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Empowering Responsible Design Literacy: Identifying Narratives in a New Curriculum

Empoderando la alfabetización en diseño responsable: identificando narrativas en un nuevo plan de estudios

Abstract. Products of human creativity have altered nature to such an extent that a new geological epoch was proposed, the Anthropocene, wherein we keep failing together. Integrating design in any curriculum fuels change by exploring and questioning existing knowledge and situations. A pressing global situation requires a fundamental redirection of the purpose of design and of design education to advance socioecological sustainability. This paper reviews the competence goals of the new Norwegian national curriculum in the subject Art and Crafts for primary and lower secondary education (Years 1–10) through a framework consisting of four narratives on cultivating responsible design literacy. The narratives that support the reflective practices within a studio are widely represented in the competence goals, whereas the narratives that shift the focus to the society outside the studios and might encourage projects that challenge pupils to fundamentally rethink human needs and desires are scarcely represented. The four narratives break the concept of design literacy into tangible pillars that show how to advance socioecological responsibility, navigate the complexity and ethical concerns of human living, and advance design responses that care for both people and the planet.
Keywords: critical reflection, design literacy, general education, transformative practices.

Resumen. Los productos de la creatividad humana han alterado la naturaleza a tal punto que hoy se habla del Antropoceno como una nueva época geológica en la que la humanidad enfrenta su propio fracaso. La integración del diseño en programas de estudios podría contribuir a generar un cambio mediante la exploración y el cuestionamiento de las situaciones nocivas existentes. Una situación mundial apremiante requiere una reorientación fundamental del propósito del diseño y de la educación en diseño para avanzar en la sostenibilidad socioecológica. Este artículo revisa las competencias del nuevo currículo nacional noruego en la asignatura de Arte y Artesanía para la educación primaria y el primer ciclo de secundaria (años 1-10) a través de un marco que consiste en cuatro narraciones sobre el desarrollo de la alfabetización responsable en diseño. Las narrativas que apoyan las prácticas reflexivas orientadas a problemas propios del curso de Arte y Artesanía están ampliamente representadas, mientras que las narrativas que se enfocan en problemas sociales externos al curso, y que podrían desafiar a los alumnos a repensar las necesidades y los deseos humanos, apenas están representadas. Las cuatro narrativas dividen el concepto de la alfabetización en diseño en pilares tangibles que muestran cómo avanzar en la responsabilidad socioecológica, navegar por la complejidad y las preocupaciones éticas de la vida humana, y avanzar en respuestas de diseño que cuiden tanto de las personas como del planeta.
Palabras clave: conocimientos básicos de diseño, educación general, prácticas de transformación, reflexión crítica.

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Introduction

Despite the growing number of global and local initiatives, carbon emissions have kept growing (Global Carbon Project, 2019) and the products of human creativity have altered nature to such an extent that a new geological epoch was proposed, the Anthropocene, wherein we keep failing together. UNESCO (1997) stated that progress depends upon the products of the educated minds, promoting education as humanity's best hope and most effective means to attain sustainable development. What then is the role of design education in creating more sustainable societies? Looking back at the initial arguments on why design represents an important aspect of educational development, we see some striking similarities between these arguments and the more recent scientific discourse on responsible citizenship (Nielsen, 2013; Boehnert, 2015). Design education for a general public was not introduced by Baynes (1974) as a means to shape consumer products, but rather to meet an 'urgent need for the survival as well as the happiness of mankind' (Baynes, 1974, p. 46). Moreover, Cross (1982) promoted design as a basic way of knowing, along with the humanities and sciences. He justifies design in general education by how design develops abilities in tackling ill-defined real-world problems.

Simon (1969) describes the practices of designers as "changing existing situations into preferred ones" (p. 55). Designers have played an important role in shaping today's consumerist culture by using their skills and talents to create a desire for new products (Mateus-Berr et. al., 2013). In the field of business, the development of the consumerist culture is the 'preferred' transformation, which occurs at the expense of social development and environmental protection. A pressing global situation requires a fundamental redirection of the purpose of design and design education to advance socioecological sustainability. Manzini & Rithaa (2017) suggest ecosystem resilience and cultural diversity as meaningful indicators of human progress. Facing man-made global challenges, the basic ethical questions of how a new product or innovation makes people and planet flourish prove just as important to integrate in the education of the young as in the education for professional designers. In integrating critical reflection as a baseline to any design process, one question is what situations are worth changing? Another question is what are the socio-ecological consequences of the intended change? 'Preferred' transformations derive from connecting to real-world dilemmas with empathy, rejecting destructive products of human creativity and focusing on problems that are worth solving.

Big picture thinking is the central issue tackled in Ingalls Vanada's (2013) paper that describes how to educate tomorrow's change makers and problem solvers. Aiming to foster deep, connected and independent thinkers, Ingalls Vanada (2013) balances creativity with practical wisdom and critical thinking. The new definition of competence in the Norwegian *core curriculum* has added 'the ability to reflect and think critically' (Norwegian Directorate for Education and Training, 2017). This is a significant change and so the expectations of Norwegian general education have increased, along with the need to reinvent the modes of living to better care for the environment and meet global challenges ahead. The definition of competence is key to both the development and interpretation of competence goals in primary and secondary education (Years 1–13). The current work investigates how the new

competence goals in the subject Art and Crafts cope with the conceptual change towards critical thinking and map out the potential of embedded design skills to educate responsible citizens and problem solvers of tomorrow. The overall objective is to contribute a framework on how to map out design skills and identify areas of curricular advancements that advance socioecological sustainability in design education.

Methodology

Understanding design as a form of literacy broadens the purpose of design education to include empowerment for criticism and transformation. Literacy promotes resilience by empowering individuals to challenge the established regimes of knowledge and the structures of society (Boehnert, 2015; Illeris, 2012). In this context, Kolko (2018) combined the concepts of participation and transformation, as follows: "To be literate is to have a voice in society, and to see the things that are happening, build on them, change them, and reject them" (para. 11). For a professional designer, transformation as the ability to change an object or service for the better is key, but for the general public, transformation might prove more powerful as the rejection of an unsustainable design. Educating a general public to become design literate can catalyse both environmental protection and degradation, human aid, and human-made disasters depending on how *design literacy* is defined and how the scope of design is framed. The definition of design literacy is crucial; however, after reviewing scientific discourses, I found no explicit definition of design literacy intended for a general public in order to promote ethical responsibilities and critical reflection. In 2010, Pacione raised the question of what it means to be design literate as opposed to being a design professional. Pacione (2010) put forward the basic skills of inquiry, evaluation, ideation, sketching, and prototyping. In my paper Framing the Concept Design Literacy for a General Public (Lutnæs, 2019), I asked the same question but in the context of critical innovation. By reviewing the texts' key narratives on how to cultivate design literacy, I arrived at the following definition:

> Being design literate in the context of critical innovation means to be aware of both the positive and negative impacts of design on people and the planet, approaching real-world problems as complex, voicing change through design processes, and judging the viability of any design ideas in terms of how they support a transition towards more sustainable ways of living (Lutnæs, 2019, p. 1303).

This definition corroborates Pacione (2010) in terms of the ability to voice change through design processes. However, when Pacione's (2010) questions are considered in the context of critical innovation, three additional narratives surfaced: (a) gain awareness through making, (b) empower for change and citizen participation, and (c) address the complexity of real-world problems (see figure 1).

In this paper, the four narratives are explored as a methodological framework to discuss design literacy, with the new national curriculum as a real-world example. Before analysing the curriculum, I will provide details on how the narratives were derived from the literature.

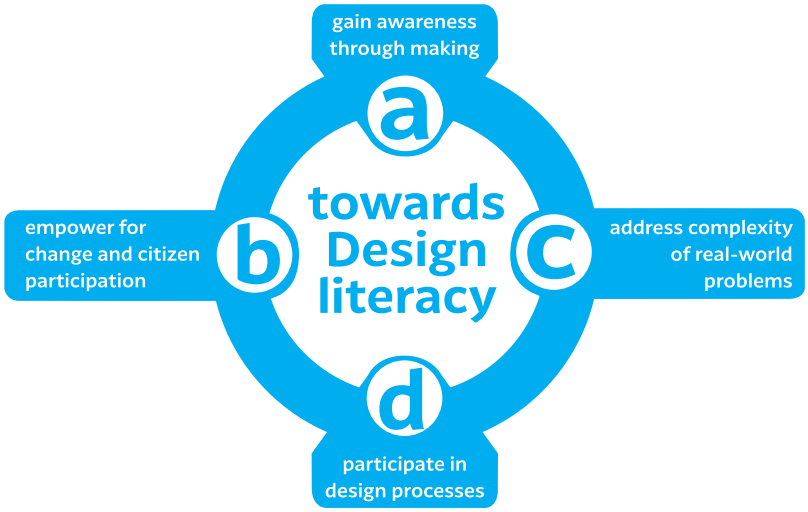

Figure 1. A framework for responsible design literacy. Authorship source.

The approach employed to review the key texts on design literacy for a general public was based on that used by Soini and Birkeland (2014) to investigate the scientific discourse on the concept of *cultural sustainability*. They used storylines as a semiotic tool to identify generative narratives used to give meaning to specific physical or social phenomena within a discourse (Hajer, 1995). A discourse refers to ideas, concepts and categorizations that are produced, reproduced and transformed in academic writing, in this case, in the field of design education. As a method of inquiry, storylines encompass complexity and provide a semiotic tool used to discuss different narratives in a specific discourse.

In the first phase of the literature review, papers that are relevant to the research topic were selected based on the following inclusion criteria: (1) includes *design literacy* in the title, (2) focuses on design literacy as part of general education, (3) enacts ethical responsibilities and critical reflection, and (4) is written in English. The first criterion delimits the selection to papers with design literacy as one of their main concepts. The second and third criteria allows the inclusion of papers related to explore design literacy in general education and how to empower a general public to support the transition to more sustainable societies. The fourth criterion facilitates transparency. As all the selected texts are written in an accessible language, the results of this study are open for perusal by other researchers.

The search for relevant papers using Skopus, Eric, Academic Search Premier and Oria was completed in December 2018. In this search, eleven papers with *design literacy* in the title were identified. Three of the papers did not satisfy criterion 2 as they discuss design literacy in the context of higher education (Formosa & Kroeter, 2002; De Eyto, 2014; Poggenpohl, 2008). Four of the papers did not satisfy criterion 3, which requires ethical responsibilities and critical reflection (Pacione, 2010; Jones, 2013; Lerner, 2018; Rahimi & Kim, 2018). Considering that criterion 3 is vital for responsible design literacy, I will explain how two of the papers failed to meet this criterion. In Lerner's (2018) paper Visual-Spatial Art and Design Literacy as a Prelude to Aesthetic Growth,

design is framed as the process of giving form or expression to ideas. Lerner (2018) focused solely on the positive aspects of visual–spatial learning and did not employ critical reflection. Design literacy is limited to one's ability to understand and make use of an aesthetic canon. Pacione (2010) on the other hand, names "the act of arranging how something looks" (p. 11) as a stereotype of design to stamp out in order to convince a majority of leaders in business and government to support design thinking in companies and to regard it as a vital component of general education. Pacione (2010) took on a broader understanding of design literacy than Lerner did by describing core design capabilities as uncovering and satisfying unmet needs through iterative processes. However, Pacione's (2010) paper falls short on criterion 3 as no attention was given to the wider social and environmental impacts of design, there is no critical reflection on what unmet needs to satisfy or not by design. Ultimately, four texts met all the criteria. Before I describe the second phase of the literature review, I wish to briefly introduce the focus and the research approaches of the included texts, as follows:

1. Nielsen and Brænne's Design Literacy for Longer Lasting Products (2013) employs a conceptual approach as it discusses design literacy amongst other literacies and how design literacy is related to material knowledge, ecological literacy and citizenship.

2. Green's Transformational Design Literacies: Children as Active Place-Makers (2014) draws upon an ethnographic study in an Australian primary school where students aged 8 to 12 years and their teachers designed and created a new garden on school grounds. The focus is on the potential role of design in a garden-based curriculum and on how the children were positioned as participants.

3. Christensen, Hjorth, Iversen & Smith's Understanding Design Literacy in Middle-School Education: Assessing Students' Stances Towards Inquiry (2018) presents a literature review on design thinking in children's education. Moreover, their paper describes their comparative study that investigated how 449 students aged 11–15 years took a designerly stance towards inquiry in a survey. The authors found no significant difference in the performance of the control group and of the students who had received design education. Their focus is on the requisites of educating for complex adaptive capabilities. Their study is a follow-up on the work of Christensen, Hjorth & Iversen (2016). Both papers met all four criteria, but I include only the more recent work.

The second phase was text review, marking out descriptions on how to cultivate design literacy and for what reasons. Subsequently, a word search was performed wherein the key concepts appearing in one paper were systematically searched for in the two other papers.

The preliminary analysis (Table 1) was a tool to assess the texts from multiple angles and identify shared concepts on design literacy amongst the papers. The identification of generative narratives, however, relied on the combination of concepts, as meaning cannot be expressed by single words. Valid narratives had to stand a test of being in accordance with the meaning

Table 1. Preliminary analysis of the key concepts across the three papers. Authorship source.

Key concept	Nielsen & Brænne	Green	Christensen et al.
Citizenship	•	•	•
Democratic/democracy	•	•	•
Materials/materiality	•	•	•
Transformative/transformational		•	•
Reflective inquiry/critical	•	•	•
Dialogue	•	•	•
Open-ended process		•	•
Agency/agent		•	•
Power/empower	•	•	
Awareness	•	•	•
Complex task/problem/dilemma	•	•	•

produced in each text as well as descriptors across the three texts on how to cultivate design literacy in a context of critical innovations. The repetitive process of combining concepts into narratives, revisiting the three texts, moderating narratives, and revisiting the texts has revealed four shared narratives on how to cultivate design literacy.

The first narrative, **(a) Gain awareness through making**, draws upon the significance of placing materials in the hands of the pupils. As makers, the pupils transform materials to externalize and advance their ideas, and in the process they tap both the physical realities and conceptual language in order to articulate meaning. Awareness indicates understanding of what socio-environmental impacts man-made artefacts have and what it takes for products to become solid, functional and interesting to use over time. All three texts emphasize the importance of first-hand experience with materials as part of educating a design literate general public. In Green's (2014) narrative, the students examined the physical reality of the garden site to harness its potential, and in making models, they experienced how to express and advance their ideas. The agenda in the narrative of Nielsen and Brænne (2013) was twofold: designing and making their own products (e.g. garments or spoons) allowed the pupils to better assess the quality and longevity of products as consumers, and it provided an arena to enhance their awareness on how conflicts, inequity and exploitation of nature are embedded in everyday consumption. Christensen et al.'s (2018) narrative on making provides pupils with tools to externalize and share ideas. The authors emphasized the importance of open-ended briefs, as the making of copies would cultivate the students' technological literacy more than their design literacy.

The second narrative, **(b) Empower for change and citizen participation**, is a shared narrative on the importance of providing pupils with a sense of agency and tools to question, rethink and transform the world. Everyone plays a significant role either in promoting more sustainable ways of living or in further driving destruction, and the authors promote design literacy as a game

changer in encouraging more responsible participation from citizens. The pupils in Green's (2014) narrative were empowered to express their ideas and their varied perspectives for the design of a garden. The pupils in Christensen et al.'s (2018) narrative were empowered to take a designerly stance towards inquiry, to act as agents of change and to create desired futures. The pupils in Nielsen and Brænne's (2013) narrative were empowered to criticize and change the system through their actions as consumers and producers.

The third narrative, **(c) Address complexity of real-world problems**, is framed as a key feature of design literacy, and accordingly, pupils are challenged to map and navigate conflicting interests and dilemmas embedded in design practices and solutions. The capacity to embrace complexity and explore for solutions that contribute to a better future is a shared goal of the three papers in promoting design literacy for the general public. In Green's (2014) narrative design literacy is described as the ability to engage with an unknown outcome and connect to the complexity of the real world. Christensen et al. (2018) argued that pupils will be better equipped for the future if they recognize the complex and wicked nature of problems. Most pupils in their study focused on readily available solutions when approaching a wicked problem. Their study demonstrated how a designerly stance towards inquiry challenges the more familiar scenario wherein a teacher has the correct solution to the problem at hand. Nielsen and Brænne's (2013) view on complexity was that the field of design should be emancipated from being associated with form and colour only. They described the complexity of the knowledge involved in order to produce a design literate person who opts for sustainable design and responsible consumption. Vital for a general public is the knowledge of how the choices made by consumers impact the soundness of an ecological system, materials, and the complex process of making and designing sustainable products.

The fourth narrative, **(d) Participate in design processes**, is endorsed by the authors as enabling pupils to adopt a designer's tools for innovation and understand how designers think. In Green's (2014) narrative, the pupils' participation in the design process offered expanded learning opportunities in the garden-based curriculum and regarded the students as active place-makers. The design process offers a method that facilitates learning and creates avenues for ideation amongst the pupils. Christensen et. al. (2018) set as their main learning objectives to understand designerly inquiry and the ability to navigate a design process, whereas Nielsen and Brænne (2013) focused on the pupils' awareness of the social and ecological impacts of design processes and of the reflection in action approach.

I provide a more rigorous analysis and presentation of the narratives and methods in the literature review (Lutnæs, 2019). This paper explores the four narratives based on the ideas embedded in the competence goals of the new Norwegian curriculum for the subject Art and Crafts in primary and lower secondary education (Ministry of Education and Research, 2019).

Results

In August 2020, the new Norwegian national subject curriculums (LK20) for primary and lower secondary school replaced the curriculums from 2006 (LK06). The national curriculums serve as a regulation that must be followed.

Year	Number of competence goals
1–2	9
3–4	10
5–7	12
8–10	10
Total Goals:	**41**

Table 2. Distribution of Competence Goals in Years 1 to 10. Authorship source.

The subject Art and Crafts is compulsory across Years 1 to 10 and is the fifth most comprehensive subject in primary and lower secondary education, accounting for 623 hours of the total 7894 hours. The subject's curriculum is divided into the following sections: relevance and values, core elements, interdisciplinary topics, basic skills, competence goals and guidelines for assessment. This review is limited to the 41 competence goals in the subject Art and Crafts that describe what pupils should be able to master after completing a given year of study.

In the new curriculum, the competence goals related to the field of architecture stand side by side with those related to traditional crafts, infographics and artistic expressions. Since 1960, the curriculum practice in Norway differs from that of Nordic neighbours, as the traditions of Bild and Sloyd merged into one subject curriculum, *Forming*. Since 1997 the name of the subject has been *Art and Crafts*. Design is relevant across the broad subject content. Design ideas for a better future might emerge in the intersection of craftsmanship and art; further, the field of design provides tools for creative processes that facilitate inquiry, problem framing and transformation. The four narratives rely on the understanding of design not as a product but as the ability that allows to address and explore alternative modes of living.

a) Gain awareness through making .

The first narrative combines awareness and making. A design literate is skilled in making and knows how to transform materials to externalise ideas and products; also, the literate knows how to articulate meaning by using visual elements. When awareness is integrated, making becomes more complicated. Awareness shifts the focus to the consequences of making on people and on the planet. In the new curriculum, a skilled maker is prioritized based on how all goals necessitate a practical approach and on how the pupils acquire and demonstrate their competence. In this context, a practical approach involves moulding, ideating, building, drawing, testing, creating, visualizing, using tools, and examining possibilities in objects or materials. Most of the goals (28 out of 41) do not explicitly promote the pupils' awareness on the impact of making practices on nature or humans. Rather, the focus is on visual elements, on creative strategies or on craft techniques, as in this goal: "plan and build using natural materials inspired by local traditions and Sami architecture" (competence goal for Years 3-4, my translation). A few goals (13 out of 41) explicitly address social or environmental impact. The social impact of visual elements, that is, how visual communication delimits and permits social roles, identity and critique, are addressed by the goals in Years 5-7 and Years 8-10. In the goals for Years 3-4 and Years 8-10, awareness of the social impact of design are promoted by interconnecting human needs and properties in a physical environment. A goal for Years 8–10 makes critical scrutiny a vital component of designing by integrating the evaluation of longevity, functionality and aesthetic expression in the goal. The environmental impact of making on the use of materials, tools and techniques in a safe and environmentally conscious manner is explicitly targeted in a goal that progresses through all the year levels. This goal urges both teachers and pupils to work systematically and knowledgeably in the studio and take measures to protect both humans and nature from damage.

b) Empower for change and citizen participation.
In the second narrative, the idea of empowerment is a key in promoting design literacy as a component of education for citizenship and democracy. In LK06, knowledge about form, colour and composition was promoted to improve the opportunity of individuals to participate in democratic decision-making processes (Ministry of Education and Research, 2006). In LK20, knowledge of techniques for visualisation, understanding and reviewing visual representations is mentioned by 29 of the 41 goals. In contrast, the number of goals that address the task of challenging or recreating the world is considerably low. Pupils in Years 1-2 are tasked to imagine and describe the future through drawings and models; in Years 8-10, the pupils should be able to renew a local site. The critique of current practices is most pronounced in a goal for Years 5-7, wherein pupils are challenged to explore alternatives to the stereotypical visualisations of gender, as well as in a goal for Years 8-10, wherein pupils explore how works of art have contributed to social criticism and then shed light on a contemporary societal challenge through art.

c) Address complexity of real-world problems.
The third narrative expects pupils to engage with the real world outside the studio. A design literate recognizes real-world problems as complex and can map and navigate conflicting interests and dilemmas to arrive at solutions that are not readily at hand. Competence goals that explicitly address real-world problems are hard to find in the new curriculum. In Years 3-4, the pupils should be able to explore possibilities in re-using materials and communicate to others how they might contribute to safeguard nature in their everyday living. Unsustainable practices in consumption and the growing amount of garbage are undoubtedly real-world problems of today, but by the way in which the competence goal is articulated, pupils may directly consult a list of pre-set solutions without mapping conflicting interests and dilemmas. Meanwhile, complexity mapping is done through infographics in Years 5-7. Infographics are a tool to communicate complex data and show interrelatedness in a visual format. Infographics are listed as optional media, alongside photographs, to describe a contemporary topic. Conflicting interests and dilemmas, however, are not evident in the goal. Thus, in this year level, the pupils' infographic could be a straightforward visualization of statistical data on biodiversity loss. The lone competence goal in Years 8-10 combines the real world outside the studio with the idea of conflicting interests and dilemmas. By modelling architectural solutions to renew a local site, the pupils demonstrate the ability to encompass different needs and interests.

d) Participate in design processes.
The fourth narrative enables pupils to adopt the designer's tools for innovation, that is, field study, problem framing, ideation, prototyping, evaluation and understanding how designers think. The concept of *design process* is stated explicitly in two competence goals, one in Years 3-4 and another in Years 8-10. Further, four other competence goals include the concept of *process* without the prefix *design*. Skills that belong to the designer toolkit for innovation, however, are apparent in a wide range of aims; for instance, "build on the work of others in your own creative works" (competence goal for Years 1-2, my translation) and "use different strategies for ideation and problem solving"

(competence goal for Years 5-7, my translation). The verb explore is used in 7 of the 41 competence goals, and in all year levels sketching is developed as a skill through drawing or models. Moreover, verbs that support evaluation skills include *interpret, assess, discuss, use experiences, analyse*, and *reflect*.

Discussion

The narratives **(a) Gain awareness through making** and **(d) Participate in design processes** are commonly tackled in the competence goals, and they promote the practice of reflective processes among skilled makers in studios of the Art and Crafts subject. By contrast, the narratives **(b) Empower for change and citizen participation** and **(c) Address complexity of real-world problems** are scarcely represented. When revisiting the research question of how the new competence goals in the Art and Crafts subject cope with the conceptual change in favour of critical thinking, all four narratives will be potentially enhanced, albeit at different levels. Narrative **(a)** calls upon the effort of the maker to ensure minimum environmental damage and to strive for a product that becomes solid, functional and interesting to use over time. Narrative **(d)** allows pupils to adopt tools for ideation and evaluation. The two other narratives shift the focus from a product to the society outside the studio and allow for a more radical recreation of the world and all the unsustainable systems embedded in making. The split between narratives **(a)/(d)** and **(b)/(c)** demonstrates the vital difference between a reflection that is or is not linked to the prefix 'critical'. A reflection without this prefix operates towards improvements within an established field of practice —the how of action— whereas a critical reflection addresses the why of action, the reasons and consequences of what we do (Mezirow, 1990). As regards the field of making, the first approach requires pupils to disrupt the intuitive flow of actions and render them reflective to improve their practice in the studio; for instance, they might need to attach an additional joint to render a more stable and lasting stool. The second approach requires pupils to step back and assess the reasons for making and the wider social and environmental impact of making. Through critical reflection, they turn to question the foundations and imperatives of making, and consider alternatives (Brookfield, 2010): What are the traditions and ideologies that guide making? Whom and what is affected by my making and by the making of designers, craftsmen and artists? What are the more ethical modes of production, trade and consumption? A praxis of critical reflection makes general education an arena to question, rethink and transform our current knowledge base and cultural practices and not passively reproduce them.

What is the potential of the design skills embedded to educate the responsible citizens and problem solvers of tomorrow? A skilled maker plays a vital role in repairing objects, in ideating and in making local products, as well as in rejecting short-lived consumer products. However, to meet the global challenges ahead, the Art and Crafts subject should also facilitate projects that challenge pupils to fundamentally rethink human needs and desires. A more transformative practice, which is scarcely represented in the competence goals, will rely on the development of educational resources that recognize and challenge the dominant ideologies embedded in everyday situations and advance design responses that care for both people and the planet. Teachers will take

advantage of examples and project ideas to coin the competence goals to the ambitions of the overall curriculum and fundamentally redirect the purpose of design education to promote socioecological responsibility.

Conclusion

In 1992, Orr addressed the need for an epistemological shift: "This crisis cannot be solved by the same education that helped create the problems. Against the test of sustainability our ideas, theories, sciences, humanities, pedagogy and educational institutions have not measured up" (p. 83). The four narratives are all derived from papers that enact ethical responsibilities and critical reflection as part of design education. For the narratives to be relevant, they must rely on the understanding that design is a practice of empathy, criticism and transformation, not a practice of planning and developing products for sale in order to create desire for new products (Mateus-Berr et. al. 2013). The narratives combine the designers' toolkit for innovation, making, awareness and empowerment for the transformation of unsustainable practices. As a framework to map out design skills and to identify areas of curricular advancements, the narratives help redirect the focus from the skilful and reflective actions within the design studios to the real-world problems of society, challenging pupils to explore the socio-ecological context and to voice the more responsible alternatives. The narratives break the concept of design literacy into tangible pillars that show how to advance socio-ecological responsibility. In this paper, the narratives helped identify the weaknesses of the competencies articulated in the curriculum for primary and secondary education (Years 1-10). The exploration of the potential of the narratives as a framework for planning and evaluating project briefs, courses and curriculums is at its infancy, and I welcome research initiatives to review the narratives and use them to discuss design literacies across levels of design education, that is, from kindergarten to university.

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