



<https://doi.org/10.7577/formakademisk.5732>

Erik Bohemia

Dean of the International School of Design
Shandong University of Art & Design
Associate Professor
Western Norway University of Applied Sciences
Erik.Bohemia@hvl.no

Úrsula Bravo

Associate Professor
Universidad del Desarrollo
ubravo@udd.cl

Liv Merete Nielsen

Professor Emerita (PhD)
Oslo Metropolitan University
livmn@oslomet.no

Editorial I

Perspectives on Design Literacy

Building on the DLIN symposium October 2022

Knowledge and skills are tightly entangled with economic and political power. In past agricultural societies, most of the population required skills such as animal husbandry for food and sewing clothing to keep warm. Centuries later, with the advent of an economy centred on the extraction of natural resources and the production of consumer goods, it was necessary to develop more complex skills that enabled people to integrate into emerging societies. School systems were responsible for initiating this process through the 'literacy' of the child population. They provided the content and conditions for children to develop the skills needed to read, understand and produce written texts. This approach, albeit with some nuances, was the predominant perspective until the second half of the twentieth century, when new understandings of literacy emerged due to rapid technological advances and critical perspectives that questioned the role of the school in reproducing social relations of power and control (Arredondo & Corzo, 2017; Southwell, 2013).

Based on Paulo Freire's critical pedagogy (1970/1996), the New Literacies Studies criticised classical understanding of literacy by considering it excessively technical and socially decontextualised (Coiro et al., 2008; Kress, 2003). According to this perspective, 'being literate means having the ability to read the world in all its complexity and participate with autonomy and self-determination in creating meaning and the very transformation of society' (Bravo & Bohemia, 2020, p. 3). With time, this extended notion of literacy facilitated recognition of other kinds of 'literacies', such as visual, digital, ecological, civic, financial, emotional, health and design literacy, among many others. Currently, UNESCO (2023) embraces a broad view of literacy claiming:

Acquiring literacy is not a one-off act. Beyond its conventional concept as a set of reading, writing and counting skills, literacy is now understood as a means of identification, understanding, interpretation,

creation, and communication in an increasingly digital, text-mediated, information-rich and fast-changing world. Literacy is a continuum of learning and proficiency in reading, writing and using numbers throughout life and is part of a larger set of skills, which include digital skills, media literacy, education for sustainable development and global citizenship as well as job-specific skills. Literacy skills themselves are expanding and evolving as people engage more and more with information and learning through digital technology. (UNESCO, 2023)

It could even be said that for UNESCO, literacy has an emancipatory purpose:

Literacy empowers and liberates people. Beyond its importance as part of the right to education, literacy improves lives by expanding capabilities which in turn reduces poverty, increases participation in the labour market and has positive effects on health and sustainable development. (UNESCO, 2023)

Although authors have criticised adopting the Anglo-Saxon term 'literacy' because it extends the logic and practices of teaching written language to other forms of representation, others, like Inés Dussel (2010), prefer keeping 'literacy' because it refers to the basic – not expert – knowledge needed for life.

Long before the introduction of the term 'design literacy', in his paper *Designerly Ways of Knowing*, Nigel Cross (1982) advocated for incorporating design into general education together with sciences and humanities, arguing that design develops innate abilities in solving ill-defined problems, sustains concrete and visual modes of cognition and offers opportunities for developing a wide range of nonverbal thought and communication abilities. More than thirty years after Cross's article, interest in incorporating design into the general education remained, but expectations widened by including a critical and sustainable approach.

The DRS//CUMULUS Oslo Conference in 2013 promoted cooperation between designers and the general public as a precondition to building a better and greener tomorrow and fostered teaching a critical design approach among consumers, producers and decision-makers (Reitan et al., 2013). Nielsen and Brænne (2013) reasoned that the value of cultivating design literacy among the general public is in getting a critical mass of users to recognise their capacity to transform current, unsustainable patterns of consumption of products and services through voicing and opting for, as consumers, more sustainable ways of being. They proposed that the overall aim should be more democratic participation leading to increased equality. Building on Nielsen and Brænne, Lutnæs (2019, 2021) linked design literacy with citizenship and sustainability. In a systematic literature review, she identified four shared narratives on cultivating design literacy among non-designers: 1) awareness through making, 2) empowering for change and citizen participation, 3) addressing the complexity of real-world problems, and 4) participating in design processes.

Since the 2013 DRS//CUMULUS conference in Oslo, design literacy has been discussed at conferences organised by Design Research Society (DRS), which were held in Limerick (Nielsen, 2018; Storni et al., 2018), Chicago DRS LearnXDesign (Vande Zande et al., 2015), and Jinan DRS LearnXDesign (Bohemia et al., 2021). Also, at the ADIM2019 conference in London, design literacy was promoted and discussed (Nielsen et al., 2019/2021a), and the Design Literacy International Network (DLIN) was created (Nielsen et al., 2019/2021b). In its four years of existence, the DLIN has organised activities such as symposia and conference tracks bringing together researchers worldwide. Highlights include *Engage with Ideas*, a regular online talk series that provides a forum for international scholars to discuss their research and explore the relationship of their research in relation to design literacy. Since its conception, close to 400 participants have engaged in these talks.

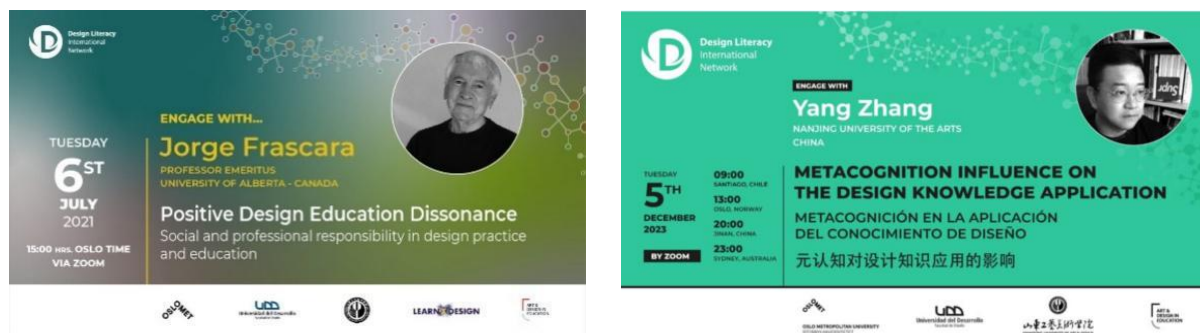


FIGURE 1. Banners for the monthly online event Engage with Ideas, organised by DLIN. Design: Úrsula Bravo.

Other activities organised by DLIN include participating in the DRS Bilbao 2022 conference with the track *Design Literacies: Pasts, Presents, and Possible Futures* (Bravo et al., 2022), the special issue *Design Literacy for All* published by Revista Chilena de Diseño (RChD) in 2020 (Bravo & Bohemia, 2020), and the digital 2022 symposium *Perspectives on Design Literacy*, which was the starting point for this 2023 FormAkademisk Special Issue.

OCTOBER 2022 SYMPOSIUM

The idea behind organising this FormAkademisk special journal issue was to explore how design scholars might conceptualise design beyond the domain of professional designers. Historical accounts of Bauhaus (e.g. Siebenbrodt & Schöbe, 2007) and the Hochschule für Gestaltung Ulm (e.g. Bravo, 2016) suggest that the initial funding to establish the schools was allocated on the premise of educating more critical citizens, and design was selected as the subject through which this critical engagement would be activated.

This conceptualisation of design as general knowledge has been advocated by scholars like Archer (1979), Cross (1982), Buchanan (2000), Swanson (1994), Nielsen (2000), Lloyd (2011), Miller (2015) and Kolko (2018). A formal design director at BMW, Chris Bangle suggested that ‘design is a liberal art, a tool that can and should be used by the masses, not reserved for the select few’ (CreativeMornings/London, 2011). Manzini’s book titled *Design, When Everybody Designs* (2011) suggests that everyone should be participating in designing. Manzini argues (p. 1) that

...design and social change, in a connected world, in transition toward sustainability: a world in which everybody constantly has to design and redesign their existence, whether they wish to or not; a world in which many of these projects converge and give rise to wider social changes; a world in which the role of design experts is to feed and support these individual and collective projects—and thus the social changes they may give rise to.

Further, Manzini (2009) stated that ‘Design for sustainability ... can ... facilitate the social learning process towards a sustainable society’ (p. 12). Thus, we argue that if design(ers) is (are) to facilitate societal learning, the members of that society will need to be design literate. If we agree that people should be versed in design knowledge, as we might expect them to be when it comes to subjects like mathematics, physics or reading and writing, then we might ask the following questions:

- For what purpose would it be important to be design literate?
- How would we expect this design literacy (knowledge) to be demonstrated by non-designers and design professionals?
- Should educational practices supporting the development of design literacy be incorporated into other subjects or become a specific series of subjects as, for example, in history, geography, or civics education?

- What would the implication of having a design literate workforce be for businesses, non-profit organisations, or government agencies?

There are many more questions we can ask. We listed these to stimulate scholars to bring and share their future perspectives to help us further our understanding of design literacy.

To develop this special issue, we staged a series of activities with opportunities for invited scholars to share their ideas during a two-day DLIN symposium. The symposium took place online on Friday 28 and Saturday 29, October 2022. Its programme was designed to enable the participants to support and learn from each other.



FIGURE 2. Banners for Perspectives on Design Literacy developed by Úrsula Bravo were translated to acknowledge participants from eighteen countries.

The 2022 *Perspectives on Design Literacy* online symposium was co-hosted by the Shandong University of Art & Design's Chinese National Social Science Foundation Major Project Research Groups: Research on the Development Strategy of Chinese Arts and Crafts in the New Era; Research on Chinese Traditional Creation Art System and Design Documents; Research on Design Innovation and the National Cultural Soft Power Construction; in collaboration with Oslo Metropolitan University, Norway; Universidad del Desarrollo, Chile; FormAkademisk open-access journal; and the Academy for Design Innovation Management

The event featured international scholars who outlined their takes on the concept of design literacy. During the symposium, scholars presented points of view that facilitated discussions about how we might productively engage with the design literacy concept. The idea was to use these points of view to enable participants to 'map out' the field. Subsequently, the mapping process was used to rally DLIN members to open alternative spaces for design education and research. Over the two days, twenty-three scholars presented eighteen ideas. Discussants provided critical feedback to presenters. The symposium was attended by an additional sixty participants.

The intention was for the invited scholars who shared their ideas to further develop them into full articles to be submitted for a double-blind peer review. Post-symposium activities were organised to facilitate collaborative work leading towards the production of the FormAkademisk special issue, such as, a peer review of draft articles with critical feedback to authors before they submitted their articles on the journal platform. Afterwards, based on peer review recommendations, articles were rejected or selected to be featured in the special issue.

The symposium was simultaneously translated into Mandarin by Ms Ning WANG | 王宁 and Ms Shan GAO | 高珊. It was opened by the president Shandong University of Art & Design, Professor Pan Lusheng, who in his speech said:

As a professional design university, Shandong University of Art & Design takes 'design for the people' as its mission, establishes and continuously optimises the 'innovation and practice teaching system' of design education, and strives to cultivate innovative applied design talents with 'scientific spirit, humanistic quality, artistic innovation and practical ability'. We look forward to strengthening international exchanges and cooperation in the field of design, sharing the responsibilities entrusted to

us by the times with international design scholars, jointly researching new ways to promote design development, stimulating the potential of design innovation, improving the quality of design in society, and helping to create a better life.



FIGURE 3. Professor Pan Lusheng (SUAD) opening the 2022 DLIN Symposium.

Úrsula Bravo welcomed participants on behalf of the DLIN and Liv Merete Nielsen on behalf of the FormAkademisk journal. Nina Terrey summarised the symposium's two days as a rich arrangement of perspectives and provided the following comments on presentations she attended.

Day 1. 2022 DLIN: Perspectives on Design Literacy

Design Literacy International Network

SYMPOSIUM
**PERSPECTIVES
ON DESIGN LITERACY**
JINAN - LONDON - OSLO - SANTIAGO

28 & 29
FRIDAY SATURDAY
OCTOBER 2022

« Day 1 | Friday 28 October 2022 »
The event starting times according to geographical locations
19.00 Jinan | 14.00 Ankara | 13.00 Oslo, Berlin | 12.00 London | 8.00 Santiago | 7.00 New York |
6.00 Bogotá | 5.00 Provo, UT



In her case study of Japanese medical doctor Tetsu Nakamura and his work in Afghanistan, Fatma Korkut from the Middle East Technical University, Turkey, reminded the participants of the importance of seeing design literacy in others. The key message of her presentation was that it is arrogance to assume that only trained designers can embody design literacy.



The second speaker, Úrsula Bravo from Universidad del Desarrollo, Chile, with a presentation titled Design literacy in the Chilean curriculum: opportunity, omission or unfulfilled promise? questioned to what level the compulsory technology curriculum incorporates design literacy.



Nina Terrey, ThinkPlace and CEO of Institute of Regenerative Design, Australia, in her presentation titled the Necessity for Design Literacy – Amongst our leaders and communities, suggested that the ultimate test for design literacy is the following question: What is the efficacy in which we need to measure design literacy?



The nature of design literacy in educational settings, and universal design for learning both Maritza Rivera emphasised in their work on children with disabilities and Chilean education respectively. The presentations and work emphasise the essential role of inclusive practice for the world we need today.



On the relationship of digital design literacy, Derya Yorgancıoğlu from Özyeğin University and Esin Kömez of Middle East Technical University, Turkey, helped us see the catalytic shift in how digital mediums are a critical part of design literacy for architects and the constituents they engage.



Hanna Hofverberg, Malmö University, Sweden, prompted design literacy to be inclusive of behaviour change and discussed how the object of fashion garments helps us understand the making process and choices between competing unsustainable versus more sustainable behaviours. The design literacy in the making, re-making and consuming.



For LeWitt, 'the idea or concept is the most important aspect of the work'. – Francisco Zamorano gave us a profoundly beautiful illustration of teaching design literacy + computational thinking and digital literacy to students from diverse backgrounds, inspired by LeWitt's artistic genius (see Figure 4).

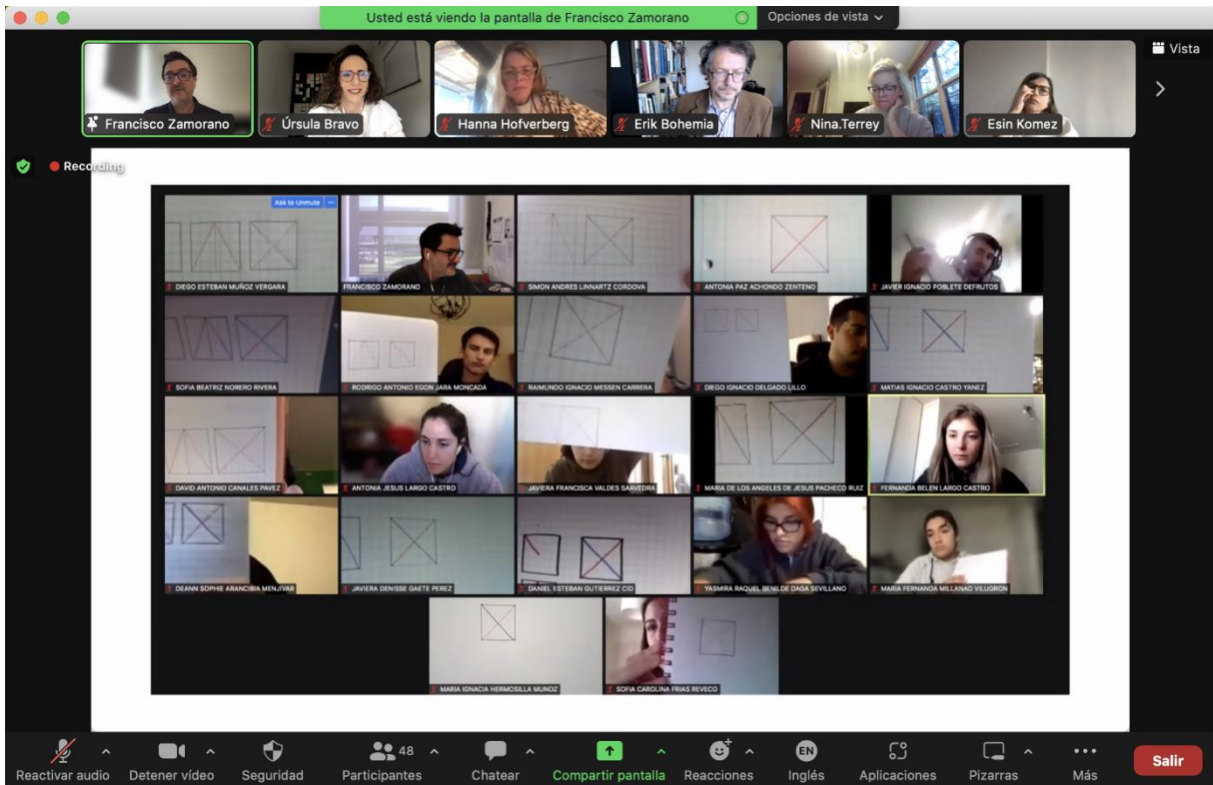


FIGURE 4. Francisco Zamorano incorporated activities in his presentation to demonstrate how we might explore the interstitial space between design literacy, computational thinking, and digital literacy.



The emphasis of design literacy on visualisation, iteration, and expression was also demonstrated to us through YingLei Wen and her students articulate and beautiful visualisation of design for rural revitalisation in China (see Figure 6). Her presentation was titled The Design Literacy Needs of Social Responsibility – An Example of Rural Design Course.

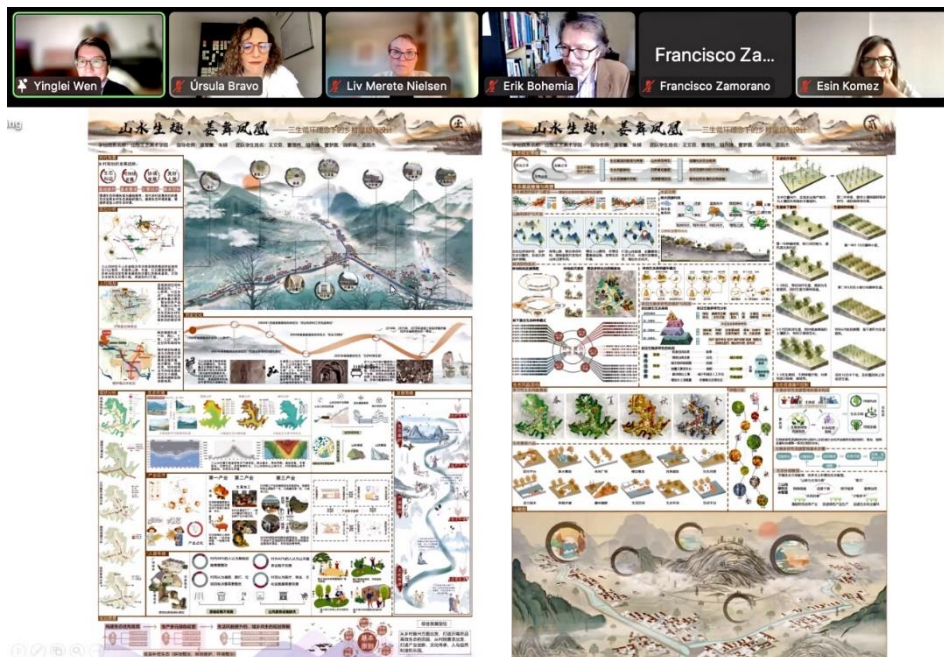


FIGURE 5. YingLei Wen, Shandong University of Arts & Design, China, presented a cooperative project undertaken by third-year environmental design students under her leadership with Chinese villagers.

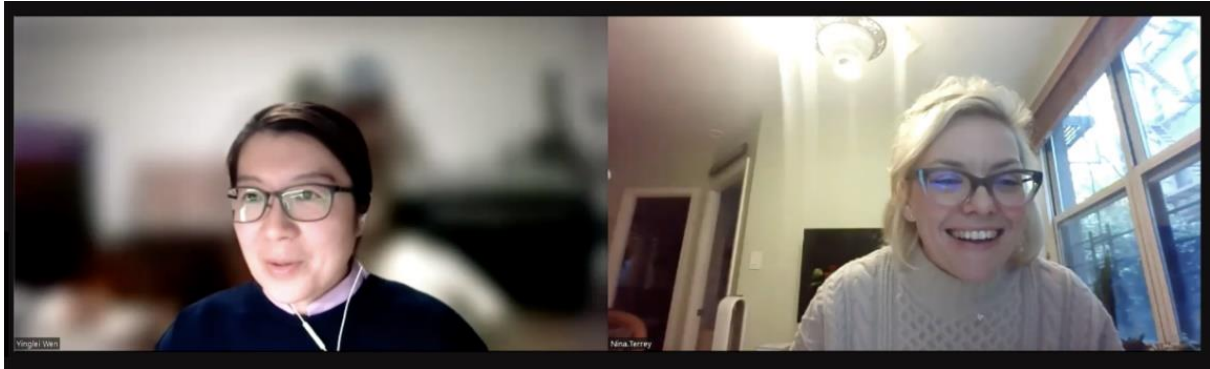


FIGURE 6. Nina Terrey (right) in her role as discussant is providing feedback to YingLei Wen(left) on her presentation titled The Design Literacy Needs of Social Responsibility - An Example of Rural Design Course.

Day 2. 2022 DLIN: Perspectives on Design Literacy

Design Literacy International Network

SYMPOSIUM

PERSPECTIVES ON DESIGN LITERACY

JINAN - LONDON - OSLO - SANTIAGO

28 & 29
FRIDAY SATURDAY
OCTOBER 2022

« Day 2 | Saturday 29 October 2022 »

The event starting times according to geographical locations:
19.00 Jinan | 14.00 Ankara | 13.00 Oslo, Berlin | 12.00 London | 8.00 Santiago | 7.00 New York |
6.00 Bogotá | 5.00 Provo, UT



Liv Merete Nielsen gave us an important perspective from Norway regarding longer lasting garments – garment use – social responsibility and design literacy – whilst attention is at the consumer end, most important is the question of the other responsible actors (makers, political and economic).



Mariluz Soto discussed emotions as a key aspect of design literacy in the co-creation of services. We need to see the design literacy required by the people; actors who are responsible for the experience need this literacy, not just service designers, especially in the logic of service design.



Xiaoyu Li presented an interesting and inspirational paper on international education and importance in peace building, future developments of the world. China driving more open collaboration, Chinese Asian Silk Road, mutual learning and equality, carried through into international education. The role of design literacy and international education. She has incorporated UNESCO's International Bureau of Education's concept of International Understanding Education to argue for design educators to incorporate international design literacy into their curricula to promote world peace.



Liow Zhengping, who joined the symposium from Singapore, provoked us to look behind design literacy at the experience and confidence of the design learner, whether that is general or designer. The approach of social support to address the level of anxiety levels based on the pedagogy the students have experienced (Figure 7).

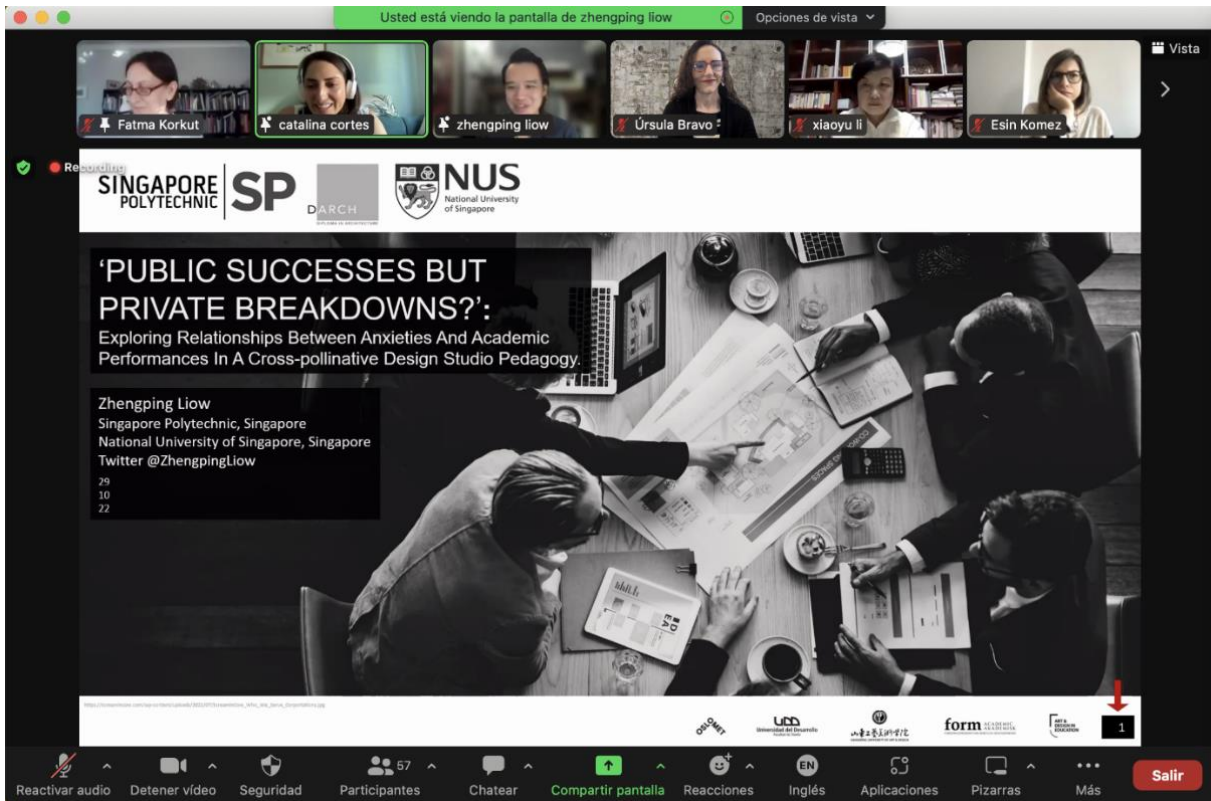


FIGURE 7. Catalina Cortés provides critical feedback to Zhengping Liow.



Martin Wiesner, Anhalt University of Applied Sciences, Germany, presented five elements of design literacy. Perceived fluency and disfluency. Taking us through this perception-shaping model, he beautifully nuanced the journey of a designer, and the following discussion is on the potential for other actors such as users, other non-designers.



Catalina Cortés' presentation titled Design to Improve Life: Paths to solve complex transdisciplinary challenges beautifully put forward the reality that waste and pollution is the result of the way we design things – so she is forging the convergence of design literacy + ecological literacy + intentional design. And the application of the Compass model to centre sustainability in the design process.



FIGURE 8. Catalina Cortés and Mariluz Soto involved in a friendly discussion.



Xiaoning Xu presented the design literacy of emotional design in the creation of cultural and creative products. She identified a journey how design is undertaken to incorporate emotional design to recognise culture of the consumer and the makers. She suggested that the conditions of creative and cultural products can also play a role in this design literacy: socially responsible design literacy.



Eva Lutnæs took the symposium participants through critical design literacy, amongst younger people, and the importance of the ability to connect with real-world dilemmas with empathy, critique and responsible transformation. Moving beyond the professional designer domain. She was challenging where we should pay attention to the awareness of design. In her talk, Eva proposed that critical design literacy is a subset of design literacy.

Cultural input – Chinese calligraphy

The 2022 DLIN symposium incorporated cultural segments which introduced participants to the art of calligraphy and its history. Over two days, Master Chen Feng demonstrated three key calligraphy styles. He also shared with the symposium participants about the steps of preparing the ink and his use of brushes (Figures 9 and 10).

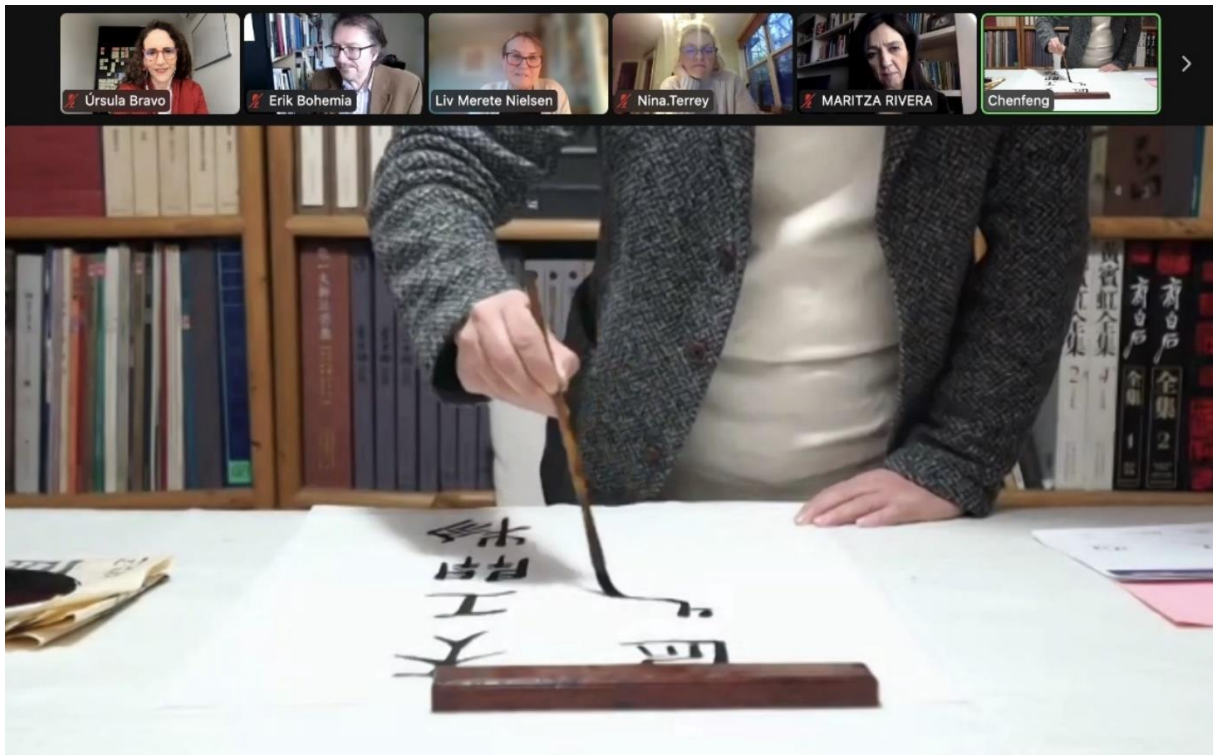


FIGURE 9. Master Chen Feng demonstrating one of the calligraphy styles.



FIGURE 10. Master Chen Feng providing explanation of the saying, which is related to specific historical period associated with the calligraphy style.

The different calligraphy styles can be seen in the Figure 11. The demonstration was supplemented by Master Chen Feng filling individual speakers' certificates (Figures 12 to 17).

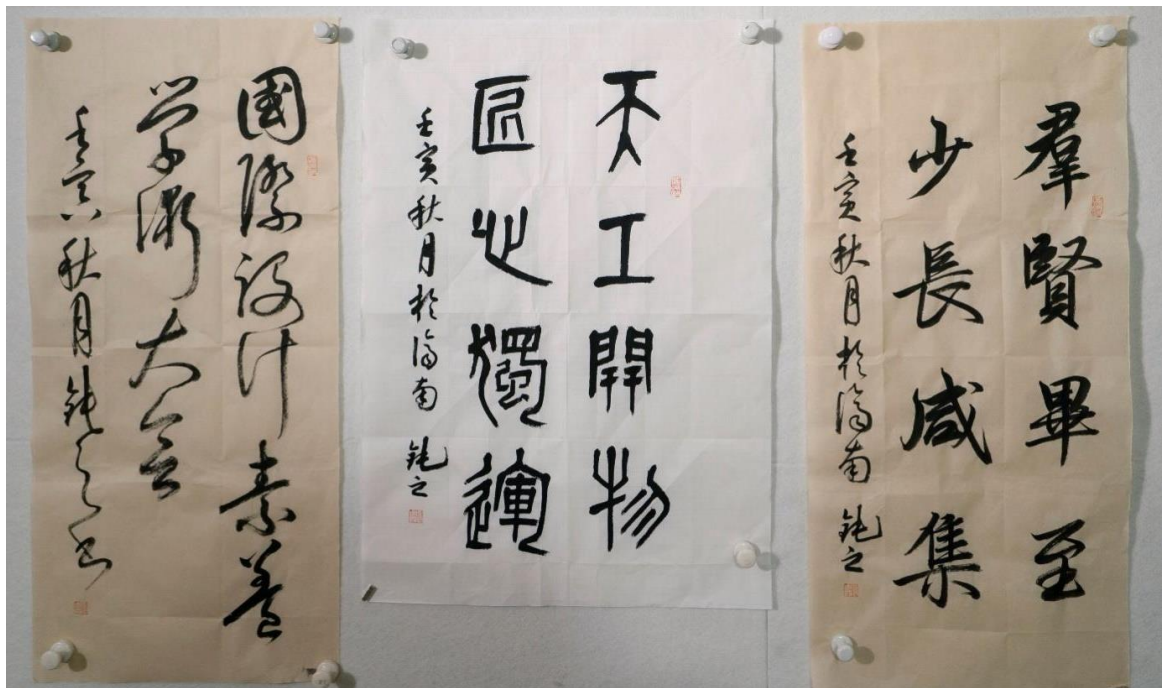


FIGURE 11. From left to right, the text says: (a) International Design Literacy Symposium; (b) motto of SUAD, which means 'heavenly creation and human creativity' and (c) a gathering of great minds (translation by Guo Rui 郭睿).

The symposium participants were asked by Master Chen Feng in what calligraphy style they would like their certificates to be done.

Master Chen Feng is filling Úrsula Bravo's certificate in one of the calligraphy styles (Figure 12) and Francisco Zamorano's (Figure 13) with a different style.



FIGURE 12. Master Chen Feng is filling the name of Úrsula Bravo.

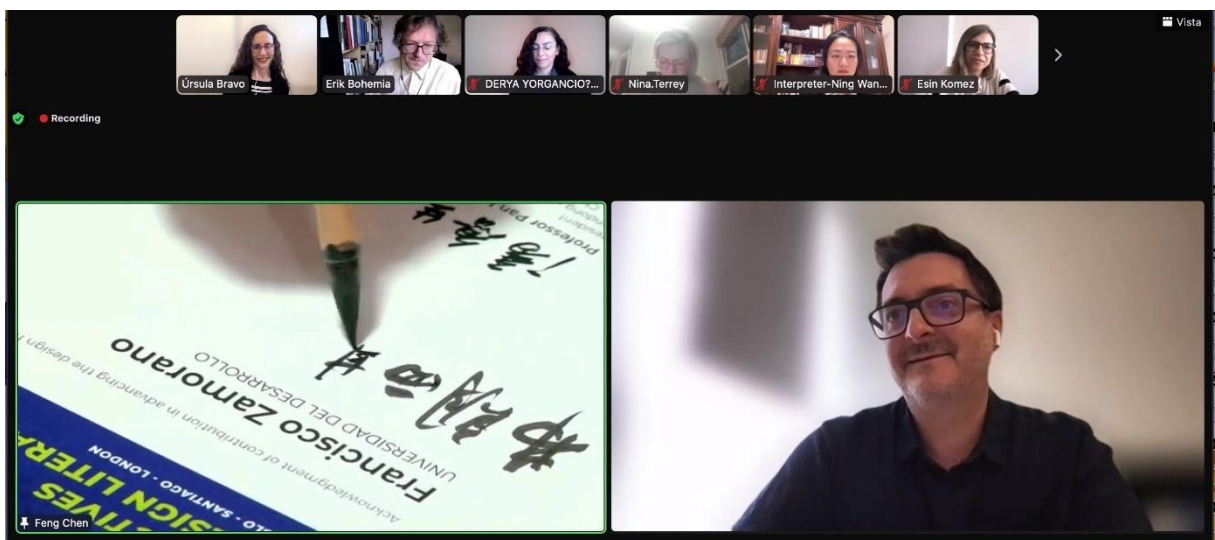


FIGURE 13. Master Chen Feng is filling the name of Francisco Zamorano.

Afterwards, Master Chen Feng filled the speakers' names; as per tradition, he used his personal stamp to certify each of the certificates (Figure 14).

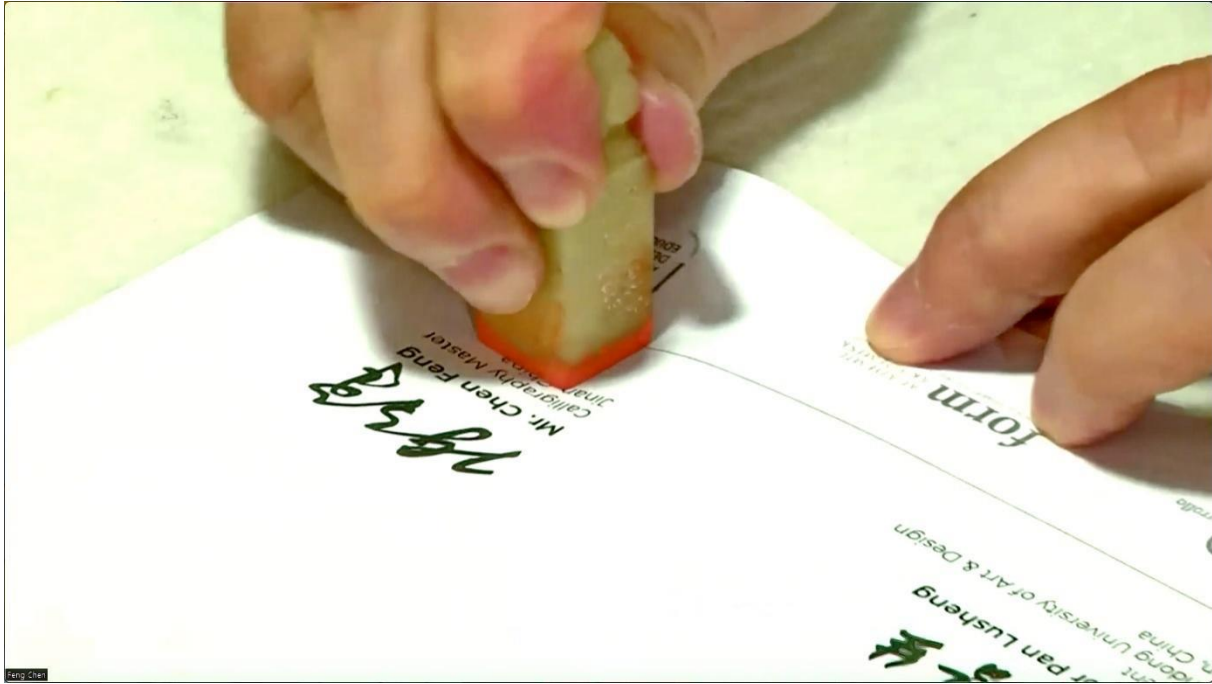


FIGURE 14. Master Chen Feng is stamping one of the certificates.

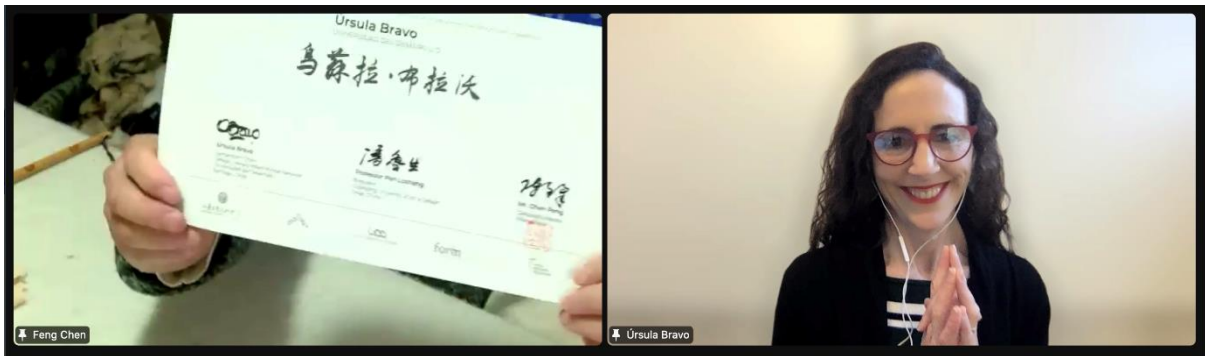


FIGURE 15. Master Chen Feng presenting signed and stamped certificate to Úrsula Bravo.



FIGURE 16. Master Chen Feng presenting signed and stamped certificate to Nina Terrey.

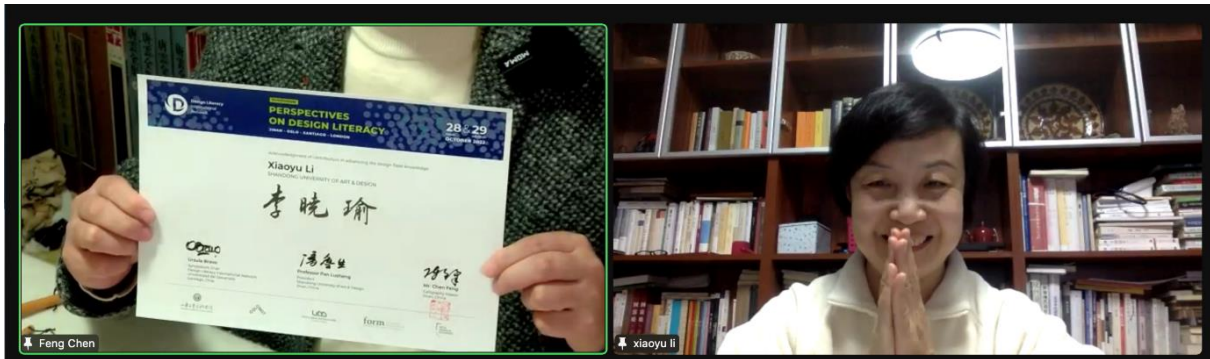


FIGURE 17. Master Chen Feng presenting signed and stamped certificate to Xiaoyu Li from Shandong University of Art & Design, China.

These original certificates from SUAD were highly appreciated by the scholars. So were also the gifts from SUAD after the LearnXDesign 2021 conference: all the scholars received original silk scarfs related to their year of birth. The scarfs were designed and printed by SUAD students, and the scholars' names in both Latin and Chinese writing were included.



FIGURE 18. Happy scholars with their personal silk scarf designs by SUAD students. From the left: Liv Merete Nielsen, Arild Berg, Janne Beate Reitan, Eva Lutnæs and Ingvill Maus – all gathered at Oslo Metropolitan University, Oslo.

Shandong University of Art & Design – 50th anniversary

The preparation of this special issue of FormAkademisk coincides with the Shandong University of Art & Design's 50th anniversary in October 2023. The anniversary was celebrated by activities in Qingdao, Beijing and Jinan. The celebration started with the opening of a new SUAD campus: Industry and Education Integration Qingdao, which will host the International School of Design, signalling the international cooperation in Professor Pan's opening speech for the 2022 DLIN Symposium.

Accordingly, the DLIN's leaders were invited to participate in the celebrations of the 50 years of SUAD. The purpose of the trip was to consolidate the work of the DLIN as a platform for cooperation between Norway, Chile and China. In addition, the trip sought to explore signing an agreement to promote academic exchange and student and teaching mobility between the Faculty of Design, (UDD), Oslo Metropolitan University (OsloMet), Western Norway University of Applied Sciences (HVL) and Shandong University of Art & Design (SUAD). The visit included various academic and cultural activities.

As part of the opening activities of the new campus in Qingdao, six simultaneous exhibitions were inaugurated on the two floors of the Cultural Centre. The works on display included pieces of rock

art from the Yungang Grottoes (5th to 6th centuries), traditional Chinese crafts from the Pan Lusheng collection of the Museum of Chinese Crafts, modern art, contemporary design, original sketches by Giorgio Armani and a selection of works from the International Photography Biennial. The celebrations in Qingdao concluded with a light show on the port city's bayside buildings.



FIGURE 18. Light show in Qingdao celebrating the Shandong University of Art & Design (designer Niu Xiaofei).

Subsequently, the conference *Design Education and Development: Innovation and Integration* was held in the city of Jinan, SUAD's main headquarters. It was chaired by Professor Pan Lusheng, President of the Chinese Folk Literature and Art Association and Honorary President of SUAD, Ms. Wang Xiaojuan, President of the University Council, and Professor Dong Zhanjun, President of SUAD.

Among the invited speakers were Christian Guellerin, honorary president of Cumulus and executive director of L'École de design Nantes Atlantique, Liv Merete Nielsen from Oslo Metropolitan University, Ingvild Digranes from Western Norway University of Applied Sciences, Daniel Della-Bosca from Griffith University, as well as authorities from prominent Chinese universities, such as Tsinghua University, Nanjing University of the Arts, Macau University of Science and Technology, Tongji University and Hunan University, among others. The sessions were moderated by Zhang Yang of Nanjing University of the Arts and Erik Bohemia, the new dean of the International School of Design at SUAD and president of the Academy for Design Innovation Management.



FIGURE 19. Invited presenters to the conference: Design Education and Development: Innovation and Integration, celebrating SUADs 50th anniversary.

Finally, the trip included an internal work agenda of the editors of this special issue on design literacy. As member founders and leaders of the DLIN, we hope to contribute to the growing interest in exploring design's contribution to the world, not only in its capacity to produce a never-ending plethora of material, graphic and digital products but also in producing upcoming citizens, thinkers, producers and consumers – in short, shaping the human being who will create tomorrow's worlds.



FIGURE 20. Editors in front of the entrance to SUAD's own museum. From left: Úrsula Bravo, Liv Merete Nielsen and Erik Bohemia.

ARTICLES IN THIS ISSUE

Hanna Hofverberg, Associate Senior Lecturer (PhD) at Malmö University, **Johnny Fransén**, Lecturer, Skövde University, and **Ninitha Maivorsdotter**, Associate Professor (PhD), Skövde University (all in Sweden) have investigated how aesthetic judgements govern actions in education for design literacy and sustainability behaviours. Their article entitled *Education for sustainable clothing consumerism? A critical examination of educational material for design and craft education* focuses on educational material used in Sweden. The authors have examined educational material by asking: (1) What meanings regarding becoming a sustainable consumer are made available to students in the educational material? (2) How are these narratives communicated to change students' behaviours? The material in question consists of seventeen design projects intended to be used in the Swedish school subject Educational Sloyd. In a practical epistemological analysis, two ways of becoming a sustainable consumer are identified: to have fun and to feel clever. The paper also shows how social marketing is used as a strategy in communicating how to change student behaviours. In the discussion, they turn to design literacy research to discuss the results from an educational perspective.

Derya Yorgancıoğlu, Associate Professor (PhD), Özyeğin University and **Esin Kömez Dağlıoğlu**, Associate Professor (PhD), Middle East Technical University (both Turkey) have titled their article *The Digitalization of Studio Practices and Its Impact on the Development of Design Literacy of First-Year Architecture Students*. They focus on how digital skills are emphasised in the ongoing process of digital transformation in higher education. In this article, digital literacy is discussed within the broader perspective of design literacy, and acceleration of the digitalisation process of first-year design

education at the time of the outbreak of the COVID-19 pandemic in spring 2020 is highlighted. The article interrogates the role of digital skills in the development of the design literacy of first-year architecture students through a multiple case analysis of ARCH 101 design studio practices executed in the Bachelor of Architecture programmes at Özyeğin University, Department of Architecture and Middle East Technical University, Department of Architecture. The digitalisation processes of ARCH 101 studios increased rapidly when the pandemic started and resulted in the integration of digital tools into basic design education in ways that transformed (1) the communication modalities and the representation and research strategies used by students and (2) the understanding and methodologies of the design process when used as generative design tools.

Yun Fan, Research Assistant at Shandong University of Art & Design, and **Xiang Xia**, Associate Professor at Nanjing University of the Arts (both China), have, in their article *Students' Spatial and Visual Literacies. Examining Chinese Universities' First-Year Design Courses*, examined if disciplinary backgrounds influence the development of design students' visual literacy. A compulsory first-year course in Chinese design degree programmes was selected for this research, as the course is designed to develop students' spatial literacy and visual expression during the discovery design process phase and to facilitate the development of students' cognitive skills in defining and solving problems. An analysis of sixteen students' assignments from eight universities indicates that students' disciplinary backgrounds play an important role in the development of their cognition performance related to visual literacy. The results indicate that disciplinary subject background (i.e. arts or engineering) is an important factor affecting the development of students' design literacy, specifically their spatial visual cognitive and problem-solving skills.

Zhengping Liow, lecturer and PhD student at Singapore Polytechnic, National University of Singapore has titled his article *Students' public success and private breakdowns. Exploring the relationships between social support, anxiety, and academic performance*. In the article, he claims that design literacy becomes more essential in creating a collaborative and inclusive society. Nonetheless, students were more anxious and exhibited lower performance when design studio tutors employed the conventional master–apprentice pedagogy. The Cross-pollinative Team Learning (CTL) design studio pedagogy was operationalised in a year-long randomised controlled trial with first-year Generation-Z beginning design students to resolve the limitations in the existing pedagogy. The CTL students were significantly less anxious compared to master–apprentice students at year end, although the impact of both pedagogies on anxiety was relatively modest. The hidden CTL curriculum and social support were also demonstrated to enable CTL students to outperform one-on-one master–apprentice learners academically. This study suggested that the power structures of design studios should be recalibrated to acquire CTL advantages, thereby leading to more effective learning outcomes.

The contributions to this special issue provide a valuable contributor towards advancing scholarship and understanding of the Design Literacy. Rather than fixing the concept, the contributions have demonstrated the usefulness of Design Literacy concept to facilitate understanding of the design knowledge in a much wider context of the society.

Úrsula Bravo, Associate Professor at Universidad del Desarrollo, has together with **Erik Bohemia**, (PhD) dean of the International School of Design at Shandong University of Art & Design and also Associate Professor, at Western Norway University of Applied Sciences, and **Fernanda Saval**, Designer and Technology School Teacher at Universidad del Desarrollo, studied education in Chile. In their article *Design Literacy in Chilean Curricula. Opportunity or Unfulfilled Promise?* they have investigated if and how the Chilean school curriculum shares design literacy approach and goal of forming responsible citizens committed to caring for the environment. Given that design is included as obligatory content of the visual arts and technology subjects in the first 10 years of compulsory education, the authors wondered if the learning objectives of visual arts and technology support the development of design literacy abilities, as outlined by Lutnæs and Cross. To address this question, the researchers coded 119 learning objectives in alignment with design literacy abilities formulated by Lutnæs and Cross. The generated heatmaps undertake a visual analysis of the alignment between the learning objectives and design literacy categories. The authors present a strong convergence between the categories presented by Cross and Lutnæs and the technology learning objectives, especially in lower secondary level

education. In the visual arts, design education was focused on aesthetics, and connections with design literacy narratives were scarce. The authors propose that adopting the analytical instrument (coding table) as a standardised tool will encourage comparable studies of how well design literacy is incorporated into other national curricula.

Yinglei Wen, Associate Professor at Shandong University of Art & Design, focuses on design education for rural revitalisation in China. In her article: *Exploring Design Literacy in Socially Responsible Design Education. A Rural Planning and Design Course in Perspective* she discusses how rural revitalisation is implemented in a course for students majoring in design. The Rural Planning and Design course at Shandong University of Art & Design (SUAD) is a contribution to the cultivation of students' quality of responsibility. The design of this course adheres to the national strategy and closely focuses on the cultivation of these responsibilities, which are integrated into the course syllabus and activities. Students in this course are required to go into the countryside, conduct in-depth investigations to determine what social problems the people face and then think independently, cooperate with each other, create and propose innovative design strategies to solve the problems. Multidisciplinary theoretical knowledge is integrated into the course to promote students' design literacy, including collaborative innovation, critical thinking, communication and research skills. This article introduces this course in detail and uses it as a practical case through which to explore what kind of design literacy is needed, how to cultivate design literacy and its impacts on various practical challenges.

Catalina Cortes, Assistant Professor at Universidad del Desarrollo and **Oscar Huerta**, (PhD) Associate Professor at Pontificia Universidad Católica de Chile, presents an explorative case study in their article *Infusing Sustainability. A Compass-Led Intervention in Chilean Graduate Design Education*. Design for Sustainability has evolved rapidly over the last decades as a response to unprecedented global challenges. Several models have been developed to address the need to design more sustainable products, services, and policies. These strategies are oriented towards more sustainable ways of living. The Compass, developed by the Index Project in Denmark, is a method that offers a framework to structure the design process while considering social, environmental, and economic sustainability aspects. This article presents an exploratory case study to infuse sustainability in design education using this method in interdisciplinary teams. The context is a master's degree offered by a design school in a Chilean university. The study's outcomes reveal that The Compass method is a dynamic and flexible structure for design in interdisciplinary teams. To strengthen its applicability, it could incorporate links to sustainability methods from various areas of knowledge that specifically address economic, environmental, or social aspects. Complementing The Compass with these sustainable approaches to confront the complexity of the challenges may facilitate the move from good ideas to feasible, sustainable design solutions in design and other fields.

Xiaoyu Li, Associate Professor at Shandong University of Art & Design, focuses on cultural understanding and cooperation in her article *Education for International Understanding. Design Literacy in the Context of the Belt and Road Initiative*. Education for international understanding is an educational concept put forward by the United Nations Educational, Scientific and Cultural Organization (UNESCO) with the goal of promoting cultural understanding and world peace, which is still of great practical significance in the current world of changing and complex conflicts and crises. Following a close look at the humanistic perspective of promoting exchanges, cooperation, prosperity and world peace in the Asia-Europe-Africa region and the rest of the world, China's government developed the Belt and Road Initiative (BRI) to put into practice the concept of education for international understanding. This article presents the argument that, as art and design education serve social development and promotes humanistic exchanges, the concept and values of education for international understanding should be integrated into university art and design education. This important literacy not only explores the design value of promoting cultural understanding in the face of the current complex global crisis and a challenging environment, but also adds a new dimension to promoting exchanges and cooperation in the humanities along the BRI.

Eva Lutnæs, (PhD) Professor at Oslo Metropolitan University, addresses in her article *Locating critical design literacy Review of lower secondary pupils' submissions for an ecovillage* one of the challenges presented in the call for the October 2022 symposium prior to this special issue: How would

we expect design literacy (knowledge) to be demonstrated by non-designers? The study focuses on Norwegian pupils aged 15–16 years who were tasked with designing shared-living spaces for an ecovillage, aiming to encourage mixed use, inclusive social interaction, and a reduction in the carbon footprint. In the study she explores the level of critical design literacy demonstrated in 55 digital submissions from the pupils. The results indicate that the pupils are more proficient in expressing and discussing aspects of social sustainability than they are at addressing environmental sustainability. Lutnæs concludes by discussing how teachers might structure projects to encourage pupils to engage more deeply in transformative design practices.

CONCLUDING REMARKS

The contributions to this special issue *Perspectives on Design Literacy* provide a valuable contribution towards advancing scholarship and understanding for the importance of Design Literacy. To inhabit Design Literacy is visible at different levels in both education and society as the expected competence for a professional designer is different from the competence by the general public in their different roles as consumers, users or politicians. Rather than fixing the concept, the contributions in this special issue have demonstrated the usefulness of Design Literacy as a concept to facilitate design issues in a much wider context of the society.

This special issue is also a step in direction on strengthening the Design Literacy International Network (DLIN). In June 2024 a Memorandum of Understanding (MOU) between Universidad del Desarrollo (UDD), Shandong University of Art & Design (SUAD) and Oslo Metropolitan University (OsloMet) will be signed in Oslo. DLIN will be the link in these MOUs which will build upon the contributions made by DLIN since it was established in London 2019. We hope for further cooperation with researchers in design and design education for many years to come.

We would like to thank Universidad del Desarrollo (UDD), Shandong University of Art & Design (SUAD) and Oslo Metropolitan University (OsloMet) for supporting the Design Literacy International Network (DLIN) and make this special issue come true. We will also thank chief editor for FormAkademisk, Janne Reitan, for great support with this special issue. Last but not least great thanks to all authors for nice cooperation through the creation of this special issue.

Jinan, Santiago, Oslo
June 2024

Erik Bohemia, Úrsula Bravo and Liv Merete Nielsen
Editors for this special issue

REFERENCES

- Archer, B. (1979). Design as a discipline. *Design Studies*, 1(1), 17–20. [https://doi.org/10.1016/0142-694X\(79\)90023-1](https://doi.org/10.1016/0142-694X(79)90023-1)
- Arredondo, A. R., & Corzo, J. Q. (2017). La literacidad, conceptualizaciones y perspectivas: hacia un estado del arte [Literacy, conceptualizations and perspectives: towards a state of the art]. *Revista Reflexiones*, 96(2), 93–105. <https://doi.org/10.15517/rr.v96i2.32084>
- Bohemia, E., Nielsen, L. M., Börekçi, N. A. G. Z., & Zhang, Y. (2021). Editorial: Jinan 2021: Engaging with challenges in design education. In E. Bohemia, L. M. Nielsen, L. Pan, N. A.G.Z. Börekçi, & Y. Zhang (Eds.), *Proceedings of the DRS LearnXDesign 2021: 6th international conference for design education researchers* (Vol. 1, pp. 3–29). Design Research Society. https://doi.org/10.21606/drs_lxd2021.330
- Bravo, Ú. (2016). Diseño para el desarrollo. Vigencia de los principios de Ulm frente a los desafíos del proyecto país [Design for development. Effectiveness of Ulm principles facing the challenges of the country project]. *RChD: Creación y Pensamiento*, 1(1), pp. 79–93. <https://doi.org/10.5354/0719-837X.2016.44314>
- Bravo, Ú., & Bohemia, E. (2020). Editorial. Alfabetización en Diseño para todos [Design literacy for all]. *RChD: creación y pensamiento*, 5(8), 1–10. <https://doi.org/10.5354/0719-837X.2020.57649>
- Bravo, Ú., Nielsen, L. M., Lutnæs, E., Bohemia, E., & Börekçi, N. A. G. Z. (2022). Editorial: Design Literacies: Pasts, presents, and possible futures. In D. Lockton, S. Lenzi, P. Hekkert, A. Oak, J. Sádaba, & P. Lloyd (Eds.), *DRS2022: Bilbao* (pp. 1–8). Design Research Society. <https://doi.org/10.21606/drs.2022.1065>
- Buchanan, R. (2000). *The problem of character in design education: Liberal education and professional specialization* (Conference, 11–13 December 2000, Perth, Australia). <http://design.curtin.edu/DesEd2000/preconference01.html>
- Coiro, J., Knobel, M., & Lankshear, C. (2008). *Handbook of research on new literacies*. Routledge.
- CreativeMornings/London. (2011, 13 September). *2011/09 Chris Bangle of Chris Bangle Associates*. Jarrett Fuller. <https://jarrettfuller.tumblr.com/post/10661950775/this-is-an-excellent-talk-from-chris-bangle>
- Cross, N. (1982). Designerly ways of knowing. *Design Studies*, 3(4), 221–227. [https://doi.org/10.1016/0142-694X\(82\)90040-0](https://doi.org/10.1016/0142-694X(82)90040-0)
- Design Literacy International Network (DLIN) (n.d.). <https://designliteracy.net/>
- Dussel, I. (2010, 20 January). Los nuevos alfabetismos en el siglo XXI: Desafíos para la escuela [New literacies in the 21st century: Challenges for schools.]. <https://nuevosalfabetismosenelsigloxxi.blogspot.com/2017/03/los-nuevos-alfabetismos-en-el-siglo-xxi.html>
- Freire, P. (1996). *Pedagogy of the oppressed* (M. Bergman Ramos, Trans.; 2nd ed.). Penguin. (Original work published 1970) <https://envs.ucsc.edu/internships/internship-readings/freire-pedagogy-of-the-oppressed.pdf>
- Kolko, J. (2018, 15 January). We are illiterate: We have no design literacy. <http://www.themoderniststudio.com/2018/08/20/we-are-illiterate/>
- Kress, G. (2003). *Literacy in the new media age*. Routledge. <https://doi.org/10.4324/9780203299234>
- Lloyd, P. (2011). Does design education always produce designers? In E. Bohemia, B. Borja de Mozota, & L. Collina (Eds.), *Researching design education: 1st international symposium for design education researchers*. (pp. 210–227). Cumulus Association and DRS. <https://dl.designresearchsociety.org/drs2011-learnxdesign/>
- Lutnæs, E. (2021). Framing the concept design literacy for a general public. *FormAkademisk*, 14(4), 1–13. (Original work published 2019) <https://doi.org/10.7577/formakademisk.4639>
- Lutnæs, E. (2021). Exploring practices of critical design literacy: A comparative study of two lower secondary school design project. In E. Bohemia, L. M. Nielsen, L. Pan, N. A. G. Z. Börekçi, & Y. Zhang (Eds.), *Proceedings of the DRS LearnXDesign 2021: 6th international conference for design education researchers* (Vol. 1, pp. 264–274). Design Research Society. https://doi.org/10.21606/drs_lxd2021.05.138

- Manzini, E. (2009). New design knowledge. *Design Studies*, 30(1), 4–12. <https://doi.org/10.1016/j.destud.2008.10.001>
- Manzini, E. (2011). Design, when everybody designs: An introduction to design for social innovation (R. Coad, Trans.; Vol. 8). The MIT Press.
- Miller, P. N. (2015, 26 March). Is ‘design thinking’ the new liberal arts? *Chronicle of Higher Education*.
- Nielsen, L. M. (2000). *Drawing and spatial representations: Reflections on purposes for art education in the compulsory school* [Doctoral thesis, Oslo School of Architecture and Design]. <http://hdl.handle.net/11250/2623403>
- Nielsen, M. (2018) Editorial: Design education for the general public. In C. Storni, K. Leahy, M. McMahon, P. Lloyd, & E. Bohemia (Eds.), *Design as a catalyst for change - DRS International Conference 2018*, 25-28 June, Limerick, Ireland (pp. 2624–2625). <https://doi.org/10.21606/drs.2018.020>
- Nielsen, L. M., Lutnæs, E., Porko-Hudd, M., Bravo, U., Cortes, C., Almendra, R. A., & Bohemia, E. (2021a). Editorial track 6.b design literacy enabling critical innovation practices. *FormAkademisk*, 14(4), 1–5. (Original work published 2019) <https://doi.org/10.7577/formakademisk.4649>
- Nielsen, L. M., Bohemia, E., Reitan, J. B., Brænne, K., & Bravo, U. C., Catalina. (2021b). Editorial workshop: Establishing Design Literacy International Network. *FORMakademisk*, 14(4), 1–2. (Original work published 2019) <https://doi.org/10.7577/formakademisk.4650>
- Nielsen, L. M., & Brænne, K. (2013). Design literacy for longer lasting products. *Studies in Material Thinking*, 9, 1–9. http://www.materialthinking.org/sites/default/files/papers/SMT_V9_07_KarenBraenne_LivNielsen_0.pdf
- Reitan, J. B., Lloyd, P., Bohemia, E., Nielsen, L. M., Digranes, I., & Lutnæs, E. (Eds.). (2013). Design education from kindergarten to PhD – Design learning for tomorrow: Proceedings of the 2nd international conference for design education researchers. ABM-media. <https://dl.designresearchsociety.org/learnxdesign/learnxdesign2013/conferencevolumes/>.
- Siebenbrodt, M., & Schöbe, L. (2007). *Bauhaus*. Parkstone Press.
- Southwell, M. (2013). La escuela ante nuevos desafíos: participación, ciudadanía y nuevas alfabetizaciones [The school faces new challenges: Participation, citizenship and new literacies] [Documento básico]. Fundación Santillana, Buenos Aires. https://biblioteca.clacso.edu.ar/Argentina/flacso-ar/20171109032145/pdf_727.pdf
- Storni, C., Leahy, K., McMahon, M., Lloyd, P., and Bohemia, E. (Eds.) (2018) *Proceedings of DRS2018 International Conference, Vol. 1: Design as a catalyst for change*, 25-28 June, Limerick, Ireland, Design Research Society. <https://doi.org/10.21606/drs.2018.v1>
- Swanson, G. (1994). Graphic design education as a liberal art: Design and knowledge in the university and the “real world”. *Design Issues*, 10(1), 53–63. <https://doi.org/10.2307/1511656>
- UNESCO. (2023). *What you need to know about literacy*. Retrieved 14 November 2023 from <https://www.unesco.org/en/literacy/need-know>
- Vande Zande, R., Bohemia, E., & Digranes, I. (Eds.). (2015). *Proceedings of the 3rd international conference for design education researchers*. Aalto University. <https://dl.designresearchsociety.org/drs2015-learnxdesign/>