudinal perspective on housing accessibility. *Technology and Disability* 18(2), pp. 57-66

Koskinen-Ollonqvist P, Rouvinen-Wilenius P, & Aalto-Kallio M. 2009. Osallisuus terveysteki-jänä. Promo 60:5/2009. *Terveyden edistämisen lehti* pp. 30-31.

Kubitschke L, Cullen K, Dolphin C, Laurin S, & Cederbom C (ed.). 2013. Study on assessing and promoting e-accessibility. European Commission, Directorate-General of Communications Networks, Content & Technology.

Miljöministeriets direktiv för markanvänding och byggnader. 2017. http://www.ym.fi/ra-kentamismaaraykset. Hämtad 14.9.17.

Raivio H, Karjalainen J. 2013. Osallisuus ei ole keino tai väline, palvelut ovat! Osallisuuden rakentuminen 2010-luvun tavoite- ja toimintaohjelmassa. Teoksessa: Era T (toim). *Osallisuus – oikeutta vai pakkoa? Jyväskylän ammattikorkeakoulun julkaisuja* 156/2013.

Tuominen M. 2014. Paina vihreää nappia! Asiointi- ja tiedonhakupalveluiden käytön esteitä erityisryhmien näkökulmasta. *Liikenne- ja viestintäministeriön julkaisuja* 23/2014.

United Nations, 2006. Convention on the Rights of Persons with Disabilities. http://www.un.org/disabilities/convention/conventionfull.shtml.

Web Accessibility Initiative. https://www.w3.org/WAI/intro/wcag. Hämtad 11.9.17

The Significance of Inner and Outer Dialogue within Higher Education

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Abstract

This article is based on theoretical aspects and practical experiences of dialogue within in Higher education. Dialogue within education can be regarded as being of importance since it strengthens sustainability among students. The teacher's ability to create a learning environment, which is based on dialogical aspects, is crucial and creates possibilities for joint learning in which the teacher and students collaborate in investigation of the issue or phenomena studied. Undialogical relations in teaching occur when vertical expertise is dominating in educational circumstances.

Sammandrag

Denna artikel är baserad på teoretiska aspekter och praktiska erfarenheter av dialog inom Högre utbildning. Dialog i utbildning kan ses vara av betydelse eftersom den stärker studerandes hållbara lärande. Lärarens förmåga att skapa lärande miljöer, vilka baseras på dialogiska aspekter, är avgörande och skapar möjligheter för gemensamt lärande i vilken läraren och studeranden samarbetar för att undersöka saken eller fenomenet som studeras. Icke-dialogiska relationer inträffar när vertikal expertis dominerar i lärande situationer.

1   INTRODUCTION

Dialogue within education, as a way to create lifelong learning and especially sustainability, is of importance. Since a human being can be seen as coming into existence in dialogue, it is of importance to create conditions within education that are closely related to dialogue from practical but also philosophical points of views. Research, especially within developmental psychology (eg. Stern, 1985, 2004), shows that dialogical relations improve sustainability in a human being's development and life.

The concept of dialogue and dialogical learning has been discussed for a longer time, not only nationally but also internationally. Discussion might have been started in the 50-decade in Germany mostly inspired by Martin Buber's (1993, 1997) dialogue philosophy. In addition, Michail Bakhtin (1984) and his dialogue philosophy has also been inspiring discussions concerning dialogical learning.

The concept of dialogical learning today is used abundantly, but also negligently. Most often, it is used as substitute for dialogue or discussion in educational situations without referring to the principles of dialogue philosophy or dialogical learning. According to Bahtin (1991), when dialogical learning is understood only as a pedagogical "trick", the dialogical content is reduced to pedagogical dialogue, which can be seen as distorting

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dialogue. In such case, there is no question of dialogue but monological relationship between the knowing and truth owning teacher and the mistaking and unknowing learner. Then dialogue becomes only an ostensible pedagogical method.

To create an understanding for what dialogue as a learning principle can be about, it is important to start with Bubers (1993, 1997), Gadamers (2004) and Bahtins (1984) dialogical thoughts related to higher education.

1.1   Dialogue from different perspectives

Dialogue is difficult to define as a phenomenon. Perhaps it is not even meaningful to pursue a final definition of a dialogue, since it can be regarded as being an attitude or a way of relating to oneself and to others. Martin Buber (1993, 1997) is probably the most known Jewish philosopher, also called dialogue philosopher. Buber created the "theory" of dialogical relationship, which is based on two word-pairs. The first one is "I – Thou" and the second one is "I – It". Buber (1993, 1997) offers his definition of dialogue and it´s inner beings in these two word-pairs. The word-pair I - It refers to subject – object relation, in which I is a subject and It an object to I's actions or behavior. Similarly, he considers I – Thou word-pair as a subject – subject relation, where two subjects meet and act as equals, respecting each other's opinions. In such relationship, neither of the participants is more important than the other is, and has neither more power nor more specific knowledge than the other. Buber considers I-It relation as a form of monologue, whereas I-Thou can be considered as a form of dialogue. If we face another person in I – It relation, we can never become ourselves nothing more than It, an object, to the other person, because relations can always be regarded as being reciprocal. Even though Buber argues that human beings typically face their environment, human and physical, in I – It relation, there is no reason not to strive for dialogical relationships in learning situations. Accomplishing dialogical relationships is largely a matter of learning communities' attitudes and ways of relating to each other. If we want, we are always able to change our attitudes, and when doing so we at least give a possibility for a subject – subject relationship to develop.

Gadamer (2004) sees dialogue to be strongly related to the philosophy of hermeneutics, which is concerned with the interpretation of spoken or written words and language. Just as in hermeneutics, the objective in dialogue is to constantly interpret another person's words and meanings. Gadamer's idea of dialogue can also be connected to the idea of social construction (Berger & Luckmann, 1966), according to which there is no absolute truth or description of knowlege, because each person is interpreting the world they live in through their own experiences. If dialogue is considered as an act of interpretation, it is important to note what is being interpreted. Dialogue not only involves the interpretation of others - it is also an act of interpreting oneself. Hence, dialogue can be seen as an act of receding from oneself in order to examine internal thoughts from a distance and to examine one's own otherness in relation to others. When we try to understand a person's utterances by making sense or interpreting what the person is saying, we are actually in a process of inner and outer dialogues (Giddens, 1991).

Mikhail Bakhtin (1984), a Russian linguistic and especially language philosopher, has created a theory concerning dialogue based on his research of Dostoyevsky's literature. His idea is that Dostoyevsky's characters, heroes, in their inner dialogue know more about

themselves than the writer does. According to Bahtin "richness of independent, in each other's unmelted voices and consciousness's, the genuine pholyphony of equal voices is the fundamental quality of Dostoyevskys novels" (Bahtin 1984). Dostoyevsky created a polyphony novel in which independent, equal consciousness and their different worlds meet. In his novels, Dostoyevsky does not present his own monological view of the world through characters mouths or their doings. In his novels, the characters' views of the world meet in dialogical interaction without the writer's involvement. Bahtin believes that Dostoyevsky is a real genius, not seriously schizophrenic. Other consciousness cannot be observed, analyzed and defined as objects – one can only talk with them dialogically. To think about them is to talk with them; otherwise, they show us the side of them, which has been defined as object. Then, no dialogue becomes possible.

Within psychotherapy and everyday life, dialogue is regarded as being of importance (Stern, 2004). Stern (1985) has influenced psychotherapy through his research, especially concerning the relation between parents and infants. In his research, he has created special phenomena, present moments. Present moments are moments that, according to Stern (2004), last about five to eight seconds and consist of total presence between a parent and a child. These moments can be regarded, if one so wants, as moments of dialogue in which two subjects meet each other. This is in line with Buber's idea of dialogical relationship when two subjects meet each other without expectations of one being more that the other, even if their roles are different. Even in learning processes, the present moments can be seen as joint and mutual experiences between student and teacher, which lead to joint understanding concerning issues discussed.

2   DIALOGUE AND EDUCATION

According to Buber (1993) relation between a "teacher" and student should be dialogical. Educational processes are based specifically on I – Thou relations, which divides them from objectificative I – It relations. Education does not mean concrete maintenance but, as best, promotion and realization of the students own self.

Burbules (1990) defines dialogue as being a pedagogical and communicative relation, in which discussions are directed to teaching of new, mutual learning and understanding. Dialogue is ongoing and developing communication when the aim is a larger understanding of actual issues, others and ourselves. In some occasions, partners do not actually know where the dialogue is leading them, neither if it is possible to reach educational goals set through dialogue. However, dialogue is very educative and empowering.

According to Freire (1970) teacher and student are connected together to learn and re-learn something, instead of transferring static knowledge. The aim with dialogical teaching and learning is to develop mutual understanding through joint investigation, not to transfer knowledge from experts to passive recipients. As does Buber, also Freire points out the students' nature as subjects in learning processes. When thinking that knowledge is a set of objective facts that should be stored in the head of a student, educational set-up is about subject – object relation. This kind of knowledge is named by Bakhtin as "monolgical truth". Mutual learning and investigation is dialogisation of the truth.

Bohm and Peat (1991) consider dialogue as containing attitude of willingness to listen to others with sympathy and interest, in order to understand the other's point of views. According to Bohm and Peat, one must receive disagreements without confrontation. Instead, one must be prepared to investigate points of views that one does not agree with. One must be prepared to change own points of view when it is justified. The nature of dialogue is to have capability to see various points of views, as well as notice in the first instance significance of joint understanding. In practice, educational situations wish to strive for mutual understanding and preparedness to change own points of view can be difficult for a teacher, when being afraid to lose the position of an authority. Striving for real dialogue requires a completely different attitude than maintained traditional teaching and academic debate. Essential aspects in dialogical education are acceptance of diversity and the otherness of another.

Burbules (1990) defines six elements of dialogical relationship:
1. Concern. Participation in dialogue means commitment and deference of other participators. Dialogical relationship is to "become part of something".
2. Trust. Is connected to commitment, and when committing one gives something from the self and trusts others. Generally, trust is a significant part of educational processes.
3. Respect. Listening to other's points of view requires respect of the other, and presenting own points of view requires self-respect.
4. Appreciation. A person's capability to value the unique quality of another helps one to appreciate another, in spite of his/her otherness.
5. Affection. Freire speaks about love as essential aspect of real dialogue, and even Buber refers to this direction. However, in educational situations there is also a dimension of "strangeness". Then love could be defined more as nearness.
6. Hope. In dialogue, participators can meet several setbacks, and hope gives possibilities for dialogue to become successful.

Dialogue can be seen as being pedagogical and it demands active participation of all parts. Participation must be voluntary and guarantee active participation for everybody. All participators must have possibilities to influence the discussion topics, ask questions, challenge points of views presented and present their own points of view. Since dialogue is communicative action, its aim includes joint understanding or mutual strive for joint meaning. This requires capability to understand others thoughts and capability to change own ideas, perhaps especially concerning the teacher. Patience is also important, so that one can stay in dialogue even if success seems uncertain - tolerance of uncertainty. This is something that the teacher as best can influence by being open to different aspects concerning pedagogical issues. Reciprocity means that respect and care of others predominates among participants. Simplified: what you require from others you must require from yourself also. Since the goal for dialogue is to create better understanding concerning our own and others ideas, reflection concerning others ideas and self-reflection are required. Especially teachers should have capability to self-reflect openly with the students. This can strengthen the student's capabilities of self-reflections and openness. Dialogue demands communicative skills, communicative virtues that one should develop continuously.

Most developmental psychologists consider a human being's development to be continuous during lifetime (egg. Vygotsky, 1978; Stern, 1985). According to Vygotsky:

- Learning and development is a social and collaborative activity that cannot be "taught" to anyone, the student constructs his/her own understanding in his/her own mind during the process in which the teacher acts as a facilitator
- The zone of proximal development can be used to design appropriate situations, during which the student can be provided with the appropriate support for optimal learning
- When providing appropriate situations, one must take into consideration that learning should take place in meaningful contexts, preferably the context in which the knowledge is to be applied
- Out of school experiences should be related to school experiences. Pictures, news clips, and personal stories incorporated into classroom activities provide the students with a sense of oneness between their community and learning.

It can be assumed, if one wants, that dialogical content in education leads to more interest among students to continue to investigate their working environments, their own work and study more about these issues. Then the dialogical content in education should be seen as strengthening sustainable development.

3   UNDIALOGICAL RELATIONS IN EDUCATION

Educational situations nature is that teacher and students are not equal concerning the issue for education or verbal competences. An educational situation is its own kind of a language game, which rules the teacher masters better than the students - generally speaking, at least.

As mentioned earlier, a teacher's attitude is of importance for successful dialogue in educational situations. Gadamer (2004) writes about two different types of authority, authoritarian authority and authoritative authority. According to Gadamer authoritarian authority can be defined as an authority who knows the most and best, and "owns the power". Authoritarian authority does not need others points of view to fulfill tasks, for example education, but merely distributes knowledge he/she has and waits for students to receive it. There is no need for joint understanding and dialogue. Authoritative authority, in turn, is in need of others points of view and ideas to understand the context and need further ways to achieve goals of education. For this, dialogue is required to achieve joint understanding and joint investigation of "truth". The position as an authoritarian authority can be seen as based on horizontal expertise, which is opposite to vertical expertise in which there is always somebody who knows best and most. In horizontal composition, all participants' points of views and ideas are needed to create something common. A teacher should strive to dissolve an authoritative position during education. Dialogical attitude is the main goal for educational situations. Dialogue as principle for education is opposite to indoctrination, which in worst cases is about smuggle thoughts, beliefs, theories, ideas etc. without no kind of students conscious consideration to create joint understanding. Instead, students should be given skills for equal discussion with the teacher to strive for joint understanding. Dialogue is to re-perceive reality together, mutually and on multi-level.

If equal and reciprocal dialog cannot be reached on any educational level, to strive for it on any other area of human activity is exceedingly difficult.

4   DISCUSSION

Concerning dialogue and its significance in Higher education it seems to be of great importance to, at least, strive for dialogical relations and dialogical content in educational practices. However, there is also a question about the depth of dialogue, how possible it is for a teacher to be in dialogue with students. Within psychotherapy there is a discussion concerning "being in dialogue" with clients. This discussion is often based on where the difference is between being personal and being private. Post traditional psychotherapy is of the opinion that a therapist should be personal, not private. Can it be so that this also is a matter for education and teachers?

As Stern (2004) has concluded, present moments promote positive and sustainable development for a child and a client within psychotherapy, since a human being comes into existence in dialogue. Postmodern psychotherapy does not consider the therapist as being an expert and the client as being the object for the therapist's actions. So does not either a teacher, who strives for joint learning and dialogical content in learning. Then also present moments can be possible within education, a joint experience between student and teacher when they find something new that connects their thoughts and ideas.

One can ask, what is common within psychotherapy and education? The author considers both roles as requiring an attitude that allows the other (student or client) to express issues that are important to him/her. This can lead to joint learning in a situation where both part's knowledge, experiences, thoughts and emotions are required.

REFERENCES

Bakhtin, M., 1984. Problems of Dostoyevskyj's poetics: Theory and history of literature (Vol. 8). Manchester, England: Manchester University Press.

Berger, P.L. & Luckmann, T., 1966. *The Social Construction of Reality*. New York: Doubleday.

Bohm, D. & Peat F. D., 1991. *Science, Order and Creativity*. New York: Bantam Books.

Buber, M., 1993. *Minä ja Sinä*. Juva: WSOY.

Buber, M., 1997. *Jag och Du*. Ludvika: Dualis Förlag AB.

Burbules, N., 1990. *Dialogue in Teaching*: Theory and Practise.

Freire, P., 1970. *Pedagogy of the Oppressed*. New York: Seabury.

Gadamer H-G., 2004. *Hermeneutiikka: ymmärtäminen tieteissä ja filosofiassa*. Tampere: Vastapaino, Kirjakas.

Giddens, A., 1991. *Modernity and Self-identity. Self and Society in the Late Modern age*. Cambridge: Polity Press.

Stern, D., 1985. *The Interpersonal World of the Infant*. Karnac. London.

Stern, D. 2004. *The Present Moment in psychotherapy and everyday life*. New York: W.W. Norton & Company Inc.

Vygotsky, L., 1978. Interaction between Learning and Development. In Gauvain and Cole (Eds). *Readings on the Development of Children*. New York: Scientific American Books. pp 34-40.

Why I am Skeptical about Sustainability – and you should be too.
Post-Politics and Education in the Digital Age

Matteo Stocchetti[i]

Abstract

When people think and discuss sustainability, critical voices are seldom heard. In this chapter, I pay attention to these voices and present some reasons for skepticism. The goal of this chapter is to bring the reader's attention to the main criticisms levelled to this notion with special attention to the implications in education. At least three points are relevant here. First[ii], the notion of sustainability participates to a political discourse that supports political exclusion and technocratic governance, rather than inclusion and emancipation. Second, the Education for Sustainable Development program in education is an initiative that seeks to conform educational systems worldwide to the needs of global corporate governance. Third, the critical education for sustainability is a promising alternative to this program.

Sammandrag

Då det tänks och diskuteras om hållbarhet, är det sällan kritiska röster som blir hörda. I detta kapitel ämnar jag uppmärksamma dessa röster och presentera en del orsaker som berättigar en skepticism för just hållbarhet. Målet med kapitlet är att ge läsarna en inblick i kritiken mot idén om hållbarhet, speciellt då det kommer till utbildning. Det finns åtminstone tre relevanta poänger här. För det första deltar begreppet hållbarhet i en politisk predikan som stöder politiskt uteslutning och ett teknokratiskt styre, istället för inkludering och frigörelse. För det andra är Education for Sustainable Develop-programmet ett initiativ som arbetar för att utbildningsprogram runtom i världen skall anpassa sig till och tillfredsställa ett globalt korporativt styre. För det tredje är den kritiska utbildningen om hållbarhet ett lovande alternativ för detta program.

Keywords: Sustainability, post-politics, critical sustainability studies, critical pedagogy

1 INTRODUCTION

The main point of what follows is that we must be critical of sustainability and the practices it inspires. More precisely, I will provide some arguments to convince the reader that, especially in education, we should be ready to reject mainstream interpretations of sustainability and oppose some of the practices and the more or less implicit assumptions and beliefs that accompany them. And more than anything else, we should be wary of the efforts to enforce the Education for Sustainable Development (ESD) as the new dogma in education. In this chapter, I claim that there are at least four reasons why we should be critical and uncompliant with the prevailing meaning, uses and educational incitation of sustainability.

First, because one should always be critical of every idea that sweep across debates and media supported by seemingly universal consensus. As I shall argue later on, these ideas

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are often ambivalent, often too vague to offer grounds of disagreement that is further inhibited by the role of scientific knowledge and 'experts' in the relevant debates, but also by the moral connotations associated to sustainability itself, which expose the dissenter to the accusation of being 'ignorant' or 'irresponsible'.

The second reason is that we should always be critical and diffident of ideas promoted through catastrophism and policies that seek consensus through fear. Ideas and values whose appeal depends on the politics of fear, are the communication tools through which elites associated to failing ideologies seek to preserve their declining influence in the political systems (Stocchetti, 2007). The currency of sustainability as a global and absolute moral imperative depends on the evocation of catastrophic scenarios that have become an integral part of our daily lives and that are continuously re-enacted to justify the policies designed to avert them. However, while we get used to think and see the signs of some kind of catastrophes, we also get used to disregard other signs and other catastrophes brought about by deliberate politico-military decisions and global policies inspired by unchallenged ideological assumptions.

The third reason has to do with the "double productivity" of the politics of fear: it makes certain decisions and actions necessary while at the same time making other decisions and actions impossible. When sustainability is enforced through the politics of fear, one should wonder what else is effaced. As I shall argue in a moment, authoritative critics suggest that, the politics of sustainability increase the influence of experts and managers to the detriment of anybody else, hence performing as a knowledge-based form of exclusionary practice – if not as the ultimate effacement of the political itself.

Finally, and in relation to education, as professional educators we should be aware and very critical concerning the pedagogical grounds and ideological implications of the Education for Sustainable Development (ESD). The problem here is that the criticisms about the prevailing interpretations of sustainability, which are widely voiced in academic debates, are however largely ignored where they should matter most: in the formation of curricula for higher education.

This chapter is divided in two parts. In the first part, I will present three main orders of criticism to the notion, the politics and the ideology of sustainability, respectively. In the second part, I will look at the implications of these criticisms when sustainability is discussed in education and, in particular, from the standpoint of critical pedagogy.

2 THE CRITICISM TO THE POLITICAL DISCOURSE OF SUSTAINABILITY

One can roughly distinguish three levels of criticism addressing the actual meaning of the concept, its usage in politics and the impact of sustainability discourse on the political itself - that particular dimension of the social construction of reality in which, among other things, power is transformed into action. Moderate criticisms point to some conceptual shortcomings of 'sustainability' that however also account for the functionality of this notion in political discourse and practices. Radical critics argue instead that sustainability is the signature of a profound change in the nature of politics itself, after the end

of the Cold War and associate sustainability to another notion, that of 'post-politics' and to the post-political 'condition'.

2.1   The meaning of sustainability: the political functionality of conceptual ambivalence

The first order of criticism concerns the meaning of sustainability, the fundamental ambivalence of this notion and its political functions (Walker & Shove, 2007). A widely shared point here is that sustainability is a problematic concept because its meaning is ambivalent and this ambivalence, while establishing the grounds for its political functionality, makes the meaning and practice of sustainability itself, however, vulnerable to the influence of interests, visions and policies which are ultimately associated with capitalism. This flexibility explain the popularity of the notion but implies the risks of sustainability to become a 'buzzless buzzword' (Mckibben, 1996).

These risks become evident if one asks, 'who wouldn't be in favour of sustainability?' (Krueger & Gibbs, 2007, p. 2). As Eric Swyngedouw ironically observes:

> Greenpeace is in favour, George Bush Jr. and Sr. are, the World Bank and its chairman (a prime war monger in Iraq) are, the pope is, my son Arno is, the rubber tappers in the Brazilian Amazon are, Bill Gates is, the labour unions are. All are presumably concerned about the long-term socio-environmental survival of (parts of) humanity; most just keep on doing business as usual. (Swyngedouw, 2007, p. 20)

And there is evidence for this irrelevance. In an empirical study of 30 cases of community planning in the US, for example, Philip R. Berke & Maria Manta Conroy apply an operational definition of sustainability based on six principle[i] to find out that there is no significant difference between plans that state an explicit commitment to sustainability and those who do not. (Berke & Manta Conroy, 2000). Also looking at the US case, Rob Krueger & Julian Agyeman call attention to 'actual existing sustainabilities' as an approach to address the gap between theoretical/institutional formulations and local practices (Krueger & Agyeman, 2005).

More recently Kathleen R Smythe, observed that after twenty year of usage, the notion of sustainability has failed to deliver its promises because the social and environmental dimension have been separated and in practice neglected to the advantage of the economic dimension of development (Smythe, 2014). The paradox one should be aware of and try to understand is therefore the selective mix of failure and success affecting sustainability: the failure to realize its original promises but the success of this notion in promoting the neoliberal project. From the literature engaging with the relevant debates (Jacobs, 1991), (Dresner, 2002), (Holder & Lee, 2007), (Krueger & Gibbs, 2007) (Newig, et al., 2008), (Robertson, 2014), (Portney, 2015), at least few elements emerge. One consideration is that the conceptual indeterminacy or ambivalence may actually be assets in normative governance. Drawing of the work of Zygmunt Bauman on ambivalence and postmodernity, Gordon P. Walker and Elizabeth Shove argue that sustainability is in fact an inher-

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[i] This operational definition is based on six principles: 1) harmony with nature, 2) livable built environment, 3) place-based economy, 4) equity, 5) polluters pay, and 6) responsible regionalism.

ently ambivalent goal of normative governance. (Walker & Shove, 2007). Douglas Torgerson suggests that the notion of sustainability is key to capture the 'ambivalence of environmentalism within a broader ideological field' and 'the transformation of environmentalism from a discourse of limits to a discourse of sustainability' (Torgerson, 1995, p. 4).

Another element is that the 'functional malleability' of sustainability makes of this notion a tool for the achievement of political goals. For Timothy W. Luke, for example, sustainability participates to the environmentalist discourse as a power-knowledge that managers and organization resort to in their effort to increase their power (Luke, 1995). Similarly, Walker and Shove point to the practical political advantages of the 'sustainability label':

> If an innovation, a technology, a strategy, a policy plan, a way of thinking becomes categorically 'sustainable', economic, social and political 'goodies' of various forms then flow (Walker & Shove, 2008, p. 25)

An influential political function of sustainability is what Thomas F Gieryn called 'boundary work': the use of science or 'expert knowledge' to establish who can legitimately participate in the political process of negotiation that establishes what sustainability means in practice. (Gieryn, 1999, p. 27)

The political functionality of sustainability in terms of boundary work, consensus building, accumulation of power etc., may also depend of the fact that, right because of its conceptual ambivalence or 'emptiness', this notion establishes common, albeit ambivalent, discursive grounds (Myerson & Rydin, 1996). The impression of a common language, however, contribute to hide the "politics of discourse" or the competition among different interpretations and, in fact, different concepts of sustainability (e.g. 'ecological modernization'), reflecting a broad competition between social forces and ideologies in society (Hajer, 1995).

The consensus is on the principles not on the practices, on generic not specific goals; consensus is on values but not on priorities or hierarchies of value since the latter implies to decide not what is 'good' but which good should be sacrificed in the pursuit of another, presumably higher good. Nevertheless, this is what politics is all about: a competition for the control over the distribution of values in society. As Michael Jacobs observed,

> Many political objectives are of this kind – liberty, social justice and democracy. These concepts have basic meanings and almost everyone is favour of them, but deep conflicts remain about how they should be understood and what they imply for policy (Jacobs, 1991, p. 60).

For example, today even the IMF and the World Bank embrace the standpoint of sustainability, expressing concern, for example, about the sustainability of the international debts of 'low income countries'. The implicit 'ecological risk' inspiring this concern is the possibility that growing inequalities in the distribution of wealth may bring about the collapse of a capitalist social order worldwide as for example suggested in an influential analysis by the French (non-Marxist) economist Thomas Piketty (Piketty, 2014). Applied to world politics, the standpoint of sustainability, allows one to discuss international debt in terms of 'sustainability' of the debt itself as if this was a necessary element of our 'environment' – and thus excluding alternative possibilities such as the cancellation of this debts, the possibility of financial emancipation of poor countries from the blackmail of global financial institutions and ultimately from the forced embracing of global capitalism as the

only model of socio-economic development. From a notion designed to bridge ideological difference, sustainability has become the tool to save capitalism from itself and, for example, to reduce inequalities in order to preserve them.

In this perspective, the flaws in this concept – ambiguity, ambivalence, etc. – are not part of the problem but rather the solution. These 'flaws' are what account for the political flexibility, usefulness and ultimately popularity of this notion. This is an effective tool in political practice, to create boundaries of inclusion/exclusion, influence the distribution of moral authority among participants to the political competition, and ultimately enforcing patterns of consensus among the population which leaves leaders quite free to pursue specific policies. We need to give a closer look to the *politics of sustainability*.

2.2   The Politics of Sustainability

A second order of criticism starts from the assumption that the ambivalence of the concept of sustainability has a fundamental political significance and criticism needs to look deeper into this significance in order to understand what is the nature of interests and ideological standpoint served by political functions of this notion. Critics in this group are nearly unanimous in pointing to the fact that the most influential political actors easily appropriate the rhetoric of sustainability in pursue of their interests. Furthermore, some argues that, in this rhetoric, sustainability becomes a substitute value: a value that is promoted in order to divert attention from other and more contested values and goals.

For example, discussing the notion of sustainability in urban policy, Peter Marcuse is most explicit about this manipulative use of sustainability (Marcuse, 1998). The tendency to assess social policy only in relation to sustainability ultimately transforms the meaning of sustainability itself, from 'an honourable goal for carefully defined purposes' into 'a camouflaged trap for the well-intentioned unwary' (Marcuse, 1998, p. 104). Sustainability, therefore 'is not enough', Marcuse starting point is simple and sharp: sustainability is not synonymous with social justice; the two are very different and not even related values. In fact,

> Programmes and policies can be sustainable and socially just but, unfortunately, they can also be sustainable and unjust. On the other hand, unsustainable programmes may be very just but, unfortunately, some very unjust programmes are also sustainable (Marcuse, 1998, p. 103).

The focus here is not on the ambivalence of the meaning but of the uses of this concept. Marcuse observes that the notion of sustainability should not be used to describe an independent goal for social programs but a constraint or a limitation in the formulation of a programme for specific and socially acceptable goals (Marcuse, 1998, p. 107). In fact

> If the sustainability of a measure is taken as a goal, the term can become either tautological or perverse… If, however, sustainability is a constraint rather than a goal, then it can be used as a criterion to evaluate measures that achieve otherwise defined desirable goals; a desirable measure that is not sustainable is not as good as an equally desirable measure that is (Marcuse, 1998, pp. 106-107).

In his analysis, Peter Marcuse argues that sustainability is construed as a goal rather than a condition of social policy programmes precisely to avoid the discussion about the nature of these goals. Such a move, allows decision-makers to 'escape the unpleasant business

of facing conflicting interests, having to deal with the unequal distribution of power…' (Marcuse, 1998, p. 110). While construed as a goal in itself, sustainability became a discursive tool to preserve existing relations of power, its usage to challenge inequalities is far more problematic and, as Marcuse observes, 'if the goal is redistribution of wealth or opportunity, or sharing power or reducing oppression, sustainability does not get us far' (ibid).

Looked at in a historical perspective, if one thinks about the intentions that inspired the original formulation of the concept in 1987, one may feel, as Adrian Parr suggests, that the notion of sustainability has indeed been "hijacked", and the culture of sustainability has become itself a tool of power. As Parr argues,

> Sustainability offers and alternative narrative to the one of never-ending militarism…a renewed sense of optimism for a future different from the present and past, at a time in history when the formal political arena offers only fear tactics in place of promise and vision (Parr, 2008, p. 10).

After the end of the Cold War, after the decade or so of 'humanitarian wars', in the age of a permanent 'war on terror', increased corporate and state surveillance associated to the strengthening of radical tendencies, the culture of sustainability presents ambivalent connotation. On the one hand, Parr observes

> …the deepest challenge sustainability culture faces is the increasing militarization of life, which is bound up with the logic of late capitalism (global markets, multinational corporate activity, outsourcing of labor, and the important role the media plays in promoting consumer culture), and in turn argue it is the poor who largely bear the blunt of both. (Parr, 2008, p. 4)

On the other hand, however, the same culture is not immune from the influence on the same forces it tries to oppose. In fact,

> The affective power of sustainability culture, however, is not always affirmative. It can take on a more conservative and reactive flavour when used to discipline everyday life…. issues of sustainable design also constitute an exercise of power. The more the culture of sustainability is appropriated by the mechanisms of State and corporate culture, the more it camouflages the darker underbelly of both – militarism and capitalism. (Parr, 2008, p. 6).

Alessandro Vercelli looks closer into the relation between sustainability and capitalism arguing that

> The multiple causes of the crisis have a common root in the intrinsic unsustainability of the neoliberal development paradigm that has ruled in most countries since 1980s. …the current policy paradigm must be superseded by a radically different policy strategy fully complying with the principles of sustainability. (Vercelli, 2017, p. 3)

2.3   Sustainability and the post-political condition

Discussing the political discourse of sustainability, Fredric Jameson observed:

> Someone once said that it is easier to imagine the end of the world than to imagine the end of capitalism. We can now revise that and witness the attempt to imagine capitalism by way of imagining the end of the world. (Jameson, 2003)

A third and in some respects more radical line of criticism to sustainability comes from authors who consider this notion a signature of the post-political condition. In this perspective the manipulative use of this concept is not a feature of specific policies – some sort of dirty tricks that ruthless politicians or representatives of ruling elites deploy when dealing with social policies to avoid the issue of injustice and inequality - but a structural feature of the political itself in our age.

The post-political condition is the condition of a society in which fundamental features of the social order, such as the distribution of power in society, are not anymore a matter of discussion nor, even less, of competition between social groups. In a post-political society, therefore, ideological alternatives are not tolerated and ideological dissent (dissent about fundamental aspects of social order) is ignored (e.g. as 'utopia') or repressed (e.g. as 'terrorism').

The concern with the impossibility of ideological dissent in advanced capitalism or the 'closing of the political universe' was already voiced by Herbert Marcuse (Marcuse, 2002 (1964)). In the aftermath of the Cold War, however, the post-political condition is discussed by authors such as Slavoj Žižek, Alain Badiou, Jacques Rancière and Chantal Mouffe, in relation to the reactionary involution of Western democracies and globalization. According to Slavoj Žižek, for example:

> In post-politics, the conflict of global ideological visions embodied in different parties which compete for power is replaced by the collaboration of enlightened technocrats (economists, public opinion specialists …) and liberal multiculturalists; via the process of negotiation of interests, a compromise is reached in the guise of a more or less universal consensus. Post-politics thus emphasizes the need to leave old ideological visions behind and confront new issues, armed with the necessary expert knowledge and free deliberation that makes people's concrete needs and demands into account. (Žižek, 1999, p. 198)

The post-political critique interpret sustainability as the notion that, in the age of globalization and digitalization, establish the grounds for closing the political universe to the advantage of capitalism, in its Neoliberal version. Eric Swyngedouw, for example, points out that the notion of sustainability is based on an implicit notion of Nature, an abstraction that, once accepted, becomes an influential agent in human affairs, just like the 'market'.

> Not only are the environment and debates over the environment and nature perfect expressions of such a post-political order, but in fact, the mobilization of environmental issues is one of the key arenas through which this post-political consensus becomes constructed. (Swyngedouw, 2007, p. 26)

The connotation of sustainability and sustainability politics in terms of post-political condition is even more explicit in Žižek that looks at the ideological implication of sustainability as the core concept of contemporary ecologism and on the construction of Nature itself:

> Ecology is one of today's major ideological battlefields, with a whole series of strategies to obfuscate the true dimensions of the ecological threat: (1) simple ignorance—it's a marginal phenomenon, not worthy of preoccupation, life (of capital) goes on, nature will take care of itself; (2) science and technology can save us; (3) leave the solution to the market (higher taxation of the polluters, etc.); (4) superego pressure, emphasising personal responsibility instead of large systemic measures—each of us should do what he/she can (recycle, consume less, etc.); (5) maybe the worst of them all is the advocating of a return to natural balance, to a more modest traditional life by means of which we renounce human hubris and become respectful children of our Mother Nature again. But this whole paradigm of Mother Nature derailed by our hubris is wrong. (Žižek, 2015)

Interpreted from the standpoint of the post-political critique, the incitation to think in terms of sustainability is an incitation to think the future of humanity away from the 'social' and onto a notion of Nature crafted to perform ideological functions and to exclude the possibility of discussing the capitalist way of 'using' resources, 'laws', spaces, phenomena and other things usually refer to as 'nature'.

> It is a treacherously deceitful Nature that enters politics, one that is packaged, numbered, coded, modelled, represented by those who claim to possess, know, understand, speak for the "real Nature". In other words, what enters the domain of politics is the coded and symbolized versions of nature mobilized by scientist, activists, industrialists and the like (Swyngedouw, 2007, p. 21)

In the sustainability discourse, the 'damage' done by this notion of nature results from false idea of the breach of an original 'harmony' that have to be re-established or from an unpredictability and 'risks' that have to be managed to secure the future of the human species. These different and fundamentally contradictory representations of nature (and what sustainability requires) have in common at least two aspects: they hide the fact that, as Žižek provocatively suggested, "Nature does not exists" as something to be saved or put back in balance, something that have intrinsic needs or, even less, demands.

> …maybe paradoxically we should accept that nature doesn't exists, not in any crazy subjectivist way (…) but in the sense that the image of nature that we spontaneously accept, nature as a balanced, harmonized circulation which is then destroyed through excessive human agency, that nature doesn't exists! Nature is in itself a series of megacatastrophies. Nature is crazy. Things go wrong all the time in nature. Just think about oil. Can you imagine what a gigantic catastrophe have to have happened millions of years ago so that we have oil? This is nature. What we should do? The first thing I claim is we should accept our full alienation from nature (…). I think that (…) maybe one of the consequences of ecological crisis will be that this, basically, American way of life vision of free-spending, this individualist liberty, consumption and so on, we will have to get out of this and invent a new mode of living together. (Žižek, 2016)

Elaborating on Žižek provocation, Swyngedouw discusses the implications of a reified idea of Nature:

> There is nothing foundational in nature that needs, demands, or requires sustaining. The debate and controversies over nature and what to do with it, in contrast, signals rather our political inability to engage in directly political and social argument and strategies about re-arranging the social co-ordinates of everyday life and the arrangements of socio-metabolic organization (something usually called capitalism) that we inhabit. In other words, imagining a benign and 'sustainable' Nature avoids asking the politically sensitive, but vital, question as to what kind of socio-environmental arrangements do we wish to produce, how can this be achieved, and what sort of natures do we wish to inhabit. (Swyngedouw, 2007, pp. 19-20)

The idea that sustainability is a signature concept for the post-political condition, and ecology what Swyngedouw labelled as the new 'opium for the masses' (Swyngedouw, 2013), has been applied to the empirical analysis of social policies and, in particular, to sustainability planning.

For example, in his study of the *National Planning Policy Framework*, introduced in the UK in March 2012, Mike Raco, reports that the notion of sustainability has entered the politics of planning, equating sustainability "with private-led state 'efficiency' and managerialism" (Raco, 2014, p. 27)

> Paradoxically, under the rhetoric of sustainability and planning, communities and citizens are told that they are 'being empowered' at a time when their capacities to influence welfare programmes are being undermined in the drive to get things done. (Raco, 2014, p. 27)

In this analysis, sustainability is a notion that fully participate to 'post-political agendas…used to establish new modes of inequality as the political subjectivity of modern citizens is (re)defined through the lens of consumerism' (Raco, 2014, p. 27)

> If democratic politics is understood to consist of an equality of access to decision-making frameworks, then current shifts are indeed anti-democratic and post-political in nature. (Raco, 2014, p. 27)

Coherently with the authors in the post-political tradition, Raco believes that effective opposition to the ideological usage of sustainability requires that people become aware of what the post political implies but also an effort of imagination to formulate new and more effective forms of political participation and mobilization.

> The mobilization of post-political forms of sustainability requires publics and citizens to re-imagine political processes and to recognize the shifting modalities of (institutionalised) power in which they are now operating (Raco, 2014, p. 44)

The problem of how to oppose the post-political consensus of (capitalist) sustainability is given different solutions among the critics.

Ingolfur Blühdorn addresses this problem and claims that the answers suggested by Žižek Swyngedouw and others in the neo-Marxist tradition are optimistic, and therefore impracticable, because the analysis supporting them is ultimately is biased by outmoded conceptualization of political subjectivities in the 21st century capitalism. (Blühdorn, 2014)

While Swyngedouw and the post/neo Marxist critique argue against the undemocratic politics associated to the sustainability, Blühdorn suggests a non-Marxist critique. He argues that the notion of democracy itself may be outmoded and that the kind of technocentric tendencies of sustainability reflect the evolution of subjectivity and participation in the last few decades. The 'politics of unsustainability' is the notion that Blühdorn uses to describe the process through which participation, equality and other democratic values, including the notion of democracy itself, are mobilized in support of an approach to sustainability that is ultimately unsustainable: it preserves the exploitation of resources in support of the power of the few to the detriment of many.

Blühdorn starting point is the notion of unsustainability and the idea that the core problem of capitalism is to manage its own unsustainability. In his account, the post-political condition supported by the politics of unsustainability is a far more complex problem with far more oppressive effects that the neo-Marxists critics suggest.
For Blühdorn:

> The politics of unsustainability transfigures the non-negotiable norms of subjectivity and self-realisation to which it is firmly committed into systemic imperatives. They thus acquire a status of objectivity (authority) which is on a par with the categorical imperatives emerging from political ecology's fundamentals. And the state, civil society and the private sector, supposedly all equally powerless vis-à-vis the almighty system, join forces in a new social contract to collectively execute the inevitable. (Blühdorn, 2014, p. 162)

As it seems clear, this perspective is far more radical and pessimistic about the possibility of doing something about the oppressive implications of the post-politics of sustainability. Whereas in the neo-Marxist approach the solution is simply to recovery democratic subjectivities and politics, in this approach the subjectivities are more part of the problem than the solution and democracy itself a model of political participation outdated by a variety of circumstances, including the change in subjectivities (the interests, value and methods of political participation).

Blühdorn address this complexity by narrowing down the reach or goals that one can expect from theory, and therefore, the theoretical implications of his analysis. For Blühdorn:

> If it wants to remain plausible, critical sociology needs to confine itself to approaching the politics of unsustainability from a descriptive-analytical perspective, fully focusing its efforts on revealing the mechanisms that supports it. (Blühdorn, 2014, p. 163)

This suggestion is justified on more practical grounds by the hope that

> This kind of description and analysis will release new political energies, but it is impossible to predict what kind of political campaign they might forge. This is an uncertain and potentially risky perspective. Yet, the hopes and optimism which the neo-Marxist narrative conveys is most certainly false. (Blühdorn, 2014, p. 163)

3 SUSTAINABILITY AND EDUCATION: TOWARDS A CRITICAL PEDAGOGY OF SUSTAINABILITY

The problems, criticisms and reasons for doubts expressed by authoritative members of the academic community and from different perspectives should suggest caution and invite reflection when it comes to education: to the engagement with younger generations and the future of society. Perhaps not surprisingly, however, institutional initiatives shows very little of no inclination to either acknowledge these criticisms or otherwise problematize sustainability and development.

In this final section I will look at the Education for Sustainable Development program (ESD), promoted by UNESCO and to some features of it that seems to confirm the concern of more critical perspective. I will also look at a summary of the criticisms levelled against this programme and at least one formulation of a more critical approach to sustainability and to education for sustainability.

3.1. The 'global' consensus on the Education for Sustainable Development program

The Education for Sustainable Development program (ESD)[i], is an initiative originally launched by UNESCO[ii] for the decade 2005-2014 and renewed with the Global Action

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[i] http://unesdoc.unesco.org/images/0024/002474/247444e.pdf
[ii] http://en.unesco.org/themes/education-sustainable-development

Programme (GAP)[i] to stretch until the year 2030. As an even cursory survey of the rhetoric of the texts presented on its website shows, the concepts and discourse of sustainability informing this program are perfectly in line, if not supportive, of the prevailing interpretations of sustainability. For example, the presentation of the goals of the initiative states:

> The Sustainable Development Goals (SDGs) adopted by the *global community* recognize the important of education in achieving their targets by 2030. [(The Global Action Programme (GAP) on ESD, 2017) emphasis added].

Who this 'global community' actually is, remains unclear. And this is a pity because, as the text put it itself, the whole political, social, ethical, educational, pedagogical, and even economical legitimization of the goal rests on this generic actor. The same text is illustrative of the importance of abstractions like this in the politics of sustainability, development and education. The 'global community' is a notion that is, while completely arbitrary and far-fetched, indispensable to allow sustainability discourse the kind of power-knowledge needed to enforce the politics of <u>un</u>sustainability.

The 'global community' is an idealization reflecting the Neoliberal ambition to create the 'global community' as a result of the global reach of capitalism. It is a fictional agent performing, contradictorily, as both cause and effect, mean and goal, and, in the case of the 'goals' of the ESD program, as a source of discursive legitimacy for initiatives based on visions, meanings, assumptions, highly contested. In this text, however, these contested aspects are fictionally legitimized and removed from picture – with the attention of the reader quickly draw into the 'hows', and away from the 'whats' and 'whys'.

Concerning the nature of the "GAP partners network"[ii] one learns that:

> The Partner Networks consist of 90 major ESD stakeholders from all around the world with extensive outreach capacity and the ability to innovate ESD. UNESCO selects the members of the Partner Networks based on the GAP Launch Commitments received from stakeholders. (ibid)

It is therefore not surprising that the list of the 'partners' features a large number of UN or UNESCO sponsored organizations for the promotion of sustainable development. Within the partners, of the "Global Action Programme on the Education for Sustainable Development" there is a group of 'key partners'. One of these is The Institute for Global Environmental Strategies (IGES) that presents its contribution as follows:

> Advancing ESD as a vehicle for quality education reform: Target – develop an integrated ESD model for educational policy reform. (2) Strengthening ESD monitoring and evaluation: Target – pilot ESD indicators for M&E and learning assessment approaches. (3) Research and capacity building on Education for Sustainable Consumption and Sustainable Lifestyles: Target - capacity assessment and stocktaking on ESC/SL policies and practices of several countries, and support development of National ESC/SL Guidelines. (4) "Transforming training environments" for strengthening SD capacities of government officers and on "accelerating sustainable solutions at local level" through advancing low carbon, sustainable city planning and participation.

These partners are then engaged in 'Four Priority Action Areas': 1) advancing policy, 2) transforming learning and training environments, 3) Building capacities of educators and

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[i] http://en.unesco.org/gap
[ii] http://en.unesco.org/gap/partner-networks/members

trainers, 4) Empowering and mobilizing youth, 5) Accelerating sustainable solutions at the local level. An interesting aspect of these 'priority action areas' is that they transform people into abstractions, and political action into social engineering. For example, what if 'learning and training environments' do not want to be transformed? What if "educators and trainers" do not share the same visions about sustainable development? What if the 'empowering and mobilization of youth' turn at least some of the 'youth' against the vision of this programme? And how do we know that the 'local level' will comply and participate to the initiatives of those seek to 'accelerating sustainable solutions' in their societies?

This kind of phrasing suggests that the possibility of dissent, resistance or opposition is not even contemplated. And this is possible only if the author of this text believed that resistance is unthinkable, impossible or futile: all options compatible with the post-political condition. All attention of the programme is on *implementation*, and this is construed as *mobilization*. In practice, the programme is an institutional, top-down form of political activism that seeks to accumulate, organize and use all resources to enforce prevailing interpretations and practices of sustainable development *at every level of education worldwide*.

Finally a look at the references: UNESCO sources and other literature but no trace of the critical contributions and the large critical debate about the meaning and practice of sustainability and sustainable development.

3.1   ESD and its discontents

It is widely accepted, and part of the mainstream consensus that the original and most authoritative meaning of sustainability is expressed in the document "Our Common Future" also known as the 'Brundtland Report'[i] . As part of that notion, the authors of the report explicitly state that:

> Poverty is a major cause and effect of global environmental problems. It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality. (p. 12)

'Poverty' is a term that, alone or in association to 'inequality', recurs about 100 times in a document of about 300 pages. By contrast, 'poverty' is virtually absent from the goals of ESD. While addressing poverty is a key concern in the original formulation of the sustainability and sustainable development, contemporary formulation of ESD seems more inclined to neglect it. On conceptual grounds, this neglect is at the origin of much of the criticisms levelled at ESD programme.

In a brief but excellent article, Xavier Bonal and Clara Fontdevila summarise the main grounds for criticism of ESD programme (Bonal & Fontdevila, 2017). These grounds include 1) the conceptual ambiguity of sustainability as this concept is used in ESD; 2) the 'instrumental turn' in the interpretation of ESD's sustainability and development to the advantage of neoliberal policies; 3) a neglect of infrastructural causes of sustainability and development problems, and too narrow a focus on the 'modification of individual attitudes' (Bonal & Fontdevila, 2017, p. 75), and 4) and the prevalence of a top-down

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[i] http://www.un-documents.net/our-common-future.pdf

approach, a criticism that is compatible with the post-political critique and the technocratic and ultimately exclusionary properties of sustainability as a signature notion of post-politics.

3.2 Towards alternative global futures: critical consciousness in sustainability and education

While Bonal and Fontdevila focus their attention on the wide criticism levelled to ESD program, in a recent article Felipe Ferreira discusses more in detail the feature of alternative and more critical notions of sustainability and development as these can apply to educational practices inspired by the critical pedagogy of Paulo Freire (Ferreira, 2017). Ferreira argues that prevailing interpretations of sustainability oversee the influence of colonial and exploitative past. These interpretations cannot inspire educational practices aiming at bringing about a better future. Ferreira thus argues that 'critical consciousness', a key notion in Paulo Freire's critical pedagogy, is essential to both the interpretation of and the education for sustainable development. Critical consciousness is needed to identify the oppressive influence in prevailing interpretation of sustainability and development but also as a fundamental competence in the education of individual that will be able to break with these influences and bring about emancipative interpretations addressing issues of social justice, exploitation and inequalities.

If sustainability means 'preserving the free market utopia against the challenges resulting from social injustice and natural depletion', then to promote 'sustainable education' is just about moulding future generations into the ideological mind-set of global capitalism and to train them to live with it: with the political and military conflicts caused by inequalities and the socio-economic catastrophes caused by the decay of the planet. Within this ideological framework, 'sustainable education' may simply mean the education compatible with privatization and globalization.

In a critical perspective, instead, the first step is to teach students to problematize the meaning of sustainability and to identify the relations of power that supports and are supported by alternative interpretations of this concept. The Freirean notion of 'critical consciousness' is key here for the linking the critique of sustainability, the normative effort towards alternative theoretical approaches and the educational implications and benefits of this effort. Ferrera thus discusses critical sustainability studies: an approach to sustainability based on the conceptual and normative assumptions of critical social theory, should be the grounds for a critical education for sustainable development whose main features are summarized as follows (Ferreira, 2017):

- …sustainability and sustainability education are not neutral, they either advance or regress justice and exploitation. Critical sustainability studies strives to promote justice and ecological regeneration.
- …an analysis of power is central to understanding and engendering positive socio-cultural change…
- …it is crucial to foreground the sociocultural identities and experiences of those who have been (most) oppressed…
- …positive socio-cultural transformation comes from the bottom up…

- … the human community is inherently a part of rather than apart from the wider ecological world…. (Ferreira, 2017) [no page numbers because the doc itself has no page numbers]

The main task of a nascent 'critical sustainability studies' is to bring to light the power implications of this notion and to debunk the ideological function of sustainability in support of the neoliberal project as the 'utopia of endless exploitation' (Bourdieu, 1998).

4   CONCLUSION

We need to be skeptical about the current enthusiasm about sustainability in general and sustainability in education in particular, because the notion of sustainability itself has features that facilitate its manipulative usage in support of exclusionary political practices and discourse. While the original notion was coined as a flexible tool to bridge ideological differences between capitalism and socialism, in the 21st century sustainability is predominantly construe within the framework of Neoliberalism. Empirical studies on the politics of sustainability, this notion is used to enhance the influence of experts and managers, to support top-down approaches to social policy, and ultimately to serve the interests of private companies and to mobilize the power of state in support of the neoliberal project.

Other and more radical criticism point to the fact that the politics of sustainability are symptomatic of the post-political condition: the condition in which the hegemony of a single ideology substitute the competition for the control over the distribution of values in society (politics) with administrative governance of expert and managers, thus ruling out even the possibility of social change. While neo-Marxist and non-Marxist radical criticism of sustainability disagree on what can be done to improve the situation (with the latter more pessimist than the former), they agree that sustainability is a discourse whose ultimate goal is to preserve capitalism and 'govern' the effects of this ideology that is in itself fundamentally unsustainable.

When it comes to education, the first thing to point out is that critical voices are seldom heard that the initiatives inspired by the Education for Sustainable Development programme reflect in significant ways prevailing interpretations of sustainability. In particular, the UNESCO 'Global Action Programme on the Education for Sustainable Development' seems a good example of top-down initiative, inspired by uncritical approach to globalization and designed to enforce prevailing interpretation of sustainability and development in education, worldwide.

A more critical rethinking of sustainability in education could usefully connect with the tradition of critical pedagogy and education in the line of Paulo Freire and others. The main argument in support of this connection is that neither sustainability nor education are politically or ideologically neutral practices to the extent that both of them influence the way relations of power are experienced, challenged or reproduced. The Freire's notion of 'conscientization' is key to understand the relations of power involved by the notion and politics of sustainability. The same notion is also a key tool in the development of 'critical sustainability studies' and a core goal for the educational practices inspired by this approach.

REFERENCES

Berke, P. R. & Manta Conroy, M., 2000. Are We Planning for Sustainable Development?. *Journal of the American Planning Association, Vol. 66, Issue 1,* pp. 21-33.

Blühdorn, I., 2014. Post-Ecologist Governmentality: Post-Democracy, Post-Politics and the Politics of Sustainability. In: *The Post-Political and Its Discontents: Spaces of Depoliticization, Spectres of Radical Politics.* s.l.:Edinburgh University Press, pp. 146-166.

Bonal, X. & Fontdevila, C., 2017. Is Education for Sustainable Development the means to bring about inclusive development? Between idealist and alternative positions. *Current Opinion in Environmental Sustainability 24,* pp. 73-77.

Bourdieu, P., 1998. The Essence of neoliberalism. *Le Monde diplomatique*, December.

Dresner, S., 2002. *The Principles of Sustainability.* London: Earthscan.

Ferreira, F., 2017. Critical Sustainability Studies: A holistic and visionary conception of ecological conscientization. *Journal of Sustainability Education Vol. 13, March .*

Ferreira, F., 2017. Critical sustainability studies: A holistic and visionary conception of socio-ecological conscientization. *Journal of Sustainability Education, Vol. 13, March.*

Gieryn, T. F., 1999. *Cultural Boundaries of Science.* Chicago: The University of Chicago Press.

Hajer, M. A., 1995. *The Politics of environmental discourse: Ecological modernization and the policy process.* Oxford: Oxford University Press.

Holder, J. & Lee, M., 2007. *eds. Environmental Protection, Law and Policy: Text and Materials.* Cambridge: Cambridge University Press.

Jacobs, M., 1991. *The Green Economy: environment, sustainable development, and the politics of the future.* Chicago: Pluto Press.

Jameson, F., 2003. Future City. *New Left Review, May-June,* pp. 65-79.

Krueger, R. & Agyeman, J., 2005. Sustainability Schizophrenia or "Actually Existing Sustainabilities?". *Geoforum 36(4), July ,* pp. 410-417.

Krueger, R. & Gibbs, D., 2007. *eds. The Sustainable Development Paradox: Urban Political Economy in the United States and Europe.* New York: Guilford Press.

Krueger, R. & Gibbs, D., 2007. Problematizing the Politics of Sustainability. In: *eds The Sustainable Development Paradox: Urban Political Economy in the United States and Europe.* New York: Guilford Press, pp. 1-11.

Luke, T. W., 1995. On Environmentality: Geo-Power and Eco-Knowledge in the Discourses of Contemporary Environmentalism. *Cultural Critique, No. 31, The Politics of Systems and Environments, Part II (Autumn),* pp. 57-81.

Marcuse, H., 2002 (1964). *One-Dimensional Man. Studies in the Ideology of Advanced Industrial Society.* London: Routledge.

Marcuse, P., 1998. Sustainability in not enough. *Environment and Urbanization, Vol. 10, No. 2, October,* pp. 103-111.

Mckibben, B., 1996. Buzzless Buzzword. *The New York Times*, 10 April.

Myerson, G. & Rydin, Y., 1996. *The Language of the Environment.* London: UCL Press.

Newig, J., Voß, J.-P. & Monstadt, J., 2008. *eds. Governance for Sustainable Development: Coping with ambivalence, uncertainty and distributed power.* Abingdon: Routledge.

Parr, A., 2008. *Hijacking Sustainability.* s.l.:MIT Press.

Piketty, T., 2014. *Capital in the Twenty-First Century.* s.l.:Harvard University Press.

Portney, K. E., 2015. *Sustainability.* s.l.:MIT Press.

Raco, M., 2014. The Post-Politics of Sustainability Planning: Privatisation and the Demise of Democratic Government . In: *The Post-Political and Its Discontents: Space of Depoliticization, Spectres of Radical Politics.* s.l.:Edimburgh University Press, pp. 25-47.

Robertson, M., 2014. *Sustainability Principles and Practice.* s.l.:Taylor and Francis.

Smythe, K. R., 2014. An Historian's Critique of Sustainability. *Culture Unbound, Volume 6* , p. 913–929.

Stocchetti, M., 2007. The politics of fear . In: *eds. Discourse, War and Terrorism (Discourse Approaches to Politics, Society and Culture series).* Amsterdam: John Benjamins, pp. 223-241.

Swyngedouw, E., 2007. Impossible "Sustainability" and the Post-Political Condition. In: *eds. The Sustainable Development Paradox: Urban Political Economy in the United States* . New York: Guilford, pp. 13-40.

Swyngedouw, E., 2013. *Trouble with Nature. "Ecology as the New Opium for the Masses".* Lausanne: http://wp.unil.ch/societenature/files/2013/07/Swyngedouw-July2013.pdf.

The Global Action Programme (GAP) on ESD, 2017. *Global Action Programme on Education for Sustainable Development.* [Online]
Available at: http://en.unesco.org/gap

Torgerson, D., 1995. The uncertain quest for sustainability: public discourse and the politics of environmentalism. In: *Greening Environmental Policy.* London: Sage, pp. 3-20.

Walker, G. P. & Shove, E., 2007. Ambivalence, sustainability and the governance of sociotechnical transitions.. *Journal of Environmental Policy and Planning, 9 (3-4),* pp. 213-225.

Vercelli, A., 2017. *Crisis and Sustainability: The Delusion of Free Markets.* s.l.:Palgrave Macmillan.

Žižek, S., 1999. *The Ticklish subject. The Absent Centre of Political Ontology.* London: Verso.

Žižek, S., 2016. *Nature does not exist.* s.l.:https://www.youtube.com/watch?v=phyebIq6J_o.

Sustainable Values in Future Engineering Education*

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Abstract

Environmental pressure from an increasing human population, and the rapidly-developing wireless and digital technologies are challenging our current way of life. It has been anticipated that developments in artificial intelligence might change working life dramatically, and many working tasks are disappearing completely. Is there a way to turn these challenges into triumph by rethinking the long traditions of engineering education? Furthermore, could we harness new technologies and networked developers to benefit the environment and the society?

Sammandrag

Miljötrycket från en ökande befolkning och den snabbt utvecklande trådlösa och digitala tekniken utmanar vårt nuvarande sätt att leva. Det har förväntats att utvecklingen av artificiell intelligens kan förändra arbetslivet dramatiskt, och många arbetsuppgifter försvinner helt. Finns det ett sätt att vända dessa utmaningar till triumf genom att ompröva de långa traditionerna för teknisk utbildning? Kan vi dessutom kan vi utnyttja ny teknik och utveckling i samarbetsnätverk för miljön och samhället?

1   INTRODUCTION

Sustainable development, clean technologies, energy efficiency and resource awareness comprise the focus of the development project TEKNETIUM at Arcada during 2016–2020. The project was launched in April 2017 with a kick-off seminar to discuss the perspectives of sustainable development, as well as to discuss on how the engineering study programmes could respond to future demands (Arcada, 2016).

The purpose of the TEKNETIUM project is to develop the degree programmes at Arcada in the field of energy and materials technology, and to strengthen an environmentally friendly way of thinking among the future Swedish-speaking engineers. The project is funded by Svenska Folkskolans Vänner rf. This article is development-oriented and aims to describe the drivers and challenges for engineering and engineering education in the future by reviewing the current literature and general understanding.

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1.1 Drivers for environmentally sustainable lifestyle and economy

The United Nations advocates urgent action to combat climate change and its impacts (United Nations, 2017). Climate change is already disrupting national economies and affecting communities dearly today. The significant impact of climate change include changing weather patterns, rising sea levels, and more extreme weather events. It is estimated that by the year 2100 human activities such as pollution, increasing land use, and overfishing may drive more than half of the world's marine and land species to extinction. This will lead to a great imbalance in the global ecosystem, and will also endanger our own food production for the growing population.

The circular economy model has been discussed actively during past few years as a general guide towards the sustainable use of natural resources. The circular economy is a model of an industrial system that is restorative and regenerative. The model relies on effective systems in all resource (materials and energy) utilization, as well as emphasising the closing of loops in material consumption ultimately aiming towards a zero-waste system (Ellen MacArthur Foundation, 2015). The transition to a circular economy is a key element towards achieving the objectives of the Paris climate agreement. Circular economies, however, require comprehensive and systemic changes that affect the value chain for all stakeholders, as well demanding considerable innovations in several fields of technology, product manufacturing and design (EU Parliament, 2015).

In December 2015, the European Commission put forward a package to support the EU's transition towards a circular economy (EU Commission, 2015a). In a circular economy, the value of products and materials is maintained for as long as possible. Waste and resource use are minimised, and when a product reaches the end of its life, it is used again to create further value. This can bring major economic benefits, contributing to innovation, growth and job creation. The European Commission's Vice-President Jyrki Katainen stated that "This could be a fantastic opportunity, both economically and environmentally, if the recycled plastics market became comparable to, for example, the oil market…In order to stay in the lead, countries must develop business models and include a wide range of operators to promote the circular economy" (Saarinen, 2017).

The EU Action Plan for the Circular Economy is composed of a set of both general and material-specific actions. While some obstacles to circular economies are generic, different sectors and materials face specific challenges due to the particularities of the value chain. The EU Action Plan for Circular Economy has direct impacts in the areas such as product design, production processes, consumption, and from waste to resources (secondary raw materials). A number of materials and sectors face specific challenges in the context of the circular economy (EU Commission, 2015b).

Sitra, the Finnish Innovation Fund, has estimated that in Finland the circular economy could bring an annual minimum of €2–3 billion in value added by 2030. The EU's Circulation Economy Package is a clear signal to companies to invest in the circulation area of the economy. The areas with most potential in Finland are the sharing economy, second-hand businesses, mechanical industries, nutrient cycling, construction, forest industries and food waste minimization. Sitra's reports are part of a Europe-wide network of investigations. More scientific research and experiments are needed to accelerate the

change. Sitra has been preparing especially for starting the rotation of economic experiments in Finland that will support decision makers. Sitra has launched a national circular economy roadmap drawn up in cooperation with several ministries. The road map outlines the objectives and key actions for Finland to be a leading country in the field of circular economies by 2025 (Finnish Parliament, 2016).

2 ENGINEERING IN A KEY ROLE FOR A SUSTAINABLE FUTURE

Arcada's Department of Energy and Materials Technology participated during 2014-2016 in a national ''Material Value Chains'' Strategic Research Program (ARVI programme) financed by TEKES - The Finnish Funding Agency for Innovation - and a group of private companies. The objective of the research program was to build a mutual understanding of future business opportunities related to recycling of materials, as well as required know-how and abilities for their utilisation. This interdisciplinary research program offered a unique opportunity for Finnish industry and research institutes to carry out long-term strategic research cooperation in the field of Circular Economy. The final collection of reports by the research program was published by the consortium in 2017 (ARVI, 2017a). Arcada's research involvement in the ARVI programme was focused on the theme of plastics recycling, in which Arcada's engineering students were actively participating through their thesis and project reports (ARVI, 2017b).

Recently, one of Arcada's industrial research partners in material recycling field invested in a Circular economy village (Fortum, 2017). Arcada's Department of Energy and Materials Technology participated in their pilot phase research during the years 2013–2016 for the optimization of the plastic processes. Fortum's Circular economy village represents the first practical steps of business applying the circular economy concept. However, the contradiction between current degenerative way of wasting energy and materials and this new regenerative model requires innovations in all fields of consumption and business. With the transition towards a circular economy, sustainable solutions will be sought increasingly for all levels from industry to urban regions and to ordinary consumers. Industry will focus on saving materials and energy. Among consumers, businesses based on a sharing economy and second-hand shopping are gaining more popularity (Demos Helsinki, 2014).

Additive manufacturing is mentioned among the innovative technologies to bring about a permanent sociotechnical change to our way of life (Linturi et al., 2013). Arcada's research work in additive manufacturing (also known as 3D printing) was launched at Arcada in 2013 with the publication of our first article (Enqvist and Andersson, 2013), and with arrival of the first 3D printer. In 2016, Arcada's national research co-operation was launched with Finnish Environment Institute and Turku University of Applied Sciences in a two-year project, 3D Plast, financed by TEKES and a group of private companies (3DPlast, 2016). The research project combines two significant areas of research; plastic recycling – important to close up the material cycles for a zero-waste system according to the circular economy concept (Ellen MacArthur Foundation, 2016; World Economic Forum, 2016a) – and 3D printing, a rapidly developing method of sustainable and local manufacturing (Gebler et al., 2014). A number of students at Arcada

have found the field of 3D printing interesting for their projects as well as published thesis studies since 2013.

Rapid prototyping by additive manufacturing method has been utilized in industry since the 1980s, and a wealth of research continues to be reported, e.g. in Rapid Prototyping Journal. By rapid prototyping, a physical artefact can be manufactured from a digital 3D model (Jacobs, 1992). This prototyping method is used commonly as one product development step to ensure that the 3D model is actually suitable for manufacturing and for the aimed end-use. Commercial rapid manufacturing, however, has been transforming substantially during the past few years (Raby, 2012). Among manufacturing professionals, rapid manufacturing and prototyping are considered as completely different fields, independent from each other although sharing a technological basis, in which the material is added layer-by-layer to create a product or a prototype. Rapid manufacturing currently enables completely new ways of fabricating products compared to the traditional manufacturing methods (Hopkinson et al., 2006).

In addition to private consumers, schools and public libraries have taken 3D printers into use (Department of Education, 2013; Blikstein, 2013). In parallel with these developments, decision makers are interested in the impact of digital manufacturing on the educational needs of society (Lipson and Kurmann, 2010), job losses/creation in the manufacturing industry (Pisano and Shih, 2009) and sustainable development (Horizon 2020 Work Programme, 2013).

3 THE FOURTH INDUSTRIAL REVOLUTION CHALLENGES ENGINEERING SKILLS

In parallel with the transition towards a circular economy, we need to adjust our thinking in several technological fields and businesses that are in a turmoil because of rapid digitalization and wirelessness. Current analogic technologies in many fields will soon become extinct. Novel technologies becoming increasingly more accessible and affordable, as well as connected to each other by the internet-of-things (IoT). Such new technologies could be harnessed to serve the development of sustainable lifestyles including sustainable products, e.g. 3D printed objects optimized for recycling, and the sharing of material resources. The successful development, adoption and implementation of clean technologies require developers to master modern ways of studying, working and communicating.

According to the news published by Digital Trends, robots are expected to replace millions of jobs by within a couple of years (Digital Trends, 2017). This dramatic piece of news is based on a recent report (World Economic Forum, 2016b) that focuses on the "Fourth Industrial Revolution" and the future of jobs. Among the technological drivers for this revolution, it mentions the rapidly developing technologies such as artificial intelligence (AI), robotics, nanotechnology, 3D printing, and biotechnology. When the possibilities of wireless systems and internet-of-things are combined with the abovementioned technologies, the application potential is almost limitless.

3.1 Engineering skills for society?

The research efforts at Arcada described above (Section 2) support four of the five principles of sustainable development advocated by the UK Government (Sustainable Development Commission, 2005), namely building a sustainable economy, living within environmental limits, guiding policy based on scientific evidence and engaging people's creativity. The remaining principle of a strong, healthy and just society is the focus of another research project at Arcada that aims at social inclusion through the engineering of soft materials for healthcare applications.

This second project aims to support the development of multi-disciplinary research into soft robotics for applied healthcare. Soft robotics is a rapidly emerging field that bridges engineering, computing and health. It is widely expected to deliver transformative changes in healthcare, where there is an increasing need for assistive care and rehabilitation therapy. To combat the shortcomings of previous traditional robotics, soft robotics are attractive due to their inherent safety, less complex designs, and increased potential for portability and efficacy (Chu and Patterson, 2017). Arcada has been developing additive manufacturing and prototyping infrastructure that will ultimately deliver a device that aids social inclusion by assisting people with physical disabilities to function in their everyday lives with more independence, e.g. through assistive exoskeletons or rehabilitative therapy at home.

The UN reports (United Nations, 2015) that the global number of people aged over 60 years will continue to grow in the coming decades. With this comes an increasing incidence of age-related pathologies such as cerebral vascular accidents (strokes) and biomechanics degradation (Vitiello et al., 2017). Although pharmaceutical interventions for stroke can alleviate some damage to vessels and neurons, and stimulate neosynaptogenesis, an increase in stroke survival rates is expected to increase the need for rehabilitation treatments (Krebs et al., 2008). Patients with non-stroke neurological diagnoses such as cerebral palsy, multiple sclerosis, non-traumatic spinal cord injury and Parkinson's disease, further contribute to the load on healthcare services. A great societal impact can be achieved by providing effective treatment to improve patient quality of life and regaining their independence (Vitiello et al., 2017). Thus, the demand for motion assistance and rehabilitation services is expected to increase, and is driving innovations to improve treatment efficacy through advances in protocols and technology.

Increasingly in the past two decades there has been a great interest to deploy robotics for patient assistance and recovery. It is a multidisciplinary effort comprising teams of biomedical engineers, roboticists, medical doctors and physical therapists, who develop robot-based solutions for treating movement disabilities (Vitiello et al., 2017). Wearable robots, initially conceived for human motion augmentation, have transformed gradually into technological aids for rehabilitation and assistance, where they have a close mechanical interaction with impaired limbs (Vitiello et al., 2017). Recently, robots deployed to assist patient recovery have gone through a paradigm shift: moving beyond assistive technology that helps an individual cope with their environment to a new class of interactive robots that facilitate recovery by delivering measured therapy and facilitating the evaluation of a patient's progress (Kerbs et al., 2008).

The soft robotics for healthcare project exemplifies a core aspect of the fourth industrial revolution, namely that it represents a fusion between and across digital, physical and biological technologies (Schwab, 2015). It exploits and trains the next generation of engineers in the recent, rapidly advancing capabilities of 3D printing, and converges them with additive manufacturing technologies, online data sharing and processing and advanced materials. These fields of development only scratch the surface of how convergence is anticipated to massively extend the impacts of the individual technologies (Maynard, 2015).

3.2   Engineering skills for working life?

The mentioned industrial revolution is expected to be more comprehensive and all-encompassing than the ones society has faced before. The development is predicted to have a significant influence on both job creation and job displacement. Moreover, currently existing jobs are likely to go through an alteration of required skill sets (World Economic Forum, 2016b).

How does the future look like for engineering profession? According to the report by World Economic Forum, it is expected that "architecture and engineering" and "computer and mathematical" job families are likely to experience a strong employment growth, while "manufacturing and production" jobs may have a fair decrease. Such alterations are due to developed (or currently developing) labour-substituting technologies as well as more resource-efficient and sustainable use of materials. Growth in the mentioned "architecture and engineering" job family is said to be directly related to a fast-rising demand for skilled technicians and specialists, capable of creating and controlling advanced and automated production systems. Thus, manufacturing is anticipated to turn into a highly advanced sector, which will increase the demand for highly skilled engineers. The same drivers of change are going to have an impact on "installation and maintenance" job families (World Economic Forum, 2016b).

Various reasons for dramatic changes in expected skill requirements have been identified in the report by World Economic Forum. An ability to work with data and make data-based decisions will become a vital skill beyond many job families (including engineering-related job families) due to rapidly increasing computing power. Therefore, the need for solid skills in data analysis and presentation will continue to rise in importance. Various jobs across all industries are expected to require an aptitude for complex problem solving as one of their core skills (World Economic Forum, 2016b).

In general, current trends indicate that social skills will be in higher demand across different industries than narrow technical skills, e.g. programming or equipment operation and control. Social skills worthy of special attention are persuasion (the ability to change someone's minds or behaviour by persuading), emotional intelligence (anticipation people's reaction and understanding its reasons), negotiation and teaching others. Nevertheless, according to the report by World Economic Forum, the skills with the most stable demand across all jobs today or in the future are technical skills: roughly half of all jobs currently requiring technical skills will have a stable demand in the coming years. This expectation applies in particular to the following technical skills: equipment operation and control, programming, quality control, troubleshooting, and technology and

user experience design. Many initially entirely technical professions are anticipated to present a new need in creative and interpersonal skills (World Economic Forum, 2016b).

Content skills (for instance oral and written expression, ICT literacy, active learning), cognitive abilities (e.g. cognitive flexibility, creativity, logical and mathematical reasoning, problem sensitivity) and process skills (such as monitoring, active listening and critical thinking) will rise significantly in importance in the core skills required for industries. The growing ubiquity of mobile internet is expected to have a large impact on the work tasks in such job families as "installation, maintenance, manufacturing and production", and will demand an overall greater level of technology literacy. Furthermore, an increased demand for data analysis skills and ICT literacy may arise from the employment growth in computer and mathematical roles, and is anticipated to be the least distinct from the ICT sector (World Economic Forum, 2016b).

4   GLOBAL NETWORK OF ENGINEERS SOLVING PROBLEMS?

To effect as rapidly and efficiently as possible in the development of consumer cleantech, the developers should be networked globally in order to share and apply the best possible skills and the most recent data. Consumer cleantech accelerates the adoption of more efficient products that reduce energy and resource consumption. The EU legislation on Ecodesign and energy labelling is an effective tool for improving the energy efficiency of products (EU Parliament, 2009). It helps to eliminate the least performing products from the market. It also supports industrial competitiveness and innovation by promoting the improved environmental performance of products. Applying circular economy principles makes it likely that ecodesign requirements will expand to cover also other products than energy-related products (such as ovens and fridges). The field of ecodesign is in demand for modern professionals to reduce the impact of consumption to the environment. The number of ecodesigns is proportional to the number of designers.

In the future, ecodesign must combine specialised technical skills with team-based creativity, sharing and collaboration skills (Ericson et al., 2009; Nergård et al., 2006). Engineering design in global networks requires holistic problem-solving skills. Holistic approach requires working seamlessly in multidisciplinary groups with other highly skilled professionals from other fields, and that is a great challenge for communication and mutual understanding. The problems in multidisciplinary communication are not arising only from language skills or from cultural backgrounds according to nationality, but also from professional terms, tools and working cultures. Traditionally engineering education has been structured to give narrow technical and problem-solving skills for a clearly defined field (such as mechanical engineering, electrical engineering etc.) Communication, creative and interpersonal skills have not received much attention in the traditional engineering education, assuming that an engineer has to discuss only with another engineer by using the "engineering literacy", in the environment of mass producing factory.

Some useful generic competencies for future engineers can be identified as supporting the technical skill/core profile of an individual:

- Ability to produce/ utilise /analyse (open access) data

- Collaboration and communication in multidisciplinary and global networks with identified own strengths
- Reading skills/understanding the needs of the society in a changing world
- Reading skills to evaluate developing technologies, since new innovations are produced faster than before (due to networking, open data, artificial intelligence)

Physicist Stephen Hawking, Microsoft founder Bill Gates and Tesla's Elon Musk have expressed concerns about the possibility that Artificial Intelligence (AI) could evolve to the point that humans could not control it. According to Stephen Hawking: "The development of full artificial intelligence could spell the end of the human race. Once humans develop artificial intelligence, it will take off on its own and redesign itself at an ever-increasing rate. Humans, who are limited by slow biological evolution, couldn't compete and would be superseded" (Cellan-Jones, 2014; Rawlinson, 2015). Tesla's Elon Musk is also leading a group of 116 specialists on robotics and AI from across 26 countries that has appealed the United Nations to ban the development and use of killer or war robots (Gibbs, 2017). Imagine computers moving around independently aiming to destroy the enemy, humans or other robots. That vision does not appear sustainable, at least not from the perspective of humans.

The statement by Hawking and the concerns expressed by the pioneers of robotics and AI underline the point above of "reading skills to evaluate the developing technologies" and focuses attention to "critical evaluation" on this context, to benefit all the aspects of sustainability. Making profit cannot be the only motivating factor anymore. In our current degenerative economy, we are eager to commercialise the valuable new technologies as soon as possible, knowing that the product development costs have to be covered. However, the mentioned holistic and sustainable approaches are needed to control all the risks involved for developing a wiser future.

By acting proactively, this emerging industrial revolution can be steered towards a more positive future for society and the environment, but it will require researchers, developers and regulators to develop the skills and understanding needed to navigate an increasingly complex unfolding landscape (Maynard, 2015). This will require a highly innovative programme of educational initiatives that build upon existing formal and informal educational platforms including, with increasing importance, online educational platforms (Maynard, 2015).

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REFERENCES

3DPlast. 2016. *Kierrätys 3D*. [online] Available at: https://resurssitehokkuus.turkuamk.fi/uutta-liiketoimintaa/kierratys-3d/

Arcada, 2016. *News*. [online] Available at: https://www.arcada.fi/en/news/teknetium-development-project-will-give-arcadas-engineers-sustainable-values

ARVI, 2017a. *Material Value Chains*. [online] Available at: http://arvifinalreport.fi/

ARVI, 2017b. *Plastic recycling*. [online] Available at: http://arvifinalreport.fi/content/plastic-recycling

Blikstein, P. 2013. Digital fabrication and 'making' in education: the democratization of invention. In Walter-Herrmann, J. and Büching, C. (Eds). FabLabs: of Machines, Makers and Inventors. Bielefeld: Transcript Publishers.

Cellan-Jones, R. 2014. Stephen Hawking warns artificial intelligence could end mankind. *BBC News*. [online] Available at: http://www.bbc.com/news/technology-30290540

Chu, C and Patterson R.M. 2017. Soft robotic devices for hand rehabilitation: a narrative review. 25th Rehabilitative Sciences, Research Appreciation Day, UNT. Available at: http://digitalcommons.hsc.unt.edu/rad/RAD17/RehabilitativeSciences/2/

Demos Helsinki, 2014. Cleantech takes over consumer markets. *Report*. Available at: http://www.demoshelsinki.fi/julkaisut/cleantech-valtaa-kuluttajamarkkinat/

Department for Education, 2013. 3D printers in schools: uses in the curriculum. UK Government report DFE-00219-2013. Available at: www.gov.uk/government/publications/3d-printers-in-schools-uses-in-the-curriculum

Digital Trends, 2017. Robots expected to replace some 5 million jobs by 2020. Designtechnica Corporation. Available at: https://www.digitaltrends.com/cool-tech/robots-replace-5-million-jobs-2020/

Ellen MacArthur Foundation, 2015. Growth within: a circular economy vision for a competitive Europe. Available at: https://www.ellenmacarthurfoundation.org/publications/growth-within-a-circular-economy-vision-for-a-competitive-europe

Ellen MacArthur Foundation, 2016. The New Plastics Economy: Rethinking the future of plastics. Available at: https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics

Enkvist, J. and Andersson, M. 2013. Immaterialrättsliga utmaningar i samband med 3D-printning. BITA'13 - Proceedings of Seminar on Current Topics in Business, Information Technology and Analytics. *Arcada Publikation*, 2, pp. 26-29. [online] Available at: https://www.arcada.fi/sites/default/files/documents/bita_13.pdf

Ericson, Å., Bergström, M., Larsson, A. and Törlind, P. 2009. Design thinking challenges is education. International Conference on Engineering Design, Stanford, CA, USA.

EU Commission, 2015a. Circular economy package. Available at: http://ec.europa.eu/growth/industry/sustainability/circular-economy/index_en.htm

EU Commission, 2015b. Closing the loop – An EU action plan for the Circular Economy. *COM/2015/0614 final*. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1453384154337&uri=CELEX:52015DC0614

EU Parliament, 2009. Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0125

EU Parliament, 2015. European Parliament resolution of 9 July 2015 on resource efficiency: moving towards a circular economy. Available at: http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2015-0266+0+DOC+XML+V0//EN

Finnish Parliament, 2016. Suuren valiokunnan ja ympäristövaliokunnan kuuleminen kiertotaloudesta 11.3.2016. Available at: https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/aineistot/Sivut/default.aspx

Fortum, 2017. Circular economy village. [online] Available at:https://www.fortum.com/en/corporation/case-stories/the%20circular%20economy%20village/pages/default.aspx

Gebler, M., Schoot Uiterkamp, A.J.M. and Visser, C. 2014. A global sustainability perspective on 3Dprinting technologies. *Energy Policy*, 74, pp.158–167.

Gibbs, S. 2017. Elon Musk leads 116 experts calling for outright ban of killer robots. *The Guardian.* Available at: https://www.theguardian.com/technology/2017/aug/20/elon-musk-killer-robots-experts-outright-ban-lethal-autonomous-weapons-war

Hopkinson, N., Hague, R. and Dickens, P.M. (Eds) 2006. Rapid Manufacturing: An Industrial Revolution for the Digital Age. New York: Wiley.

Horizon 2020 Work Programme 2013. Leadership in enabling and industrial technologies, nanotechnologies, advanced materials, biotechnology and advanced manufacturing and processing. The EU Framework Programme for Research and Innovation. Available at: https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-leit-nmp_en.pdf

Jacobs, P.F. 1992. *Rapid Prototyping and Manufacturing: Fundamentals of Stereolithography*. Dearborn: Society of Manufacturing Engineers.

Krebs, H.I., Dipietro, L., Levy-Tzedek, S., Fasoli, S.E., Rykman-Berland, A. and Zipse, J. 2008. A paradigm shift for rehabilitation robotics. *IEEE Engineering in Medicine and Biology Magazine*, 27, pp. 61-70.

Linturi, R., Kuusi, O. and Ahlqvist, T. 2013. Suomen sata uutta mahdollisuutta: Radikaalit teknologiset ratkaisut. *Eduskunnan tulevaisuusvaliokunnan julkaisu*, 6/2013, pp. 100-102. Available at: https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/Documents/tuvj_6+2013.pdf

Lipson, H. and Kurman, M. 2010. Factory@Home: the emerging economy of personal fabrication. US Office of Science & Technology Policy. Available at: http://risti.kaist.ac.kr/wp-content/uploads/2013/08/Factory-at-Home-The-Emerging-Economy-of-Personal-Fabrication.pdf

Maynard, A.D. 2015. Navigating the fourth industrial revolution. *Nature Nanotechnology*, 10, pp. 1005-1006.

Nergård, H., Ericson, Å., Bergström, M., Sandberg, S., Törlind, P. and Larsson, T. 2006. Functional product development- discussing knowledge enabling technologies. International Design Conference, Dubrovnik, Croatia, 2006.

Pisano, G.P. and Shih, W.C. 2009. Restoring American competitiveness. *Harvard Business Review*, 87, pp. 114-125.

Raby, M. 2012. 3D Printing Market to Hit $3 Billion by 2018. [online] Slashgear. Available at: www.slashgear.com/3d-printing-market-to-hit-3-billion-by-2018-23239870/

Rawlinson, K. 2015. Microsoft's Bill Gates insists AI is a threat. *BBC News*. [online] Available at: http://www.bbc.com/news/31047780

Saarinen, E. 2017. New rules for the market economy. *Uusiouutiset*. Available at: http://www.uusiouutiset.fi/new-rules-for-the-market-economy/

Schwab, K. 2015. Will the fourth industrial revolution have a human heart? World Economic Forum. Available at: https://agenda.weforum.org/2015/10/will-the-fourth-industrial-revolution-have-a-human-heart-and-soul

Sustainable Development Commission, 2005. The principles. [online] Available at: http://www.sd-commission.org.uk/pages/the_principles.html

United Nations, 2015. *Revision of World Population Prospects*. [online] Available at: https://esa.un.org/unpd/wpp/

United Nations, 2017. *Goal 13: Take urgent action to combat climate change and its impacts.* [online] Available at: http://www.un.org/sustainabledevelopment/climate-change-2/

Vitiello, N., Mohammed, S. and Moreno, J.C. 2107. Guest Editorial: Wearable Robotics for Motion Assistance and Rehabilitation. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 25, pp. 103-106.

World Economic Forum, 2016a. The New Plastics Economy, Rethinking the future of plastics. *Industry Agenda*. Available at: http://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf

World Economic Forum, 2016b. The Future of Jobs. Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. *Global Challenge Insight Report.* Available at: http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

Net Based Joint Degrees: Accessibility and Equality in Higher Education

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Abstract

Nations around the world are facing challenges, both internal and external including the constantly changing environment, lack of resources, new government regulation, recession and public demand. This coupled together with the tremendous growth of e-commerce and the proliferation of the internet has resulted in changes influencing how organizations operate and the types of services they offer (Kelleher & Peppart 2014). One way the Higher Education sector can cope with the changing landscape is by rooting their sustainability initiatives at the core of operations. This article is part of a series titled: Building a Culture of Sustainability and Innovation in Professional Higher Education. By highlighting the cooperation of three higher education institutions in developing and implementing a Net-based joint Masters degree in Global Health Care, it is hoped these types of eService learning tools can continue to receive the attention and resources needed to help meet the future needs of a changing society in ways which are sustainable.

Sammandrag

Länder överallt i världen står inför både interna och externa utmaningar i form av en kontinuerligt föränderlig miljö, bristande resurser, nya lagar och förordningar, lågkonjunkturer och befolkningens krav. Detta tillsammans med den enorma ökningen av e-handel och spridningen av internet har påverkat organisationers fungerande och serviceutbud. Ett sätt för den högre utbildningen att klara förändringarna i omgivningen, är att förankra sina hållbarhetsinitiativ i verksamhetens kärna. Genom att lyfta fram samarbetet mellan tre institutioner för högre utbildning som lett till att ett nät-baserat engelskt mastersprogram i Global Hälsa utvecklats hoppas vi att detta slags e-lärande strategier och verktyg också i fortsättningen får den uppmärksamhet och de resurser som krävs för att möta det föränderliga samhällets krav på hållbar utveckling.

Keywords: Net-based learning, sustainability, electrical technology, internationalization, global healthcare

1   BACKGROUND

1.1   The Emergence of Electronic Service Technology

On January 1st 1989, the World Wide Web was born. It was initially developed by the European Organization for Nuclear Research (CERN). The creator, Timothy Berners-Lee, an English computer scientist, built on the earlier research of Vinton Cerf, who developed internet and transmission control protocols for the United States Department of Defense in the 1970s. With the introduction of the internet in the 1980s came the proliferation of e-services as the global, private and public sectors realized the value of doing

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business online (Science and Technology 2015). For decades, the net continued to expand as consumers learned how to navigate and purchase their goods without leaving the comfort of their homes. Within the area of higher education, the advancements in technology has brought added pressure for increased collaboration among institutions and flexibility in learning paths.

Defining the term 'e-services' poses a conundrum due to the rapid advance of technologies and their applications. The theorist Rowley (2006) defines the term e-services as "… deeds, efforts or performances whose delivery is mediated by information technology". Another theorist Wimmer (2002) states, that quality online public services should be structured from the customer's point of view and should address their life-events and business situations. From a societal perspective, e-services can be viewed as a means to support the exchange of information between parties in an electronic format (European Commission, 2013.) Looking from the customer perspective, the quality of services is key in customer satisfaction and organizations that succeed in providing the majority of their services online are thought to enjoy a higher profit margin. Finally, Paul Joyce (1999) wrote that a core competence is an organization's ability to do something which results in a product or service that is above average in terms of value to the consumer. It comprises an integrated "bundle" of skills and technologies (Joyce, 1999). Whether an agency or organization defines e-services using the service approach or strives toward competition, the matter before us seems to be a one-stop service point. The main purpose of this paper is to highlight the cooperation of three higher education institutions in developing and implementing sustainable eService learning tools and a repository. The authors believe it is through these types of cross-border cooperation's the changing needs of societies can be addressed using methods that nurture sustainability.

1.1.1 Government support through policy change

The idea of electronic government and digital government began to appear in both academic and nonacademic literature in the mid-1990s and due to the complex nature of the phenomena surrounding their invention, no one discipline has an exclusive stake in their ownership (Scholl, 2010). Now, at the end of the first decade of the 21st century, along with the technological push, there have been paralleled changes in legislation as the public sector and Governments around the world embrace e-services (Gil-Garcia & Pardo, 2005; Scholl, 2011). Within Europe, services are now accessible and complement existing legislation and includes domains like- e-Identification, e-Procurement, e-Justice, e-Health, mobility and social security (European Commission, 2015). These changes in the legislative framework may further enhance the provision of online services to citizens. As mentioned in the introduction of this essay, there are growing expectations that Governments within the European Union Member States become more transparent and are collaborative in their delivery of public services. According to the Malmö Declaration (2009), Europe is facing serious social, economic and environmental challenges. The E-government Action Plan (2011-2015) aims to help national and European policy instruments work together, to support the transition of e-government into a new generation of open, flexible and collaborative seamless e-government services at local, regional, national and European levels. The four political priorities outlined in their action plan are: the empowerment of citizens and businesses; to reinforce mobility in the Single Market;

to enable efficiency and effectiveness of services; and to create the necessary key enablers and preconditions to make things happen (European Commission, 2015).

Another facet of the initiative supporting the drive toward digitalization of services includes the public sector. For example, public administrations in Europe are charged with providing efficient public services to both businesses and citizens. The programme on Interoperability Solutions for European Public Administrations (ISA) is responsible for developing strategies and programs to facilitate the efficient cross-border electronic collaboration between European public administrations. In a nutshell, the ISA, "…enables the delivery of electronic public services and ensures the availability, interoperability, reuse and sharing of common solutions" (European Commission, 2015a).

1.1.2 Finland, a global leader in the application of ICT

Within the country of Finland, the development of electronic technology (ICT) has taken Minister of Economic Affairs in Finland, Jyri Häkämies, set up the ICT 2015 working group. They were tasked with preparing a strategy that would increase competitiveness by alleviating the impact of the sudden structural changes experienced in the ICT industry while, at the same time, reforming the information and communications technology industry. Central players include universities, research centers, companies and investors. In their report, titled '21 Paths toward a Frictionless Finland', they outline additional aims that includes supporting development of an open data ecosystem, supporting training in online gaming security and big data sectors as well as stimulating more research in the mobile sector. With a budget of €25-40 million, they hope that by 2025 Finland will be a global leader in the application of ICT through a unified IT architecture that would facilitate electronic services across organizational boundaries (Ministry of Employment and the Economy, 2013b). Implementation of any new service is challenging. It makes no difference how good the services are if users do not use them. An example of the complexity is seen in the recent report from the World Economic Forum (2013) where despite the rapid advancement of e-technology and the push for digitization in the Finnish market, citizen e-participation has dropped. However, we can see from the table below, that although there is a drop in e-participation, the user penetration of the Internet continues to strengthen and is expected to rise from 82.9% to 85.6% by 2017 (Statista, 2015). Therefore, it seems users may continue to buy into the idea of electronic service systems.
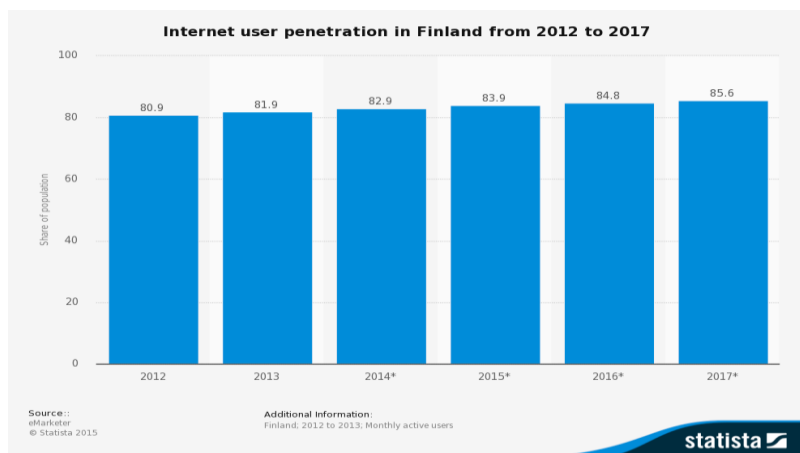

Figure 1. Internet user penetration in Finland

1.2 Trends within the Higher Education Sector

1.2.1 Internationalization, a catalyst for mobile learning

Internationalization has become a major trend evolving and involving widening sets of objectives, teachers and student on and off campus. International, intercultural, and global dimensions are terms that are used as a triad. International is used in the sense of relationships between and among nations, cultures or countries. But internationalization is also about relating to the diversity of cultures that exist within countries, communities, and institutions, and so intercultural is used to address this dimension. Finally, global, is included to provide the sense of worldwide scope (Hudzik et al., 2013).These three terms complement each other and describe the breadth and depth of internationalization. Globalization of education refers to trends in higher education that have cross-national implications including mass education, a global marketplace for students, faculty and global reach of Internet-based technologies. Transnational higher education has grown significantly, and distance learning technologies are often used to deliver part or all of educational programs.

To make online learning widely accessible and more accepted by faculty and students, additional shared and customizable teaching and learning platforms are needed. One solution is the implementation of the concept of mobile learning. The spread and popularity of mobile devices has expanded their use in higher education. A fresh report (Kaliisa & Picard, 2017) demonstrates that mobile learning within higher education institutions in Africa increased student and lecturer collaboration, increased student participation and engagement, and fostered learning communities. However, there were and are significant challenges in integrating mobile learning in higher education institutions within Africa. These challenges include technical, economical and pedagogical issues. When these factors have been considered prior to implementation, encouraging results have been reported. For example, through careful planning, it has been possible to establish mobile learning in even remote areas with unreliable internet connections as seen in several African countries where inter-professional healthcare workers (including physicians, nurses, pharmacists, clinical assistants, frontline healthcare workers, community health workers) were trained according to e-learning principles (Wall et al., 2017). In the future, e-services, such as mobile phone-delivered reminders, could continue to gain popularity and act as an effective way to make vaccines accessible to children in even the most remote places. In the long-run, short message service reminders, in addition to monetary incentives, could improve immunization uptake in Kenya (Gibson et al., 2017.)

2 THE GLOBAL HEALTHCARE INITIATIVE

2.1 Overview of the Programme

The Master in Global Health programme was initiated by Diaconia University of Applied Sciences, and the planning process was funded by the International Fetzer Institute. From

the institute came the values love, compassion and forgiveness, which gave the programme its´ special profile in combination with the values of safety and participation. To enable the program, joint meetings were held both in Kenya and Finland finalizing the curriculum. It was clear that the internet capacity in Baraton needed to be strengthened, and additional funding for the project was received by the Ministry of Foreign Affairs in Finland. The objectives were twofold: capacity building in Kenyan rural areas; and finalizing and piloting the Masters programme.

Capacity building is achieved by strengthening the Internet at Baraton so the teachers and students have accessibility to the blended learning platform Fronter and the material, lectures and links placed there. Being a joint degree, all universities' students and teachers need to have access to all the libraries and the material. An open access repository was also established at Baraton, gathering students´ works and information about disaster preparedness and management. The repository is managed by the librarian at Baraton, and the included files can be can be accessed by phone or computer, and serves both professionals and members in the various communities. The repository is open access, which means it can be used and accessed from wherever and whenever. The material in the repository is growing and the idea is that it becomes a centre of information about disaster preparedness and management.   By building a sustainable repository, knowledge can be accumulated and used to serve the community. Thus, this cooperation is one example of how sustainability initiatives strategically placed, can support regional stability and nurture future development.

3   DISCUSSION

As mentioned earlier, e-technology has changed the face of this planet. However, in doing so, it has also changed the way we encounter one-another. Goldkuhl (2007) wrote, that in this modern age, consumers are viewed mainly as suppliers of information and not as valued members of a society. It is important to note that not only are higher education institutions around the world creating services electronically because they can no longer afford to service the needs of learners the 'old fashioned' way, using traditional methods (such as face to face lectures on campus), but also as a means of demonstrating value to the public. Therefore, higher education institutions are pressured to continually find new ways of working that support both technological advances, while at the same time, upholding quality education and maintaining their promise to those they serve. Accomplishing this requires not only a continual redefining of the teaching and learning process as seen in the Global Health Care Initiative mentioned in this work, but also will require true collaboration from governments and decision-makers. Perhaps instead of seeking a consensus on what role technology will play in the future, theorists should be asking questions on how electronic technology can be utilized to best serve the future needs of our global community long-term and sustainably. This is a conceptual question, as how we conceive electronic services (as a phenomenon) will naturally influence the future planning, development and use of services both inside and outside of the classroom (Goldkuhl, 2007).

It is important to consider the remarkable role higher education has in the development of a sustainable society, not to mention in the economic development of societies, but

also being realistic of the challenges. Higher education is facing decreasing funding, increasing tuition fees, increasing demands of accountability, and demands that students possess even more skills and capacities (Chan, 2017). More customized teaching and learning platforms are needed in order to make online learning widely accessible to a diverse student cohort. As stated earlier, the lack of resources has affected education initiatives. However, it is believed that cost can be reduced after establishing the virtual learning platforms for the corresponding courses as these tools are made available to learners and educators in the long-term and because they are independent of the location of students and teachers (Bowen et al., 2014).

4   CONCLUSION

In the last 100 years, we have seen unbelievable new technologies alongside economic competition from emerging markets (Bryson, 2011). Even twenty years ago, few could imagine what could be accomplished by using information technology (Kanellos, 2008). It may be impossible to accurately hypothesize about the future of e-services and their role in higher education, but for every wrong turn and setback, lessons are learned and insight is gained that will help prepare us for the certainty of our future. As international borders continue to disappear and the world economy continues to become less predictable, governments are facing new challenges as they attempt to lay plans for the future. The challenging times of today can, at times, become so overwhelming we lose sight of the global perspective. In the end, it may not be the creation of design tools or new services that will pave the way to future success but their use (Toivonen, 2014). Therefore, there is a need for the proper identification of the critical points of new processes, and the understanding of how they interact with other systems that enhance their ability to serve. We know that no matter the strategy, it is those that implement the plan that are the key players. In this article, we have presented one example of how passion coupled together with communication leads to sustainable collaboration. Without overstating, it seems reasonable to claim that the joint master program in focus, Global Health Care deals with issues of utmost importance and current interest as they utilize methods and objectives with evidence-based significance. No matter how we look at it, the bottom line seems to be that our ability to forecast future trends will play a part in the sustainable serviceability of the next generation of e-service users.

REFERENCES

Anjejo, D., Karvinen, I., Kinnunen, ER., Lejonqvist, GB., Njeru, M., & Nyanundi, N., 2013. *Master´s degree in global health care: The curriculum*. Helsinki: Diaconia University of Applied Sciences.

Bowen, W.G., 2013. *Higher Education in the Digital Age*. Princeton, NJ: Princeton University Press.

Bowen, W.G., Chingos, M.M., Lack, K.A., & Nygren, T.I., 2012. Interactive Learning Online at Public Universities: Evidence from Randomized Trials. http://www.sr.ithaka.org/sites/default/files/reports/sr-ithaka-interactive-learning-online-at-public-universities.pdf (Accessed 6 March 2017).

Bryson J.M., 2011. *Strategic planning for public and nonprofit organizations: a guide to strengthening and sustaining organizational achievement*. San Francisco (Calif): Jossey-Bass.

Chan, R.Y., 2017. The future of accessibility in Higher Education: Making College Skills and Degrees more Accessible. In: Alphin, jr., H.C., Lavine, J., Chan, R.Y. (reds.) 2017. *Disability and equity in higher education accessibility*. USA: IGI Global.

European Commission, 2015a. *ISA-Interoperability Solutions for European Public Administrations* URL: http://ec.europa.eu/isa/faq/faq_en.htm.

European Commission, 2015b. *Digital Agenda for Europe. A Europe 2020 Initiative*. URL: http://ec.europa.eu/digital-agenda/european-egovernment-action-plan-2011-2015.

Gibson, D., Ochieng, B., Kagucia, E., Were, J., Hayford, K., Moulton, L., Levine, O., Odhiambo, F., O'Brien, K., & Feikin, D., 2017. Mobile Phone Delivered Reminders and Incentives to Improve Childhood Immunisation Coverage and Timeliness in Kenya (M-SIMU): a Cluster Randomised Controlled Trial. *The Lancet Global Health*, 5 April. pp. e428-e438.

Gil-Garcia J. & Pardo T., 2005. E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*, 22(2), pp. 187-216.

Goldkuhl. G., 2007. What Does It Mean to Serve the Citizen in E-services- towards a Practical theory founded in socio-instrumental pragmatism. Sweden. URL: http://www.diva-portal.org/smash/get/diva2:389665/FULLTEXT01.pdf

Hudzik, J.K., 2011. *Comprehensive Internationalization. From Concept to Action.* Washington DC: NAFSA, Association of International Educators. URL: http://ecahe.eu/w/index.php/File:Comprehensive_Internationalization_NAFSA_Page_01.jpg

Joyce P. & Drummaux A., 2014. *Strategic management in public organization: European practices and perspectives.* New York: Routledge.

Kaliisa, R., Picard, M., 2017. A Systematic Review on Mobile Learning in Higher Education: The African Perspective. *The Turkish Online Journal of Educational Technology*, 16 (1) pp. 1-18.

Kelleher C., & Peppard J., 2014. *The Web Experience-Trends in e-service*. Cranfield.

Liu, B.F., Fraustino, J.D., & Jin, Y., 2016. Social Media Use during Disasters. How Information Form and Source Influence Intended Behavioral Responses. *Communication research,* 43 (5) pp. 188-207.

Rowley. J., 2006. An analysis of the e-service literature: towards a research agenda. *Internet Research*, 16(3), pp. 339-359.

Malmö Declaration, 2009. *Ministerial Declaration on eGovernment*.

URL: https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/ministerial-declaration-onegovernment-malmo.pdf

Ministry of Employment and the Economy, 2015. 21 Paths to a Frictionless Finland. Report of the ICT 2015 working group. URL: https://www.tem.fi/files/36671/TE-Mjul_18_2013_web_15052013.pdf

Ministry of Employment and the Economy, 2015b. Finland's ICT 2015 group publishes recommendations. URL: http://www.investinfinland.fi/articles/news/ict/finlands-ict-2015-group-publishes-recommendations/44-828

Science and Technology. *History of Electronics*. URL: http://www.timetoast.com/timelines/91979

Scholl, H.J., 2010. Electronic Government: A Study domain past
Its infancy. In Scholl, H.J. (Ed.) *E-Government. Information, Technology, and Transformation*, volume 17, Advances in Management Information Systems. Armonk, NY: M.E. Sharpe.

Speakman, E., McKee, M., Coker, R., 2017. If Not Now, When? Time for the European Union to Define a Global Health Strategy. *The Lancet Global Health*, 5 April. pp. e392-e393.

Statista., 2015. Internet user penetration in Finland from 2012 to 2017. URL: http://www.statista.com/statistics/283806/finland-internet-user-penetration/

Toivonen M., 2014. Policies and Measures for Systemic and Social Innovations in the Healthcare sector-experience from Finland. *ESIC Peer review*. Luxembourg. URL: http://ec.europa.eu/DocsRoom/documents/5207/attachments/1/translations/en/renditions/native.

Wall, L., Nartker, A., McGee, A., Scott, E., Downer, A., 2017. No Internet? No Problem! Creative Approaches to Cost-Effective E-Learning Delivery in Resource-Constrained Settings. *The Lancet Global Health,* April 7, p. 8.b

World Economic Forum, 2013. Sustainable Health Systems Visions, Strategies, Critical Uncertainties and Scenarios. URL: http://www3.weforum.org/docs/WEF_Sustainable-HealthSystems_Report_2013.pdf

World Economic Forum, 2013.
URL: http://reports.weforum.org/global-informationtechnology-report-2015/economies/#economy=FIN

Internationell designtävling i händerna på kulturproducenterna

Maria Bäck[i]

Sammandrag
Denna artikel beskriver hur design thinking och användandet av en internationell designtävling som metod i en kurs befrämjar både innovationer, entreprenöriellt tänkande samt hållbar utveckling. Under de senaste åren har jag genom RSA implementerat den äldsta designtävlingen i kulturproducentutbildningens läroplan.

Abstract
This article describes how design thinking and the use of an international design competion and its curricula in a course promotes both innovation, entrepreneurial thinking and sustainable development. In recent years, through Royal Society of Arts (RSA), I have implemented the world's oldest design competiotion in the curricula for cultural management.

Nyckelord: RSA design tävling, kulturproducent, social design, hållbar utveckling

1 BAKGRUND

Ända sedan Brundtland rapporten 1987 har tanken om hållbar utveckling genomsyrat alla stadier inom utbildningen. Hållbarhet har snabbt blivit en megatrend i samband med klimatförändringarna och att resurserna minskar (Riel et. al., 2015). I september 2015 förband sig världens ledare i en resolution att uppnå fyra övergripande mål inom hållbar utveckling, 1) avskaffa extrem fattigdom, 2) att minska ojämlikheter och orättvisor i världen, 3) att främja fred och rättvisa och 4) att lösa klimatkrisen (United Nations, 2015) Dessa övergripande mål skall uppnås genom att arbeta med 17 globala mål (se tabellen nedan) som UNESCO arbetar med inom utbildning. (UNESCO, 2017) UNESCO har arbetat för att främja hållbar utveckling inom utbildningen (ESD) sedan 1992 genom olika åtgärder och kampanjer. (UNESCO, 2017)

Tabell 2. De 17 målen från FN resolutionen 25.9.2015 (United Nations 2015)

1	Avskaffa fattigdom i alla dess former överallt
2	Avskaffa hunger, uppnå tryggad livsmedelsförsörjning och förbättrad nutrition samt främja ett hållbart jordbruk
3	Säkerställa hälsosamma liv och främja välbefinnande för alla i alla åldrar
4	Säkerställa en inkluderande och likvärdig utbildning av god kvalitet och främja livslångt lärande för alla
5	Uppnå jämställdhet och alla kvinnors och flickors egenmakt
6	Säkerställa tillgången till och en hållbar förvaltning av vatten och sanitet för alla

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7	Säkerställa tillgång till ekonomiskt överkomlig, tillförlitlig, hållbar och modern energi för alla
8	Verka för varaktig, inkluderande och hållbar ekonomisk tillväxt, full och produktiv sysselsättning med anständiga arbetsvillkor för alla
9	Bygga motståndskraftig infrastruktur, verka för en inkluderande och hållbar industrialisering samt främja innovation
10	Minska ojämlikheten inom och mellan länder
11	Göra städer och bosättningar inkluderande, säkra, motståndskraftiga och hållbara
12	Säkerställa hållbara konsumtions- och produktionsmönster
13	Vidta omedelbara åtgärder för att bekämpa klimatförändringarna och dess konsekvenser
14	Bevara och nyttja haven och de marina resurserna på ett hållbart sätt för en hållbar utveckling
15	Skydda, återställa och främja ett hållbart nyttjande av landbaserade ekosystem, hållbart bruka skogar, bekämpa öken-spridning, hejda och vrida tillbaka markförstöringen samt hejda förlusten av biologisk mångfald
16	Främja fredliga och inkluderande samhällen för hållbar utveckling, tillhandahålla tillgång till rättvisa för alla samt bygga upp effektiva, och inkluderande institutioner med ansvarsutkrävande på alla nivåer
17	Stärka genomförandemedlen och återvitalisera det globala partnerskapet för hållbar utveckling

Enligt beskrivningen om kulturproducentutbildningen på Arcadas hemsida är kulturproducenten en problemlösare som arbetar med varierande uppgifter inom en snabbt växande bransch, den kreativa branschen (Arcada, 2017) Inom läroplanen har man under årens lopp poängterat både innovationer, entreprenörskap som hållbar utveckling. Mycket av det som tas upp i de globala målen för hållbar utveckling är saker som kan identifieras inom den kreativa branschen och olika arbetsmetoder som används där. Det är av stor vikt att de olika elementen som används i olika kurser inom utbildningsprogrammet har relevans för omgivningen och fältet.

RSA är en brittisk tvärvetenskaplig organisation, en sorts think-and-do-tank med säte i London. Sällskapet bildades år 1754 och gavs kunglig status (Royal Charter) 1847. Syftet för att grunda sällskapet var att "stärka företagande, bredda vetenskapen, förfina konsten, utveckla industrin och utöka handeln" Organisationen har även haft samhällsgynnande uppgifter. Dagens RSA sägs stå för den moderna upplysningen (RSA, 2017). RSA har allt mer internationaliserats genom åren och år 2012 grundades en lokal avdelning i Finland av Mika Aaltonen (Pääkkönen, 2012) Under de fem verksamma åren i Finland har medlemmarna varit verksamma med olika projekt, bl.a en översättning av Adam Smiths kompletta verk till finska, en årligt återkommande empatidag och även implementering av den äldsta designtävlingen för studeranden. Jag har aktivt varit med i processen kring designtävlingen (nedan SDA) och testat olika modeller både inom egen kurs samt för att få den spridd i flera högskolor och universitet i Finland.

Designtävlingen är en global läroplan och tävling som skall utmana formgivarstudenter och andra intresserade till att tackla sociala, ekonomiska och hållbarhetsproblem (RSA, 2015) Utöver det vill RSA genom designtävlingen framhäva hur formgivning och design thinking har skiftat från så kallad "greenwash" till ett djupare engagemang inom hållbar utveckling (RSA 2015, 31)

2 DESIGNTÄVLING FÖR STUDENTER

Designtävlingen är världens äldsta tävling för studeranden och stöder RSAs mission om att berika samhället genom idéer och handlingar. RSA strävar att ge flera människor möjlighet att tillämpa sin kreativitet för att skapa en positiv förändring i samhället. Första gången tävlingen introducerades var 1924 för att uppmuntra unga formgivare och även för att utveckla nyttoföremål till de brittiska hemmen. Idag uppmuntrar SDA programmet unga formgivare och studenter att tillämpa sina färdigheter för att lösa komplexa utmaningar i samhället, t.ex. gällande klimatförändringar, demografiska förändringar och ekonomisk instabilitet. (RSA, 2015)

SDA har sedan länge varit en global tävling, men merparten av tävlingsbidragen kommer från de brittiska universiteten. Tävlingen är väletablerad i England, och är en del av flera universitets läroplan, främst inom formgivning. Enligt direktör Sevra Davis som är ansvarig för SDA har RSA provat olika strategier för att få tävlingen känd utomlands (Davis, 20.9.2017) I Finland har vi försökt implementera tävlingen sedan sedan 2015 med varierande resultat. Arbetet med att sprida tävlingen i Finland fortsätter med stöd från moderorganisationen i London och nya strategier för att verkligen få den implementerad testas fram.

3 DESIGNTÄVLINGEN I FINLAND OCH ARCADA

I samband med läroplansförändring i kulturproducenternas läroplan 2014 - 2015 och samtida diskussioner med RSA i Finland (jag är själv aktiv fellow sedan början av verksamheten i Finland) implementerade vi SDA i kursen produktifiering inom den kreativa branschen som gick i period 3, d.v.s. genast efter årskiftet 2015. Tiden lämpar sig perfekt för tävlingen för deadline för att lämna in sina bidrag är i början av mars varje år. Kursen skulle introducera studenterna till olika perspektiv på produktifiering och kommersialisering av konst och kultur och de verktyg som SDA erbjuder för att genomföra de olika teman som finns årligen i tävlingen är ett utmärkt tillfälle att lära sig social design, innovationsprocesser i praktiken samt även att konkretisera sina idéer och bygga upp prototyper som sedan kan utvecklas till tjänster eller produkter för att utveckla samhället till en bättre plats.

Parallellt med implementeringen av SDA för kulturproducenterna i Arcada gjordes försök i andra universitet och högskolor. Tävlingen har genomförts bl.a i Aalto universitetet med relativt goda resultat och även genomförts en gång på Hanken i en entreprenörskapskurs med temat socialt ansvar.

Nedan kommer jag att redovisa för de resultat som uppstått under de tre åren som tävlingen använts i kursen Produktifiering inom den kreativa branschen. Jag har varje år haft som en examinationsuppgift haft en reflektion kring det egna lärandet och jag väljer ut vissa delar av studenternas texter för att reflektera kring SDA och även kring kopplingen till innovation och hållbar utveckling.

3.1 Produktifiering och SDA våren 2015

Första gången som SDA genomfördes inom kulturproucentutbildningen var tävlingen endast en del av kursinnehållet och vi var två lärare som planerade innehållet och de olika examinationerna som skulle utgöra grunden för utvärderingen av kurserna. Nedan kommer jag för det första att kort beskriva de uppgifter studenteran valt att genomföra i grupp och gå igenom deras reflektioner kring kursen. Jag avslutar med en egen reflektion kring användandet av SDA och kursens målsättingar.

Första uppgiften som en av grupperna valde att göra gick under benämningen "Fair Play" d.v.s. beskrivningen på uppgiften var att antingen uppfinna en ny leksak eller att göra en befintlig leksak mer miljövänlig. Själva uppgiften innehåller ett klart element av hållbar utveckling. De två studenterna som arbetade med denna uppgift valde att utveckla klassikerleksaken Barbies förpackning så att den kunde vara en del av lekarna i fortsättningen och inte hamna på skräpberget. Nedan tankar som studenterna hade kring processen:

> Jag tycker vår grundidé var jätte bra och att vi hade ett tydligt mål och tydliga ramar för idén/projektet. Vi jobbade bra tillsammans och båda bidrog till projektet lika mycket. Det som vi borde ha gjort bättre är att vi borde ha gått djupare in på ämnet och samla mera fakta om själva tillverkningen och materialen som används i Barbiedockor och deras förpackningar.

> Jag vet inte riktigt, eller det blev inte helt klart för mig vad som var den röda tråden för själva kursen. Jag tycker vi behandlade så olika saker och jag har själv inte kunnat koppla ihop dem. Det är såklart också mitt fel och jag vet att jag kunde ha varit mera aktiv på lektionerna och också på egen hand men det nu bara inte blev så.

Den andra gruppen gjorde en av RSAs egna uppgifter, d.v.s. en animation till en färdigt inspelad ljudfil kring kunskap. Några av gruppens reflektioner nedan:

> När jag tänker på RSA-tävlingen och vår medverkan i den, så tycker jag att såklart hade vi kunnat fråga mer kring vad tävlingen går ut på och vad som egentligen förväntas av oss. Man kan alltid vara mer initiativtagande. Men det hade kanske kunnat "hajpas" mer om tävlingen på lektionerna, t.ex genom att presentera potentiella arbetsgivare eller RSA:s samarbetspartners. Diskutera mer helt enkelt, vi blev inte tillräckligt påminda om den. Kanske hade tävlingen kunnat pitchas bättre för studenterna redan från början?

En annan uppgift som gjordes för SDA var kring kreativa utrymmen och de gjorde forskning kring hur man bäst kan arbeta med idéer. Dokumentationen kring de övriga uppgifterna var inte tillräcklig på lärplattformen itslearning så i detta skede har jag främst reflektionerna att gå efter.

> Jag har helt enkelt blivit lite smartare utan att märka det själv. Det som kändes som en tung och jobbig kurs i början har bara glidit förbi, om än med lite bumpar i vägen...

Jag har valt ut några citat ur olika reflektioner studenterna skrev om kursen. Vissa problem uppstod då studenterna upplevde att synen på de olika kursdelarna inte delades av de två lärarna som höll i kursen. D.v.s. de upplevde att kommunikationen inte fungerade. Själv upplevde jag att det blev för mång delar i kursen och att det blev för splittrat för studenterna och att arbetsbördan blev onödigt stor (SDA var bara ett av projekten studenterna jobbade med). Men samtidigt fick jag blodad tand, uppgifterna i tävlingen kändes relevanta för samhället och gav samtidigt en internationell vinkling för utbildningen.

3.2   Produktifiering och SDA våren 2016

Andra året jag använde mig av SDA i kursen Produktifiering inom den kreativa branschen hade jag extern hjälp vid slutpitcherna av en kollega från RSA, detta gjorde att tävlingen kändes mer verklig för studenterna. Koncepet presenterades först i en annan kurs med en annan lärare som examinator. Själva genomförande och utvecklande av prototyp skulle ske i kursen jag var examinator för. För övrigt hade den kursen liknande upplägg som året före, med två lärare och flera olika delar och examinationer.

De olika uppgifterna som kunde utvecklas var även detta år främst att utveckla ett bättre liv och ett bättre samhälle. En av sponsorerna var det finländska företaget Fazer som finansierade en brief kring "Waste not, want not" som skall uppmuntra människor att minska sitt matavfall. Nedan några tankar studenterna hade kring årets version av SDA.

> Det var bra att vi fick arbeta med våra egna RSA produkter, men för mig blev det för mycket grupparbete i denna period. Alla 3 kurser baserade sig mer eller mindre på grupparbeten. Min RSA grupp var allt för stor (6 pers), och arbetsmängden samt kontributionsmängden varierade mycket mellan medlemmarna.

> Sedan kändes det också att RSA-projekten skulle man ha kunnat ha i en kurs, det vill säga som sin helhet i Innovationskursen, och inte ha den och fortsätta i produktifierings kursen. Jag kan troligen tala för största delen av klassen att motivationen sjönk med många drastiska procent pågrund av detta.

> Kursen har varit givande och jag har lärt mig mycket nytt. Jag har lärt mig att utveckla en ny idée, hur det är göra något från grunden. Det kändes mycket mer realistiskt då vi hamnade att lämna in vårt bidrag rill RSA, fast vi först inte var så glada över det.

> Från vårt projekt till RSA tar jag med mig insikten om att jag kan göra mera än jag tror, vetskapen att saker går runt även om jag inte detaljhanterar varje aspekt av ett projekt och kunskap om hur mitt eget arbetssätt fungerar och hur jag kan modifiera det till att komplettera en grupp. Jag tar även med mig ett nytt synsätt på vad en produkt är, och känner att jag fått bättre grepp om realistiska tidsplaner för olika typer av projekt.

Detta var en del av de reflektionerna från våren 2016 och jag kan själv hålla med vad många studenter sade i sina reflektioner och sin feedback. Projektet led av att föras från kurs till kurs och hanteras av flera olika handledare och lärare med olika syn på SDA. RSA Finland sponsorerade våra studenter så att bidragen kunde lämnas in till tävlingen och det gjorde att studenterna trots vissa initialproblem gjorde grundligt arbete. Jag hade en kort intervju med fem av studenterna som deltog i kursen under hösten 2017 och frågade om de såg en koppling till hållbar utveckling och samhällsutveckling. Den gemensamma åsikten var att alla nog hade valt teman som stödde hållbar utveckling och att de medvetetet hade jobbat med frågorna. Kunskapen kring hur man kan använda sig av design thinking kring samhällsutveckling hade också ökat.

3.3   Produktifiering och SDA våren 2017

Lärdomar från tidigare år gjorde att SDA hålls i en kurs och att det inte finns många andra projekt som stör processen. D.v.s., kursen hölls våren 2017 med endast en lärare och grupperna jobbade med de olika uppgifterna med föreläsningar som stödde processen. De teman som valdes fokuserade allt mer på hållbar utveckling och på att bygga ett bättre

samhålle och metoderna kring innovativ och social design hade även de utvecklats mera. Några av de teman som valdes under kursen var: Agile Aging som var sponsorerat av Fazer, Circular Future och Mind Your Money. Nedan några av reflektionerna som studenterna kom med:

> Jag har lärt mig att komma på med idéer, bearbeta dem och forma dem till ett färdigt koncept. Dessutom har jag blivit ännu bättre och fördomsfriare på att arbeta i grupp med människor jag inte känner från tidigare eller inte har jobbat med så mycket tidigare. Jag tycker att det är mer givande att arbeta på dethär sättet.

> Det som jag blev nyfiken på under kursen är hur mitt intresse för att arbeta för miljön kan göras till en arbetsplats för mig. När vi talade med personalen för Kärrningmossens avstjälpningsplats framgick det tydligt att det fanns tydliga kommunikationsproblem mellan ett mera kommersiellt vinstgivande tankesätt och ett tankesätt där naturen är första prioritet. Intressant är dock att efter att ha studerat och läst synvinklar från båda lägren så har det visat sig att i det långa loppet gynnas båda parter av ett bättre organiserat och ekologiskt konsumtions och avfallssystem.

> Vad jag lärde mig från vårt projekt var att det lönar sig att istället för att försöka rädda världen fokusera på något konkret problem som är lättare att lösa inom den knappa tid vi hade.

> Främst har projektet runt Student Design Awards, och det man har lärt sig, har det väckt glöd på min vilja att vara kreativ.

> Kursen som helhet var välfungerande och inspirerande. Genom kurser som denna blir man tvungen att vidga sina vyer inom områden som inte kanske är bekanta från tidigare, samtidigt som man får jobba i grupp.

> För mej är det väldigt viktigt att bekanta sej med olika problemområden och försöka tampas med problemen för att kunna tillämpa det man lärt sej till det man vill jobba med. Vår uppgift var att tangera sociokulturella frågor och hitta på en produkt som kan användas för att främja gemenskapen oavsett bakgrund. Forskningsarbetet gav en djupare insyn i vilka olika medel det redan finns och vilka som kan vara bristfälliga och förbättras. Kursen var väldigt givande då man var tvungen att undersöka området noggrant, identifiera ett problem och skapa en produkt. Det var väldigt roligt att se hur *RSA* fungerar, vilka samarbetspartners de har och se vad man kan åstadkomma med en välfungerande grupp med gott samarbete.

Även detta år fick studenterna presentera sina slutprodukter åt en expert som representerar RSA, FRSA Peter Westerlund som lyssnade på studenternas presentationer både år 2016 och 2017 berättade att han märkte en skillnad på kvaliteten på de presenterade produkterna och prototyperna. De lärdomar jag fått genom att genomföra SDA på tre litet olika sätt visar att det bästa resultatet (också då man läser studenternas reflektioner) är då studenterna inom en kurs får fokusera på tävlingen och de olika uppgifterna som finns kring den. Vi hade också tid att fundera kring det goda samhället samt hur arbetet med de olika uppgifterna kan leda till en bättre värld.

4 FRAMTIDSVISION

Resultaten från de tre åren som tävlingen har genomförts på Arcada ger belägg för att lärandemålen för hållbar utveckling stöds av ett tvärvetenskapligt synsätt där studenterna lär sig problemlösning och att kritiskt granska sin omgivning. Lärande för hållbar utveckling anses också gynnas av studentdriven verksamhet och ett kollektivt lärande som är en av hörnstenarna i designtävlingen (Världsnaturfonden WWF, 2008).

Jag kommer även i fortsättningen att använda mig av designtävlingen i utbildningen. Som studenternas reflektioner visar har det väckt en nyfikenhet både för design thinking, produkt- och tjänsteutveckling och hållbar utveckling. Främst för de studenter som arbetat med frågor som redan i uppgiftsbeskrivningen har tangerat antingen sociala eller miljöfrågor. Tävlingen (läroplanen) är ett utarbetat verktyg som stöder kreativitet och design thinking och stöder RSAs mission om ett bättre samhälle med allt större betoning som sker kring hållbar utveckling. Och genom att tävlingen stöder organisationens vision kring hållbar utveckling ser vi en ökning av rubriker som också korrelerar med de 17 globala målen FN satt upp och som beskrivs i introduktionen.

KÄLLOR

Arcada, 2017. *Bacheolorutbildning kulturproducent*. Tillgänglig 16.9.2017. https://www.ar-cada.fi/sv/bachelor/kulturproducent

Davis, S., 2017. Direktör för design RSA. Intervju 20.9.

Pääkkönen, S. 2012. Tutkijan työmaa on koko maailma. *Helsingin Sanomat* 21.1.

RSA, 2015. *Design for Good. Ninety Years of the RSA Student Design Awards*. Royal Society of Arts. Tillgänglig 12.11.2017 https://www.thersa.org/discover/publications-and-articles/re-ports/design-for-good-ninety-years-of-the-rsa-student-design-awards

RSA, 2017. *Our Mission 21st century enlightenment: Enriching society through ideas and action.* Tillgänglig 28.8.2017 https://www.thersa.org/about-us/our-mission

Riel, A., Kekah A., Mandil, G., Rio, M., Tichkiewitch, S., Zhang, F. & Zwolinski, P., 2015. An innovative approach to teaching suistanable design and management. *Procedia CIRP* 36, 29–34. Tillgänglig 12.11.2017 http://www.sciencedirect.com/science/article/pii/S2212827115004333

UNESCO, 2017. *Education for Sustainable Development. Goals: Learning Objectives.* Tillgänglig 12.11.2017 http://unesdoc.unesco.org/images/0024/002474/247444e.pdf

United Nations, 2015. *Resolution adopted by the General Assembly on 25 September 2015.* Tillgänglig 28.8.2017 http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/70/1

Världsnaturfonden (WWF), 2008. Hållbar utveckling och lärande – inspirationsskrift för universitetslärare. Tillgänglig 12.11.2017 http://www.wwf.se/naturvaktarna/source.php/1139007/La-rande%20pa%20hallbar%20vag.pdf

Övrigt material

Studenternas reflektioner från åren 2015, 2016 och 2017.