

# Decoding European Creative Skills



Co-funded by the  
Creative Europe Programme  
of the European Union



## **ABOUT DECS**

**Decoding European Creative Skills (DECS) is a project co-funded by the Creative Europe Programme of the European Union led by ELISAVA along with Eindhoven University of Technology and Fachhochschule Salzburg University of Applied Sciences in order to share with the rest of the design communities our interest in getting to know our profession better.**

**Over this two-year project, various activities have been carried out with two main objectives: firstly, to facilitate tools for designers to gain a better knowledge of their skills and competencies as professionals while generating opportunities to facilitate their inclusion in the work environment. Secondly, to raise awareness of design in companies and organizations, providing them with opportunities to meet creative profiles that allow them to adapt to technological advances and environmental and social changes.**

**The objective of this book is to present a summary of the various activities undertaken during these two years of the DECS Project, while at the same time thanking all the companies and individuals that have made it possible and that have been an essential part of it for their participation.**

## CREATIVE SKILLS DICTIONARY

The Creative Skills Dictionary has been created as a living dictionary that is continuously updated and that aims to define the competencies present in creative profiles, helping to identify and understand the diversity of skills that define a designer's work.

This dictionary has been compiled by ELISAVA Research and has served as the structural axis of the following activities carried out in the project, while also working as the ideological underpinning for the conception of the Creative Decoding Tool (CDT), an online survey directly linked to the dictionary, receiving feedback from each other, in order to keep any new skills required by designers up to date.

This research started with a bibliographic review of the studies into the creative processes and competencies of the design field <sup>(1)</sup> from which an initial list of competencies was obtained. This proposal was compared with 14 interviews with design professionals and design and engineering students, as well as a case study in a product design company.

As a result, a list of 10 competencies that are centrally involved in creative processes was obtained. Each competency was divided into two dimensions that bring together the necessary aspects to achieve the aforementioned competency, but that are of a different nature. For example, the competency that measures leadership is composed of a dimension that would be "strategic vision" and another one that would be "motivation". According to this conceptualization, an individual can have excellent planning abilities (and therefore achieve high strategic vision scores) but he/she might not necessarily be a good coach to his/her colleagues (and thus have low motivation scores), or vice versa. This way we can consider that for a person to have a certain competency, high scores in both dimensions are necessary.

(1) For a more in-depth analysis of the theoretical framework that supports this research, consult B., Martinez-Villagrasa, Esparza, D. and Cortiñas, S. (2018). The Creative Competencies Dictionary, Between Design Practice and Education in 21st Century. Proceedings of the 20th International Conference on Engineering and Product Design Education (E&PDE18), Diversity or Conformity, London, United Kingdom, 6 & 7 September 2018.

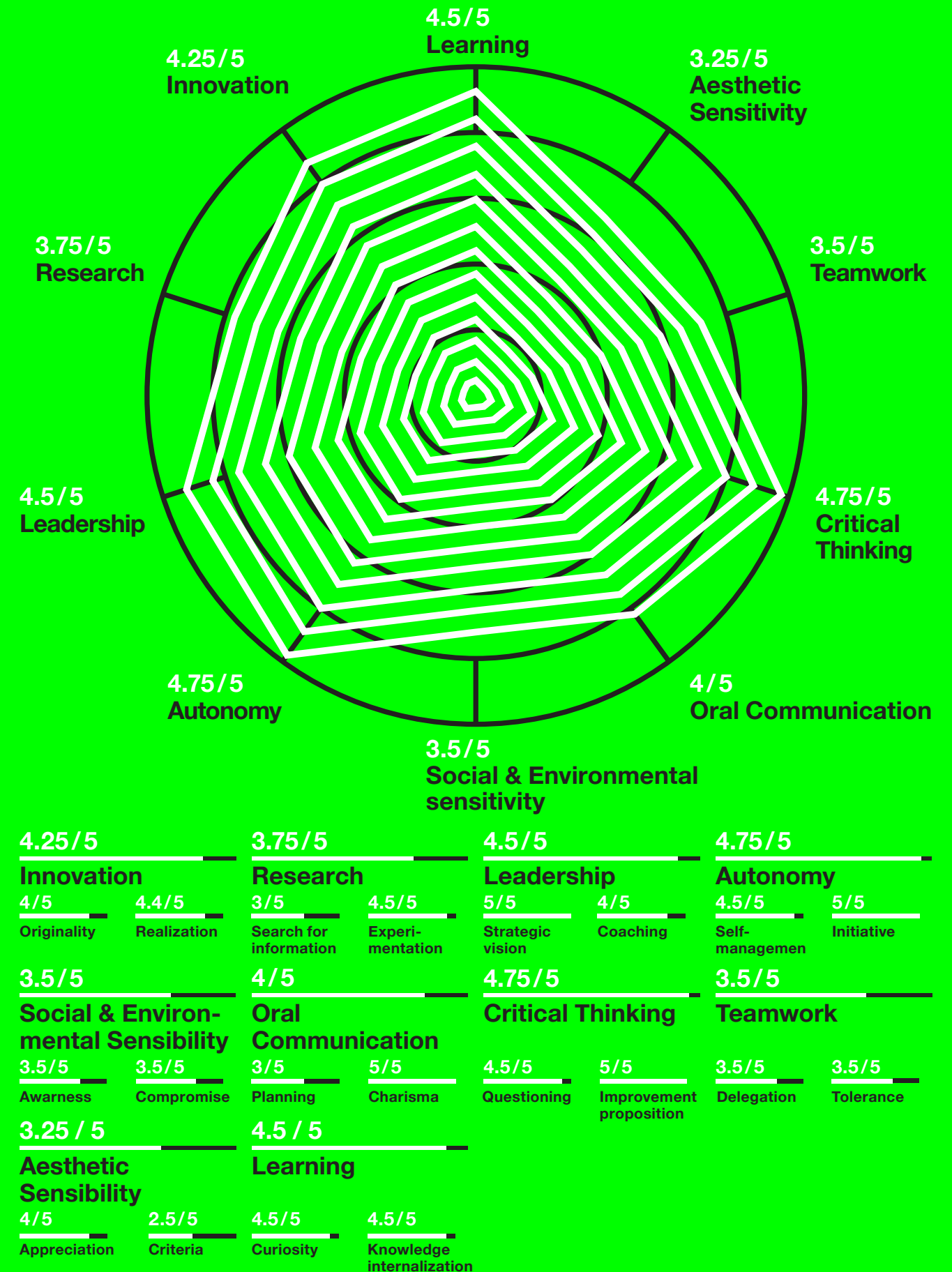


Fig. 1 Visualization example CDT

### Innovation

Capability to have original feasible ideas. It refers to the tendency of the designer to be creative and open-minded in his/her way of thinking, as well as his/her ability to find a functional way to materialize ideas.

Originality

Realization

### Research

Capability to enrich the design process thanks to theoretical and practical research. It refers to the capacity of getting information about references and users, as well as to the ability to experiment through different work tools and materials.

Search for information

Experimentation

### Leadership

Capability to detect opportunities and meet goals through a strategic reach to the projects. It refers to the designer's capacity to plan and direct work, as well as the ability to motivate colleagues through empathy and enthusiasm.

Strategic vision

Coaching

### Autonomy

It refers to the individual capacity to manage and organize work in an autonomous way, as well as to the personal initiative when modifying a project.

Self-management

Initiative

### Social and environmental sensitivity

Capability to reflect about the social and environmental aftermath of a project. It refers to both the interest and respect for others and the capacity to act in consequence creating responsible and ethically sustainable projects.

Awareness

Compromise

### Oral communication

Capability to orally transmit a message in a clear and attractive way when presenting or pitching a project. This includes the likeness to previously elaborate and structures the information that needs to be transmitted and the ability to communicate it to generate a positive impact on the receptors.

Planning

Charisma

### Critical thinking

Capability to inquire and find solutions to improve. It refers to the likeness to question certain realities of a project in a constructive way, that is, with an ability to identify and materialize improvement and developing possibilities.

Questioning

Improvement proposition

### Teamwork

Capability to cooperate when developing a project in which many people are involved. It refers to being able to delegate based on trust and the capacity to tolerate diversity of criteria and other opinions.

Delegation

Tolerance

### Aesthetic sensitivity

Capability to perceive, value and fundament the formal aspects of a project. It refers to the interest to apply in a prioritizing way the decisions related to aesthetics, as well as the capacity to support these decisions with arguments so that they're not arbitrary.

Appreciation

Criteria

### Learning

Capability of acquiring and applying the new knowledge, abilities and attitudes efficiently through the study or the experience that can come up before, during or after the design process. It talks about the curiosity that thrives the exploration of new and diverse knowledge sources, as well as the capacity of interiorizing and practically applying what's been learned.

Curiosity

Knowledge internalization

↳ Definition of the identified competencies, B., Martinez-Villagrasa, et all (2018)

## COLLECTION OF BEST PRACTICES

Throughout the project, interviews were held with a number of design professionals and students in Barcelona, Salzburg and Eindhoven. These interviews allow us to identify behaviours of each of the competencies that are part of the dictionary. The interviews were conducted using the Critical Incident Interview; through this semi-structured interview, each designer describes the design process of a project carried out during the last two years, emphasizing their most critical points.

Below is the list of designers interviewed; the complete transcribed interviews can be found at [www.decsproject.net/publications](http://www.decsproject.net/publications)

**Barcelona** Adrià Pedrosa, Àlex Casabò, Bernat Faura, César Robles, Cesar Rojo, Iolanda Monsó, Xavier Tutó

**Salzburg** Peter Schreckensberger, Susanna Vogel, Magnus Fischer, Adelheid Rainer, Teresa Meister, Michael K. Reiter, Anna Maislinger, Michael Schwab, Pujan Khodai, Michael Walder, Tanja Friedrich

**Eindhoven** Koen Beljaars, Mitchell Jacobs, Olaf Corduwener, Rhys Duindam, Gordon Tiemstra, Brian Garret, Joep Le Blanc, Pepijn Verburg, Joes Janmaat, Manon Barendse, Troy Nachtigall

## CREATIVE CHALLENGES

Each of the partner universities organized a Creative Challenge where young designers took part in a week of intense group work to be able to take on real projects proposed by local companies and institutions. These companies and institutions participated in the launching of the challenge, the follow-up of the ideas, as well as in the final presentation.

Simultaneously, while the participants worked on the challenges, a team made up of professors from the three universities acted as observers, recording and taking notes of the competencies put into practice through the design process. This observation of the creative process collected evidence in relation to the 10 creative competencies to enrich the project and further develop the research into creative skills (Martínez-Villagrasa et al., 2018b).

On the last day, these observations were shared with the designers to gather their point of view in a self-reflection session based on the 10 competencies analysed. This experience proved to be very interesting for the designers to gain more information about their strengths, to reveal competencies that they might keep improving and to understand the perception of others about one's own skills.

Besides this, the participating companies and institutions valued the work of the participants very positively for their ability to question and raise a range of inspiring possibilities that are, at the same time, feasible to develop, since some of them have shown interest in looking for ways to continue developing some of the ideas.

The companies and participants that took part in each of the Creative Challenges are the following: →



Creative Challenge Barcelona



Barcelona 15.01 to 23.01, 2018

### Direcció de Comerç

is part of the Department of Tourism, Trade and Markets of Barcelona City Council. Its functions include the management of policy development in the fields of tourism and commercial trade, fostering all kinds of actions in these areas.

How to improve the poor visibility of emblematic shops in the city of Barcelona? How to help to create a stronger intercultural commerce network in Barcelona?

Constanza Simioni, Ana Fortuny Casablanca, Glòria Macià Muñoz, Javier Carracedo, Judith Gómez Cuyàs, Laura Ballesteros Villarea, Maria Inês Silva, Alba Eiriz Martínez, Júlia Claveria Baro, Doa Rodriguez Pastoriza, Gisela Chueca de Bruijn

### Eurecat

is a private, non-profit organization devoted to industrial research and technology knowledge transfer, based on the textile industry, providing technical and human resources for all companies, individuals and organizations interested in these areas to effectively apply them.

How to attract the attention of the fashion sector to adapt its capacity for innovation with regard to new textiles to this sector?

Andrea Méndez Oliver, Hector Lezaun Pegenaute, Luis Gasca Peña, Oriol Povill Cerdeira, Delia González González, Mayra Falbo, Olivia Muiños Benítez Oscar Vera Blanco, Roger Zambrano

### Xarxa Ambiental

is a non-profit cooperative that aims to integrate people with disabilities. Xarxa is committed to the services sector in the public sphere, facilitating the employment integration of people with disabilities in the local world and public administration.

How to achieve a better categorization of the waste that is discarded, generating new recycling habits?

Irati Abad, Lautaro Martin Scolpatti, Paulina Montenegro Pau, Romina Calzi, Marc Godayol i Hasse, Alessandra Sebastiani Garcia, Natàlia Catalan Tásies, Claudia Blanes

Salzburg 26.02 to 02.03, 2018

### The Café Hipp

has been practising the rare craft of gingerbread and wax-making for over 400 years. Out of this long tradition, today's Café Hipp evolved, where they offer 400 café seats, high-quality chocolates and chocolate goods, pastries and loose tea. They were looking for new ideas for the consumption, sale and experience of their high-quality sweets.

Denis Štajdohar, Andrés Llorca, Taïssia Visser, Anna Braunegger, Desiree Gärtner, Tomáš Vevera, Eva Bajková, Eliza Viluma, Rosanna Haider, Luise Müller

### lebensDESIGN

is a social design project born out of a cooperation between Lebenshilfe, Porsche Design GmbH and the Salzburg University of Applied Sciences. The idea is that people with handicaps can produce beautiful luxury products that customers never purchase out of pity but through genuine interest in the brand. The challenge included the design development of urban/street furniture and lighting solutions for the current product range of lebensDESIGN.

Sára Navrátilová, Paula Godoy Ortiz, Petya Petrova, Mayra Karina Garza, Julia Färbert, Michal Gábriž, Monika Kudličková, Eliska Otevrelva, Lucia Pierangeli, Fernando Zarco

### Phantom Athletics

is a sports company based in the city of Salzburg. Their most important product is the Phantom Training Mask, a resistance breathing device, which limits your air supply during training. They want to add a pollen/fine particle filter to their existing Phantom Training Mask. They already had the proper filter material, but were looking for a solution to integrate the filter in the mask.

Tanja Kammler, Kateřina Vejrostová, Tomáš Kaleta, Jaroslav Štiegler, Iveta Žerávková, Eva Kolaříková, Mónica López Sarrió, Ellina Volkova

**The organisation Phurdo** is a centre for consultancy and promotion of the Roma and Sinti community. Within this context of employment integration, basket-weaving workshops are offered as well as traditional baskets sold. At the moment, the presentation of the shop's retail space towards the outside is less than optimal. The new concept has to be flexible, especially since a new location is being planned. The showroom should function for multiple purposes (coffee house, educational centre, production).

Anna Zuzana Dudková, Jakub Havala, Veronica Della Morte, Lena Zach, Pamela Sada Coeto, Dominika Kasarová, Marek Vávra, Iva Zlateva, Dimitrios Kioroglou, Pere Marin

**Rainer Holzbau** are a small timber construction and carpentry company with 5 to 10 employees. Their area of activity covers the whole spectrum of carpentry and wood construction, including residential buildings, bridge construction, carports, wooden terraces, renovation and thermal strengthening. By developing a recognizable visual product language, a clear design strategy should become visible and tangible.

Lukáš Šimala, Jakub Oulehla, Frederik Vangsgaard, Katarína Kováčová, Nicola Ritter, Darina Zelenitca, Michael Weiser, Tine Kalač, Martin Guillaume



Creative Challenge Salzburg

**Eindhoven** 09.04 to 13.04, 2018

**Eindhoven Airport**

is the airport located 7.6 km west of Eindhoven, Netherlands. In terms of the number of served passengers it is the second largest airport in the Netherlands. Eindhoven Airport connects Brainport to Europe and the rest of the world and makes the region internationally accessible. The airport has a positive impact on the business climate and plays a crucial role in enabling the region to achieve its ambitions. Speed and the total airport experience are its added values.

Emmie Knoester, Alexandra Auer, Krishnaa Seck, Bianca Gorini, Eleonora Zanus, Martijn Dekker, Jelle Hamoen, Sasha Prudon, Jules Rutten

**De Effenaar**

is a pop-up venue in the centre of Eindhoven. It has existed since 1971 and has become one of the largest pop-up venues in the Netherlands. De Effenaar has a large hall, with capacity for 1300 people, which is meant for larger bands/acts, and a small hall (400 people) that is suitable for smaller and/or regional bands. Many great national and international names have played over the years, such as: The Ramones, The Cure, Joy Division, Sex Pistols, Red Hot Chili Peppers, R.E.M., Queens of the Stone Age and Lil Wayne.

Seiji Bernabela, Lesley Lock, Simone van Wieringen, Demi Jansen, Bas van Straaten, Bram Goosink, Dereck Chu, Sam van der Horst, Rosalie Oomen

**Studio Tast**

consists of a young multidisciplinary team. They see an important role for designers in education, based on current technological developments. It is their task to bridge the gap between existing learning materials and future possibilities. Studio Tast specializes in the intersection between technology, design and people. That is how they are creating an inspiring learning environment, fitting the perception of current and future generations in a continuously changing society.

Tim van de Puttelaar, Art Selbach, Ezgi Aytekin, Jesper van Bentum, Rosa van Koningsbruggen, Thomas van de Moosdijk, Vera Pijnenburg, Shunde Chen, Stern Hutjes, Ayushman Talwar

## IN-HOUSE RESIDENCY PROGRAMME

Thanks to this project, we have been able to grant 15 young designers 2 months' travel to Eindhoven, Salzburg and Barcelona to carry out internships in European companies.

The aim of this activity has been to promote the career development of 15 European designers selected from among the professionals taking part in the Creative Challenges. All of them have valued the experience very positively, since this scholarship has allowed them to acquire professional experience outside their country of origin in a first professional experience in a foreign country that opens doors in their career as professional designers.

Besides this, the activity has also allowed various European companies to experience first-hand how creative processes can have a positive impact on their competitiveness. In this way, the activity is contributing to raising the interest of European companies in design. Most companies have expressed their surprise at the ability of designers to propose innovative solutions based on their vision as external professionals, capable of understanding their needs and working in multidisciplinary teams, in addition to having a great capacity to communicate their ideas, both graphically and orally.

### ↓ Company

### ↓ Designer

#### Barcelona

Ateneus de Fabricació  
DomesticDataStreamers  
Hospital Clínic  
Médicos sin fronteras  
SOKO Tech

Bas van Straaten (NL)  
Alexandra Auer (NL)  
Seiji Bernabela (NL)  
Veronica Della Morte (SZG)  
Pere Albert Marin Peiro (SZG)

#### Salzburg

Architecten Scheicher  
Kohadi  
Spirit design  
Johannes Scherr Design  
Vitalion

Alba Eiriz (BCN)  
Hector Lezuan (BCN)  
Javier Carracedo (BCN)  
Thomas van de Moosdijk (NL)  
Art Selbach (NL)

#### Eindhoven

Eindhoven Airport  
Eindhoven Airport  
Effenaar  
Effenaar  
Studio Tast

Roger Zambrano (BCN)  
Nicola Ritter (SZG)  
Marek Vavra (SZG)  
Ana Fortuny (BCN)  
Eva Bajková (SZG)

See all the residences at [www.decsproject.net/residence](http://www.decsproject.net/residence)

## CREATIVE DECODING TOOL

The Creative Decoding Tool (CDT) is an online tool designed by the Elisava Research team with a triple objective: (1) to provide an online tool for designers to improve self-reflection on their skills, (2) to offer companies and institutions a tool to assess the incorporation of designers in their teams, and (3) to collect and display real-time data on the competencies of design professionals and students at an international level.

Through the DECS project, it has been possible to implement the English version of the online questionnaire and upgrade it to implement objectives 2 and 3 mentioned above.

### CDT for designers

The CDT is an online survey that permits the mapping of the creative competencies of design professionals through a questionnaire.

The test consists of 50 questions that invite designers to reflect on the way they design. By answering it, designers are able to reveal their most important creative competencies and get a graphic display of their results. It is useful as a tool to encourage personal reflection and it can help designers understand their position within the creative universe.

### CDT for companies and institutions

The CDT is also aimed at those companies that want to incorporate creative profiles in their teams, providing a tool to map the skills of the professional that can best fit the needs of the company.

The survey consists of 20 questions and helps small- and medium-sized companies that do not have a human resources department to search for talent. The visual map that is configured with the results of the survey helps to define the job description of the vacancy and to assess the candidates when having a job interview.

### Real-time data

All the data that is collected through the CDT for designers is displayed in real time on the web. These data allow us to continue investigating the way in which designers work, to explore the existence of profiles of creatives based on their competencies and to detect differences between countries, age and gender.

To date (June 2019), 1025 people have completed the CDT questionnaire. The socio-demographic characteristics of the sample are shown in Fig. 2. As we can see, there are slightly more women (52.7%) than men (47.3%), mostly aged between 25 and 34 years (45.4%). Although the respondents have their residence in more than 50 countries all around the globe, most of them live in Spain (50%) or in other European





**Fig. 2** Competency scores of socio-demographic variables (only significant differences according the K-W test)

countries (34.2%). They tend to have a bachelor's (39.7%) or a master's/Ph.D. degree (44.3%), and the vast majority of them have studied something related to the design field (80.7%). The most frequent specializations are product design and industrial design engineering (23.2%) and graphic and visual design (22.9%). Regarding their professional profile, they predominantly have work experience of under 5 years (41%), are employees (42.4%) in SMEs (36.3%) or large companies (35.9%) that are more than 5 years old (79.9%). It must be said that this sample does not aim to be a representative picture of the whole of the design sector since the CDT is an open online survey and the characteristics of its respondents depend on the communication strategy carried out by Elisava, which has, to date, been primarily targeted at Spanish and European universities. However, the current sample of more than one thousand interviewees gives us valuable insights into some of the skills patterns of design students and professionals, and in the future, its validity will increase as the database continues to grow.

In this overview of results, we focus first on the different competency scores (which go from 1–minimum, to 5–maximum) of the distinct socio-demographic categories. For this purpose, we use the Kruskal-Wallis test, which is a statistical tool that best fits the current data and allows us to detect differential distributions among variables. Specifically, only those variables that show significant differences in competencies according to the K-W test have been selected. The results can be found in Fig. 3. Starting with the variable of age, we see that competencies like critical thinking, innovation and leadership present an increasing evolution over the age groups, with people over 44 years old having the highest score; by contrast, the relationship between age and teamwork has an inverted U shape. As regards the gender variable, we observe that men have higher scores in learning, critical thinking and innovation, while women have better results in research and social and ecological sensitivity. If we look at the design specialization, we see that people from the spatial design field have the highest numbers in aesthetic sensitivity and research, whereas people from the interaction and multimedia design get the lowest. Moving to the level of education graph, we see that educational qualifications are positively related to learning, autonomy and oral communication competencies. With regard to professional status, workers (employed or self-employed) have better marks than students and unemployed in competencies like critical thinking, innovation, oral communication and autonomy; in particular,

Gender	Learning	Critical Thinking	Social/Eco sensitivity	Research	Innovation
Male	4,12	4,05	3,35	3,75	3,70
Female	4,00	3,89	3,50	3,88	3,51

Age	Teamwork	Leadership	Innovation	Critical Thinking
17 - 24	3,41	3,69	3,60	3,88
25 - 34	3,53	3,68	3,54	3,95
35 - 44	3,55	3,67	3,69	4,04
>44	3,40	3,86	3,69	4,05

Speciali- zation	Spatial /Arch	Product /IE	Graphic /Visual	Interaction /AV	Other
Aesthetic Research	3,74 3,94	3,67 3,93	3,70 3,89	3,46 3,61	3,54 3,74

Education	Learning	Autonomy	Oral Communication
Basic / Pro. training	3,93	3,66	3,42
Bachelor's degree	4,04	3,75	3,48
Master's degree /PhD	4,12	3,86	3,61

Profess. Status	Critical Thinking	Autonomy	Innovation	Oral Communication
Unemployed	3,83	3,64	3,39	3,48
Student	3,86	3,60	3,57	3,43
Employee	4,02	3,86	3,56	3,56
Freelance	4,00	3,90	3,72	3,60

Company years	Innovation
<5 years	3,78
>5 years	3,60

Fig. 3 Most important correlations between the variables

freelancers and entrepreneurs get the highest scores in the last three. Finally, it can be seen that start-up employees tend to score higher in the competency of innovation compared with the ones that work for older companies.

Secondly, we use a statistical measure called Spearman's rho in order to find possible relationships between the ten competencies. Fig. 4 shows only the competencies that have at least a moderate association, that is, a rho value of around 0.4-0.5 (0 means no correlation and 1 means full positive correlation). As we can observe, critical thinking and leadership competencies are correlated, and both of them relate to innovation. At the same time, critical thinking is correlated by itself to learning, and leadership to autonomy.

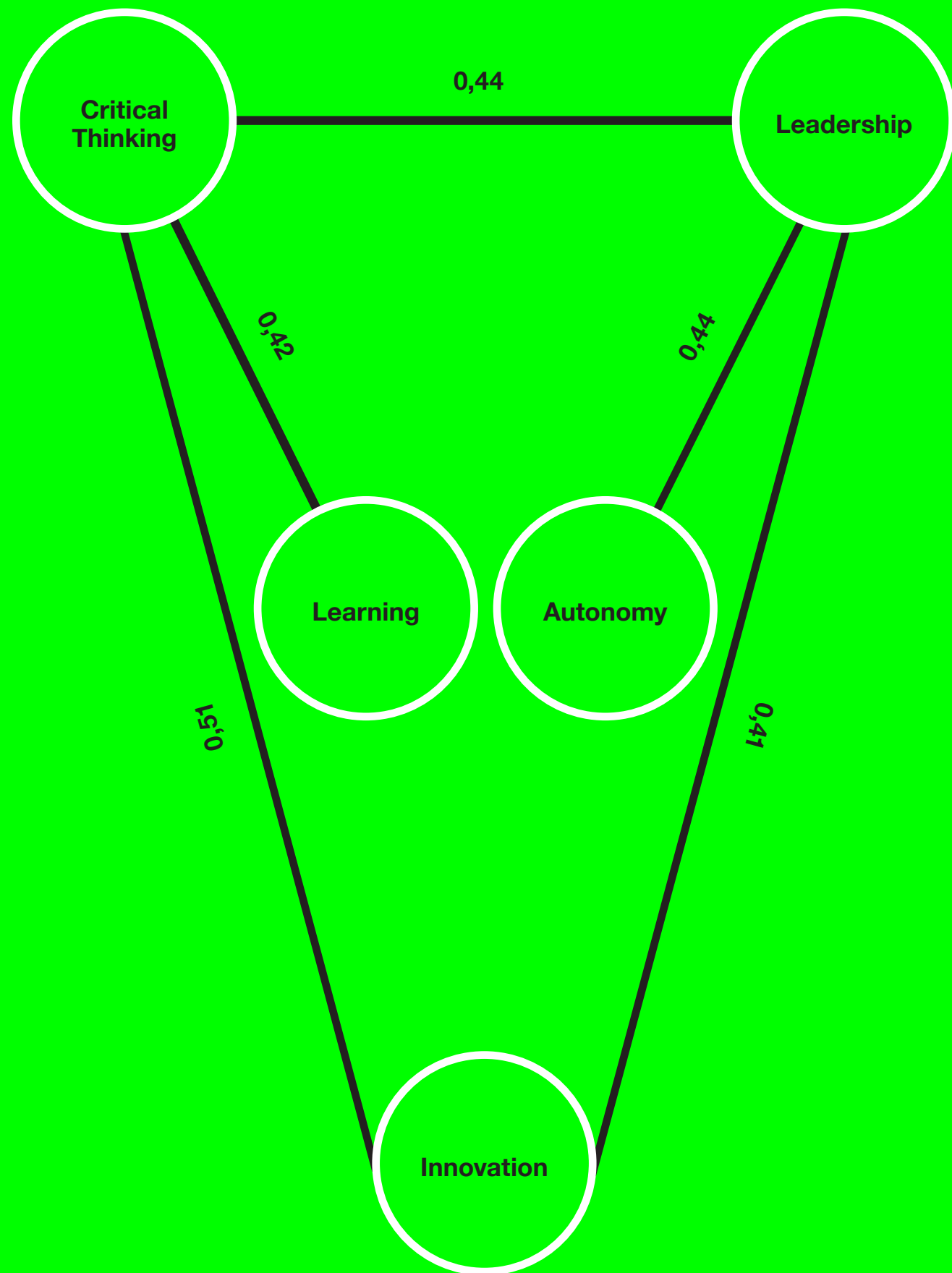
The crossed analysis between socio-demographic variables and competencies and the correlation analysis of competencies we have briefly offered here are just two examples of the several statistical procedures that can be applied with the CDT dataset. In any event, the findings we have pointed out raise a number of questions, for instance: to what extent do the results, taken from a self-declared online survey, explain behavioural competencies in a real environment? Do they hold true in fields besides the design discipline? How are they linked to psychological personality traits? In what measure do organizational factors affect competency scores? Our current study, thus, intends to be a trigger for further research into design, an exciting field of knowledge that still has a long way to go.

**NEW!**

**LOOKING FOR  
REAL-TIME  
DATA RESULTS?**

[www.decsproject.net/realtimedata](http://www.decsproject.net/realtimedata)

**VISIT**



**Fig. 4** Graph showing the most important correlations between the competencies

### DECS NETWORK FEST

To share the research carried out during these two years with the whole community and to celebrate the end of the project with all the participants, two events were held in Barcelona.

### DECS FEST - 13 June 2019, Arts Santa Mònica

DECS FEST took place in Arts Santa Mònica during Barcelona Design Week.

The session began with a presentation of the project and its main activities; the first analysis of the data collected through the online CDT tool was also shared. At the event, Ferran Adrià participated as a guest speaker, where he shared his work methodology at El Bulli with which he revolutionized the gastronomy sector. Tamara Castrillón then described the “El Nido” project carried out in the Danone company to promote creativity in their teams across departments.

The event ended on the Arts Santa Mònica terrace with music and networking.

### DECS TALENT NETWORKING - 27 June 2019, Elisava

The DECS Talent Networking consisted of an event attended by companies and designers in a series of short interviews predefined according to the results obtained by the participants in the CDT.

The event involved, on the one hand, a total of 13 companies that sought to incorporate creative profiles in their teams and, on the other, 68 young designers who were looking for job opportunities. Through the scores that both obtained when responding to the CDT and, therefore, based on the skills of the designers and the needs of the companies, 9 interview turns of 5 minutes each were planned. During these short interviews, the participants had the opportunity to meet face-to-face and complete the information that the questionnaire does not provide, such as attitude, motivation or other more subjective features of each person.

After the round of interviews, networking was organized on the terrace to create a more informal meeting space to continue with the interviews or to have the opportunity to contact other people.

It was a pleasure to finish the project with an event like this, where all the participants greatly appreciated the organization and the suitability of the event. For companies, it was highly valued for the possibility, in a short period, of being able to interview several candidates according to their needs; 100% of the companies stated that they are currently considering the incorporation into their team of professionals who they interviewed at the event. For the designers, it was also a unique possibility to get in touch with several

companies in a single day; they found the value and international prestige of the participating companies interesting. Both groups suggested the desire to carry out events like this on a regular basis.

**Companies**

Danone, Domestic Data Streamers, Everis, Garcés de Seta Bonet, HP, Kave Home, Kendu, Nexia, Penguin Random House, Puig, Quadpack, Telefonica Alpha



DECS Talent Networking Barcelona

**DONE!  
(BY NOW)**

**FLIP THIS  
BOOKLET  
AND  
DISCOVER  
THE  
ARTICLES**





Creative Challenge Eindhoven



Creative Challenge Salzburg

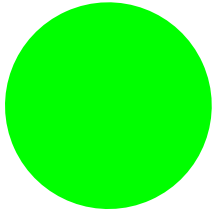


Creative Challenge Barcelona



Salzburg Creative Challenge final presentations

# The Future of Creativity



**Albert Fuster and Julia Benini<sup>1</sup>, Nicola Montaretto  
and Axel Gasulla<sup>4</sup>, Laura Ackermann<sup>7</sup>, Joep Frens and  
Bart Hengeveld<sup>10</sup>, Thomas Østergaard<sup>13</sup>**

**Articles**

**Challenges and Opportunities in Creativity**  
**as Executive Education**



**Albert Fuster, Ph.D and Julia Benini**  
**ELISAVA Barcelona School of Design and**  
**Engineering**



Postgraduate executive programs offered by business schools have gained popularity in the past decades by delivering an analytical approach to generating growth in any sector, scale, context and field. To deliver growth, business schools have positioned themselves as being at the forefront of disruptive innovation. In order to offer approaches to mastering innovation, these programs incorporated into their curriculum processes and methodologies traditionally pertaining the disciplines of creativity and design.

Words such as empathy, prototyping, and user feedback introduced the dimension of human emotion, impact, and aesthetics into business management's analytical approach. However, creativity and design are often at the fringes of the curriculum. We believe there is a gap to be bridged – a space where design and creative processes are at the forefront of a curriculum that aims at forming disruptive innovators.

To bridge this gap, we launched in 2017 the Executive Program in Creative Leadership to train professionals, business owners, and academics in the non- and for-profit sectors with high disruptive potential.

In this intensive and hands-on program, students undertake 300 hours training in four months that encompasses each creative skill unveiled by the DECS project. Students not only practice their knowledge of creative processes and methodologies; they learn what is their own creative DNA and how to nurture it by means of empathy, sensibility and tangibility.

The program aims at forming high potential creative disruptors to be the north star and the connecting tissue of multidisciplinary innovation teams and to co-create the future with the C-level staff of organizations. Students build capacity on systems thinking, context analysis, and a set of creative methodologies to solve challenges in the increasingly complex and interconnected world we live in.

Divided into masterclasses and workshops in Barcelona, and full-time stages and retreats in Catalunya, the program has a cohort cap of 15 students. This allows students to work side by side with key thought leaders in Europe, such as Ferran Adrià, Ezio Manzini, and Toni Segarra. Previous year's students have reported it to be intense and transformative on the personal and professional level. We have helped students rethink their businesses, open new ones, bring their startups to success, and reinvent their careers.

With ELISAVA's Research Projects, Company focused Innovation Labs, and Postgraduate Programs, we have

contributed to the development of an ontological basis for creativity. The latter is now being transferred to the creative workforce through this executive program. Its early positive outcomes corroborate to our belief that building capacity for disruptive innovation in the European context can be led by Design schools as core nodes on creativity, critical thinking, ethical, and environmental awareness.



## Meditating turmoil as a creative management model

Nicola Montaretto and Axel Gasulla  
Domestic Data Streamers



We are not saying anything groundbreaking when we affirm that multidisciplinary work is becoming more and more important in development and innovation. At Domestic Data Streamers, this multifaceted approach has been constant since the very beginning of the project.

If we take into account that creativity is, in many cases, an expression of the ego, we will easily understand that conflict and friction are something usual in any space of creative coexistence. When we refer to “coexistence” we mean that, amongst the group of people that share a creative space, what we look for is that ideally the team oscillates between the poles of conflict (positive or negative emotional agitation – dysphoria or rage) and tranquillity (emotional crystallization – depression – that will always be understood as negative). In the management of a creative team, both poles must be avoided by maintaining roles, profiles, challenges and certain behavioural rules that will make the group fluctuate between the two scenarios that would bring it to dysfunctionality. Summing up, what we believe is that it is as ineffective to have a team that is alienated and incapable of feeling any sort of excitement towards what they are doing, as a group that lives in so dysfunctional a state of dysphoria that they cannot seriously measure the risks they have in front of them.

The management of the team on this axis may seem to be organized, but it is actually just the opposite; when we talk about the emotional management of a creative team, we have to understand that we cannot organize it. Only when we are able to take on board the laws that rule our turmoil will we be capable of comprehending that what is transcendent and really useful is the introduction of values and certain minimum guidelines of “good behaviour” with which to work; the only effective method for managing creativity is the constant meditation of that very turmoil and preserving the balance between the poles. The values on which each of the individuals will meditate about the chaos surrounding them will define the quality and direction of the rest of the team.

With the aim of unifying and maintaining some basic common values, we created MOW (our Ministry Of Wellbeing). Through this initiative, our goal is to preserve and activate internally and constantly the values on which we reckon that the turmoil must be meditated. MOW are three people of the team that take care of identifying and “measuring” in which moment anyone in the group tends to lean towards any of the aforementioned poles. To serve as an example, last year MOW undertook the task of performing what we called the Data Walks, which consisted of a set of individual

informal interviews that were walks around the city with all the team members. These one-to-one talks, that began with three determined questions but derived into different paths depending on the conversation, were pivotal to understand the fears and concerns (like, for instance, being sacked), and the hopes and ideas for the future that the team had and that they could not share in other contexts, both because they did not feel they could or have one, and because some of them might be external to the professional sphere (but still as important to the overall wellbeing). MOW identified the general and individual problematic points, designed actions to tackle them, empowered the group members and ended up creating a new scenario of sharing through the application of this meditation of chaos. With these actions and many more developed by this form of creative management, we contribute to maintain Domestic Data Streamers like a system, or, as we call it, a random data family.

## Creativity in an Interdisciplinary Environment

Laura Ackermann  
Salzburg University of Applied Sciences

Sitting at a desk at night, drawing sketches again and again, and coming up with a concept with bags under one's eyes – that is the image of a brilliant but lonely designer that has persisted over decades. The reality, however, could hardly be more different: as technology becomes a vital part of our life and products are getting more and more complex, today's designer has to work together with people from various professional backgrounds. Whether it is the development of a new smartphone app or the redesign of medical products, design skills alone are not sufficient to meet the skills and knowledge needed for these tasks. That being said, we have to ask ourselves if we prepare our design students well enough for these challenges. At our university, we organize an annual event called the Social Hackathon. There, our design students work with students from a technical background to tackle societal issues that were selected and prepared by social science students. It is interesting to observe how much the students enjoy this challenge, but also how much they struggle, especially during the first hours. Not only do they use different professional vocabulary, but they are also used to following different processes when working on a task. To put it bluntly, the students with a technological background would love to start programming after 5 minutes, whereas the social science students focus on understanding the societal problem in more depth. And the design students? They prefer to plan the process first and serve somehow as a team manager and a translator between the different disciplines because they value a good team spirit and a project plan before they can even start being creative.

The ability to understand and communicate with people from other professions must become an integral part of future design school curricula. At the moment, focus is often put on intercultural skills, which is without a doubt also an important skill for future designers. Intercultural skills are not only necessary in international teams, but also when designers are collaborating with non-designers which is often the case with project partners and customers. Courses such as the Social Hackathon should take place not only once a year with one class of students. Instead, interdisciplinary projects must be integrated in each study year, as they will be an essential part of the students' future career. While working together on specific tasks, the students should be supported by accompanying courses that focus on communication skills and other soft skills, but also courses that offer at least a first insight into other disciplines. Understanding consumers better by knowing

models from psychology, using different methods from the social sciences, and learning how a technical product is developed and which constraints have to be considered within that process will allow them to contribute their creative skills into interdisciplinary teams in an effective way.

## New Making Affords New Thinking

**Bart Hengeveld, Ph.D and Joep Frens, Ph.D**  
**University of Technology Eindhoven**

The term 'design' has, over recent years, become somewhat of an umbrella term; it is used for various activities that work on different scales and take place in many different ways. Think for example of the recent rise in 'social design' and the commoditization of 'design thinking' in business and governance. One constant though is that design is always centred around giving form, be it to the material or the immaterial.

Now, when considering form-giving we would like to point out the following. Over the past one to two decades we have seen an increase in digital and digitally mediated tools for designing, making and prototyping, including laser cutters, 3D printers, printable electronics and programmable materials. Just like 'traditional' tools we use these tools not only to help us make, but also to help us think. The tools we use and the material we shape serve as lenses through which we encounter the physical, actively engaging in a dialogue between thought and experience (Schön, 1983). This means that –theoretically– these new tools for making also provide us with a new way of thinking.

We are of two minds here, looking at our new generation of design students. On the one hand, we see that the aforementioned digital tools seem to abstract them from the material that is shaped. Due to the fact that digital tools function through abstraction and representation, we observe a shift in the material sensitivity of our students. They seem more remote from that which they are shaping, relying on zoomable visual representations of seemingly endless fidelity. This is not the case in the physical reality.

At the same time, we observe our students doing really smart, creative and innovative prototyping; by meeting the limits of their skill and seeing the 'unexpected' physical results of their digital endeavours they push the boundaries of the traditional aesthetics, step outside the beaten path and create a new form of aesthetics instead. Other advantages of the digitization of our design toolset are in their multiplicity, scalability and shareability, as such fostering a new form of creative work: the digital nature of the tools allows them to be seamlessly combined with other tools, creating multitudes of physical explorations or multiple identical prototypes that can be done effortlessly, and working in the digital domain has allowed non-co-located design teams to share experiences both in digital creation and fabrication.

Summarizing and concluding, we argue that while creativity might be a universal quality of designers, it is and should be subject to change. Creativity is leveraged by the methods and technologies we have at hand. Those of today



are different than they were before, and those of the future will be different from those of today. Design schools and design practice need to be sensitive to the ever-changing dialogue between making and thinking to always be able to challenge the status quo.

## Revising Creative Sustainability-competencies in Design Educations

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**Keywords; Design-education, Creative Competencies, Competencies for social and sustainable development (CSDs), Sustainability Education, Education for Sustainable Development Goals, Cross-cutting key competencies for achieving SDGs, Design for Social and Sustainable Innovation**

Recent research demonstrates design-students have gaps of competencies when they interact in complex circular, social or sustainable design-process'. <sup>(11) (4) (9) (10) (13) (14) (5)</sup>

Other studies also show how the conditions in which developing key competencies for social and sustainable development (CSD's) in Higher Education (HE) could develop and what key competencies are required in order to enable students to handle complex social and sustainable challenges. HE's are challenged when implementing new methodologies for educations to develop CSD's. A new competence-oriented didactic with a focus on student-outputs and informal learning in opposition to a traditional knowledge based formal learning approach focusing on the teacher's inputs is emerging. <sup>(7)(5)</sup>

### **STRUCTURAL CHALLENGES**

Teaching at design-schools and universities are shaped by disciplinary structures and silos. Faculties and educations are often created from traditional disciplines connected to a specific expected "employable" status of the future graduates. Educators still practice "knowledge teaching" believing this will encourage change-action from the students. But, research in CSD's has shown this has very little effort. <sup>(7)(14)(13)(5)</sup> Reports points at series of gaps in knowledge, skills and competencies amongst employees in large as well as small and medium sized companies in function-specific process' trying to implement sustainable changes or even circular economy. They propose a change from knowledge based to competency-based learning in Sustainability Education (SE). According to these reports, there is a need to integrate social, environmental and ecological basic vocabularies, awareness of the personal responsibility, material-science, didactics and learning-settings with norms, worldviews, beliefs and behaviour in HE's, aiming to develop an overall educational approach in accordance with behavioural science and core competencies for sustainability build on trans-disciplinary design-solutions.

In order to change the educational system, success in acquiring sustainability competencies extends beyond memorization and requires educational institutions also

to provide new informal learning settings. But, trans-disciplinary learning settings, real-life sustainability, circular or social challenges or collaborations with "real-people/cases/challenges", supporting the development of the required competencies are still rare in some universities and design-schools. In Europe progress has been made within the implementation of ESD in HE <sup>(14)(3)</sup> and a new research discourse on sustainability education <sup>(13)</sup> has emerged, asking how we can provide learners with values, norms, knowledge and motivation to encourage economic, social and sustainable development. Thus, SE's also aim at facilitating the development of competencies needed for dealing with (un)sustainable development <sup>(3)(14)(5)</sup>

### **WHICH COMPETENCIES DO WE NEED?**

Competencies relies on a interlinked complex of knowledge, skills, and attitudes that enables the performance of successful tasks and problem solving <sup>(16)</sup>. When applied to competencies in sustainability, these are interlinked trans-disciplinary skills with relevance to solving real sustainability challenges and opportunities <sup>(3)</sup>. Competencies should be differentiated from learning outcomes (e.g., for curriculum development). Competencies should also be differentiated from key competencies, as the competencies which are considered important for sustainability haven't had the desired attention, in traditional education. Still, some of the traditional competencies (i.e. communication skills/critical thinking) are of huge importance to the creation of overall competencies. These key competencies 'require a high degree of individual reflexivity' <sup>(14)</sup> rather than domain-specific competencies; i.e.; mathematical competencies, geographical competencies, etc. In 2011 Wiek, et al. <sup>(16)</sup> defined five key competencies for SE. These competencies are connected to the complex, uncertain, diverse, socially and rapidly changing context of sustainability and requires new settings for students, which enables them to solve problems 'with respect to real-world sustainability problems, challenges, and opportunities' <sup>(16)</sup> The five sustainability key competencies are described as: systems thinking, anticipatory (or future) thinking, normative (or values) thinking, strategic (or action-oriented) thinking, and interpersonal (or collaboration) competencies. A sixth competency: integrated problem-solving competency, described as a 'meta-competence of meaningfully using and integrating the five key competencies for solving sustainability problems and fostering sustainable development' has been added. <sup>(16)</sup>

In 2017, UNESCO launched a guideline for developing “Education for Sustainable Development Goals: Learning Objectives, Cross-cutting key competencies for achieving all SDGs”.<sup>(14)</sup>

### **EMANCIPATORY VERSUS KNOWLEDGE-BASED LEARNING**

ESD should<sup>(14)</sup> become the key area of education. Instead of promoting a knowledge-based approach; (i.e. certain behaviours or ways of thinking) UNESCO stresses developing an emancipatory frame for developing ESD with a definition of the development of eight competencies. It is crucial to provide possibilities for creating educations which enable the students and institutions to have a “critical reflection on expert opinions”, “testing possibilities of sustainable development” and “exploring the trade-offs of a sustainable lifestyle”<sup>(14)</sup> By having a focus on the emancipatory approach of developing “cross-cutting” competencies it will provide not only “the knowledge to understand what the SDGs are all about, but also the competencies to make a difference towards a more sustainable society”.<sup>(14)(5)</sup>

The ESD discourse connected to the achievement of the 17 Sustainable Development Goals promotes eight key competencies are of particular importance for thinking and acting in favour of sustainable development (UNESCO 2017b; Rieckmann 2018): 1. Systems thinking competency, 2. Anticipatory competency, 3. Normative competency, 4. Strategic competency, 5. Collaboration competency, 6. Critical thinking competency, 7. Self-awareness competency, 8. Integrated problem-solving competency.<sup>(14)(5)</sup>

### **WHAT IF...**

Research in ESD promotes enhancing the focus on personality development, thus enabling a person to cope with complexity, uncertainty, act upon own reflection and responsible, ethical decision-making. A “New Learning Culture” is characterised on the basis of three needs:<sup>(11)(4)(3)(5)</sup>

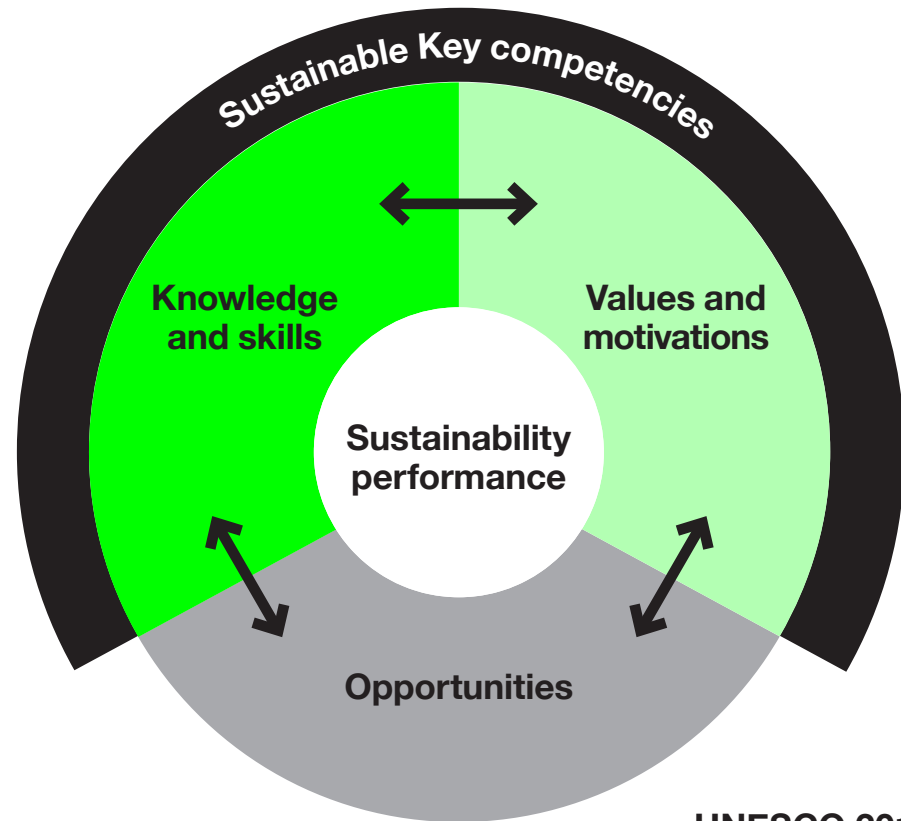
**A Competence-orientation:** The focus of the learning processes should be on providing relevant key competencies to the students. This requires a normative defined competency framework, like the DECS project, or the 8 sustainable key competencies from UNESCO.

Providing an open and involving didactic framework is necessary offering reflection possibilities for developing personal competencies and can help to identify possible personal and collaborative learning assets.

- B Societal orientation:** Learning for SD is fundamentally a societal learning, which should take place in and with real case-collaborations and include systemic teaching and understanding.
- C Individual centring:** Individual learning is considered to be an asset in a societal orientation. In formal contexts of learning it changes the role of the teacher towards being a facilitator of learning with the students.

In addition to this, the HE’s needs to find ways of innovating new methods which can integrate and use the knowledge and competencies developed in informal learning settings, as students not only learn in formal settings. Some 70 % of all learning derives from informal learning.<sup>(3)</sup> Experiential learning can facilitate developing action-competencies and has a special importance for developing “life competency”, meaning the capacity to act on; plan and implement individual or common life-projects. Experiential learning is described by the following<sup>(8)</sup>: 1. The involvement of the whole person (intellectual and sensory faculties as well as emotional responses); 2. An active use of all previous relevant life and learning experiences; 3. Reflection upon earlier experiences so as to allow an evolution of thought and hence a deeper understanding.

As such, the DECS project<sup>(1)(2)</sup> provides both a vocabulary, a method for construing the ten competencies and a relatively non-curricular informal tool for a continuing personal development proposing elements of the informal, “experiential learning” – developing a life competency – using intellectual, sensory as well as emotional responses in the assessment of the individual and the group in the process. On the other hand, as the CDT tool is a powerful competency facilitator, as it suggests a combination of the “regular” design competencies, such as “Learning”, (curiosity + knowledge internalization), Critical Thinking, (questioning + proposing), Oral Communication, (planning + charisma) Autonomy, (self-management + initiative) and Social and Ecological Sensitivity, (awareness + compromise) in a sustainability context. In a SE view, the CDT tool could help enhance the design-student’s self-awareness in relation to the UNESCO proposed competencies and add aesthetics and material-knowledge and science to the SE competencies.



**DECS 2018**  
Creative Competencies Vocabulary

- |   |   |
|---|---|
| <b>1 Learning</b><br>Curiosity + Knowledge<br>internalization | <b>7 Awareness +<br/>Compromise</b>                               |
| <b>2 Aesthetic Sensivity</b><br>Appreciation + Criteria       | <b>8 Autonomy</b><br>Selfmanagement +<br>Initiative               |
| <b>3 Teamwork</b><br>Delegation + Tolerance                   | <b>9 Leadership</b><br>Strategic vision +<br>Coaching             |
| <b>4 Critical Thinking</b><br>Questioning +<br>Proposing      | <b>10 Research</b><br>Search for information<br>+ Experimentation |
| <b>5 Oral Communication</b><br>Planning + Charisma            | <b>10 Innovarion</b><br>Originality +<br>Realization              |
| <b>6 Social &amp; Ecological<br/>sensitivity</b>              |   |

**UNESCO 2019**  
Sustainable Key Competencies

- 1 Systems thinking**
- 2 Anticipatory**
- 3 Normative**
- 4 Strategic**
- 5 Collaboration**
- 6 Critical thinking**
- 7 Self-awareness**
- 8 Integrated problem-solving**

**Fig. 5** A mapping of Similarities different sustainability competencies in a comparison of the DECS creative competencies with the UNESCO competencies for sustainable development. The CDT tool and the DECS vocabulary can enhance the designer’s self-awareness, material-knowledge and encourage the development of collaborative, ecological competencies. But this knowledge focus also needs to be assisted by the competencies from the SDG’s and a supported entrepreneurial interaction with the real-world.

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