Escaping the Dark Side of Technology via Subject-ness

Sustainable Technology Education and Holistic Craft

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The widening role of (digital) technology in our societies and the global ecological crisis are certainly two of the most prominent educational challenges of our time. Moreover, the intricate relationship between the two introduces tensions in pedagogical practice. Veli-Matti Värri, for example, has presented the Heideggerian argument that technology leads us into the kind of calculative thinking that underlies the destructive relationship between human beings and the more-than-human world. If this argument is correct, education for sustainability would be education out of technology instead of education about technology. The following question arises: How can technology education be education for sustainability? With the help of Gert Biesta's concept of subjectification as being spoken to by something in the world, I develop the idea that technology education can be sustainability education if it allows children to encounter the essence of technology. I then argue that holistic craft is a pedagogical method that, under certain parameters, can help to realize this possibility. In order to make these philosophical ideas more concrete and to outline what this could mean in practice, I turn to an example drawn from a collaborative project between a pre-school and a primary school. From the interplay of educational theory and the practical example, I draw the conclusion that the combination of craft and reflection proper to the holistic craft process offers children possibilities for being sustainably with technology.

Keywords: technology, education for sustainability, subjectification, being-in-the-world, holistic craft

Introduction

In discussions about the challenges faced by contemporary education, two phenomena almost inevitably come up: the ecological crisis and the expanding role of (digital) technology in our societies. It is no surprise, then, that an increasing emphasis is placed on addressing these complex issues (Furu, 2019; Hedefalk, Almqvist & Östman, 2015; Wals, 2017). However, there is an inherent tension between the two phenomena. Veli-Matti Värri (2018) has argued along Heideggerian lines that technology – or more precisely, the technological metaphysics underlying our culture – is one of the reasons we are now facing the ecological crisis. If Värri's argument is correct, education for sustainability would be education out of technology instead of education about technology. Hence, we face a problem: how can the conflicting goals of sustainability and technology education be met at the same time?

In this paper, I search for the conditions under which technology education (TE) can also work as education for sustainability. I proceed as follows. I first place Värri's and Heidegger's arguments in conversation with Gert Biesta's concept of subjectification. With the help of these theoretical tools, I point a way out from the tensions between sustainability and TE. I then introduce the notion of holistic craft (Aerila & Rönkkö, 2015; Pöllänen, 2009) as a way of concretizing the philosophical ideas in educational practice and explore this possibility with the use of an empirical example.

Before moving on, it must be admitted that the set-up in the paper is a polarizing one in that I focus on some of the darker interpretations of technology. Although these can be contested and alternative views of technology are certainly both possible and reasonable, it is precisely the dark side of technology that

makes the tensions between sustainability and technology an issue. It is for this reason that I will focus on these arguably pessimistic views.

Technology as part of unsustainable being-in-the-world

What is at stake in the tension between TE and sustainability can be explored with the help of a thought experiment. Let us imagine a future, say, the year 2050. Many Western nations have developed greener technologies to enable a carbon-neutral society. However, the materials for such green technologies need to be mined in countries of the global South. Due to global economic inequalities, this results in both social and ecological devastation in those regions. Against this background, the parliament in Finland is facing a morally tricky decision in formulating the country's sustainability budget. With limited funds available, the choice needs to be made whether to invest in building more of the familiar green technologies or to invest in one of several projects that seek to reduce consumption by educational, economic, or societal means. The crucial question is this: What kind of a TE should we hope the politicians responsible for the decision have had?

Subject-ness

The first thing to be noted here is that the decision facing the politicians is a situation where they are subjects in the existential sense that no one else is responsible for the decision they make. Within the field of education, Gert Biesta (2015a, 2015b, 2015c, 2017) has worked extensively on how we should understand the process of subjectification – that is, education that aims at the subject-ness of those being educated. Biesta (2017) argues that subject-ness is possible when something or someone that is other 'speaks' to us. Being a subject is thus not about being the master of one's projects, self-expression, or only taking initiatives. Rather, it is about being addressed, *being spoken to* by something in the world, and responding – or not responding. A crucial aspect of Biesta's conception is that the address comes uniquely to the person in question rather than generally to anyone listening. When I am being addressed by something or someone in the world, only I can respond and so 'I' am at stake (Biesta, 2017). The politicians responsible for the budget are the only ones that can decide one way or the other – they cannot transfer the responsibility to anyone else, although they might refuse to accept the responsibility as part of their life. One hopes that the politicians who make these decisions at the very least acknowledge the unique address they are facing.

Although Biesta does not explicate this, and might not even agree, I argue that the choice facing the politicians is an existential call not only in the sense that they are faced with the possibility of responding, but also in the sense that they are called to think about the matter at hand – they face a call to thinking (Heidegger, 1968). By thinking, I mean questioning that which is immediately given and appears to be self-evident. In everyday language, we might talk about 'getting at the truth of the matter' or 'getting to the heart of the matter' as opposed to making quick judgements based on what everybody knows to be true (cf. Deleuze, 2014). In more theoretical language, we might speak of trying to reach the essence of what is at issue. Whichever way it is formulated, the call to thinking is a call to explore the issue at hand in all its complexity rather than responding quickly based on one's opinions. We should therefore understand thinking here as an existential relation that opens the person up to being addressed. Hence, thinking is neither a path that leads to a correct decision nor a substitute for action, but rather a form of listening to the quiet undertones of that which addresses us.

Technology as a human activity

Even if one accepts that subject-ness as formulated by Biesta is a key task for education in general and that thinking might be a part of this, a question remains: Why is this relevant to TE? It is here that we discover the importance of Värri's Heideggerian arguments, which are based on the intimate relationship between technology and thinking. In our little thought experiment, different approaches to technology and the ecological crisis can be ascertained. We might first note the green technologies, which exemplify

what Heidegger (1977, p. 5) calls the instrumental and anthropological definition of technology. Here technology is perceived of as a human activity and a means to an end. The fact that we might have 'green' technologies suggests that technology is neutral regarding the values that make use of it.

It has been argued that at the centre of the problematics related to the ecological crisis is the relationship between human beings and the more-than-human world (Abram, 1997; Furu, 2019; Wals, 2017). The disposition to act with an attitude of destructive indifference towards the more-than-human world is ingrained in the worldview underlying our culture. In other words, the ecological crisis is a crisis of culture (Abram, 1997; Martusewicz, Edmundson & Lupinacci, 2015; Värri, 2018). This suggests – if we accept the instrumental and anthropological definition of technology – that to effect the transformation to a sustainable world, we only need to put our technologies to uses that align with a greener worldview.

If the instrumental and anthropological definition of technology accounted for everything, we would be in a happy place in the sense that the tensions between sustainability and technology would not arise – or, at the very least, such tensions would not be an issue for TE, since there would be no downside to learning about technology. We could hope that the politicians have had all the opportunities in the world to acquaint themselves with technology, as this would increase their chances of making good use of its possibilities.

The essence of technology

However, a key point in Heidegger's (1977) analysis of technology – one that Värri's argument relies on – is that the instrumental and anthropological definition of technology does not capture the essence of technology (p. 6). It nevertheless helps us to see further into the matter. Although we tend to see as technological only the more complex (digital) technological devices, a shovel is as technological as a smart phone. In fact, with the help of the instrumental and anthropological definition, we can understand technology as anything that is designed and manufactured by humans to serve a useful purpose. Technology is therefore a medium of our relationship with the world. Like all media, it not only reveals the world to us but also does so in a specific way. Technology thus sets up limits and boundaries to how we can think about the world. Therefore, technology is, essentially, a way of thinking, a way of revealing the world (Heidegger 1977, pp. 6-14).

The specific way technology reveals the world to us, Heidegger (1977, pp. 14-16) argues, is as a 'standing reserve'. To say that the world is revealed as a standing reserve means that entities in the world appear to us as a stockpile, ready to be used in the way we deem fit. For Heidegger, the standing reserve is a mode of revealing that is peculiar to modern technology (ibid.). However, Morton (2012, p. 11) argues Heidegger fails to note that the seeds for viewing the world as a standing reserve are already ingrained in the agricultural way of life. Without going into the detail of Morton's argument, I contend that the difference Heidegger sees between modern and traditional technology should be understood as a difference in degree rather than a difference in kind. Thus, we should not be inattentive to the fact that modern technologies – such as industrialized farming or coal power plants – are more exploitative than traditional forms of technology – such as the shovel or windmill. However, neither should we entertain the false hope that if we only employ another kind of technology – perhaps a 'green' one – the world no longer appears to us as a standing reserve. It is in the essence of technology to reveal the world as a stockpile of objects that can be manipulated to help achieve one's ends.

Towards a sustainable TE

Now is perhaps a good time to return to the question posed at the end of our thought experiment: what kind of a TE should we hope the politicians have had? We saw above how it is in the essence of technology to reveal the world to us as something to manipulate and exploit. Learning about technology therefore socializes newcomers to a calculative and manipulative way of thinking about the world. In

the thought experiment we could see how – not in an unrealistic manner – the green technologies ultimately relied on ecological and societal exploitation. Given my earlier argument that the kind of thinking that characterizes subject-ness is more like listening than calculation and manipulation, it seems that becoming familiar with technology works towards obscuring the politicians' subject-ness.

> But where danger is, grows
> The saving power also
> (Hölderlin cited in Heidegger, 1977, p. 28)

Paradoxically, Heidegger helps us to see that it is precisely by coming to view technology as a calculative way of thinking that we can find a way out of this predicament. The calculative and manipulative thinking is a result of things losing their essence and becoming simply resources available for human projects (ibid., pp. 26-27). By the same token, the human subject becomes only a manager of resources and, consequently, 'fails to see himself as *the one spoken to*' (ibid., p. 27, italics mine). Conversely, we can begin to see ourselves as the ones being spoken to simply by recognizing the essence of technology. By viewing technology as essential, in the sense of it having an essence that is independent of human projects, the world can again become revealed as something other than a mere 'standing reserve'. Thus, we can finally answer the question posed at the end of our thought experiment. We should hope that the politicians responsible for such big decisions have had a TE that allowed them to *encounter the essence of technology*. Only such an education can combine the task of becoming familiar with technology with the task of subjectification.

Sustainable TE in practice

Having identified – based on the arguments against technology put forward by Heidegger and Värri – that the sustainability of TE rests on the possibility of *encountering the essence of technology*, we can now consider the *practical means* of realizing this possibility. A possible solution is the pedagogical practice of holistic craft. Put simply, holistic craft is a type of craft activity where one person is in charge of the whole process of finding ideas, designing, preparing, and assessing the artefact, as well as the process of production (Aerila & Rönkkö, 2015, pp. 91-92; Pöllänen, 2009, pp. 251-253; see also Fleer, 2000). The intimate connection between craft and TE is well-known (see e.g. de Vries, 2016) and the relationship between craft and sustainability is an emerging field (Furu, 2019). What makes the holistic approach special is that the student is responsible for designing and assessing the process and product, which introduces to the student a need to engage with what technology is for and what can and cannot be achieved with it. In more philosophical language, the student is put in a situation where they need to listen to what the presence of technology has to say. One could say that in holistic craft, the reflective attitude is built into the design of the process (cf. Furu, 2019, pp. 204-205).

Showing the benefits of the holistic craft process for sustainable TE is best done with the help of a practical example. My example is taken from the Finnish Innoplay project, which aims at developing pedagogical models that employ existing knowledge about craft education in engaging with the new learning contents and goals related to technology education. The 'case' considered here – henceforth referred to as the Windmill project – involved a group of three student teachers, two preschool teachers, and two primary school teachers (first and second grade). The participating children – one or several of whom might be the politicians of our previous thought experiment – were 5–8 years of age.

The group designed a three-day project on windmills based on the principles of holistic craft. An old windmill is located near the preschool-school complex and the project started with a visit to it. During the visit, the children drew a picture of the windmill. The second day of the project involved discussions about what windmills are for, how the windmills operate, and so on. Each child also made a windmill of their own out of an old milk carton. During the third and final day, the children finished their windmills and tested them in the school yard.

The windmill project allows the children to *be spoken to* by the essence of technology. This possibility is brought about by the combination of art and reflection (see Heidegger, 1977, p. 35). Making art by drawing the windmill and using craft to construct a mini-sized windmill allows the children to encounter the windmill in ways that are not dependent on calculation or manipulation (Värri, 2018, p. 13; Heidegger, 1968). This starts to bring the children into contact with the essence of technology. This contact is deepened in the reflections about what the windmill is for and what the necessary components of a windmill are. We need to be careful here not to stray back into the instrumental and anthropological definition of technology. Being-for is not a question of what ends can be achieved with the help of a windmill. Rather, it is a question of how the windmill exists in relation to the world – in what way it is present or, to use a Heideggerian expression, holds sway. The tests undertaken in the final day of the project help to concretise the windmill's relation to the world.

Finally, it needs to be noted that the children were following blueprints given by the teachers in making the windmill – a break with what is typical of holistic craft where, as noted, one person is responsible for the whole process. This is problematic, since when the children are given instructions to follow, they are denied their subject-ness in that, although being spoken to, there is no need to respond because the response is given in the instructions (cf. Biesta, 2017). This is comparable to the politicians in the thought experiment: should there be a guideline, a party policy, or a set of instructions to be followed, the politician would not be a subject in the existential sense I have discussed. Conversely, relying on external guidelines would amount to refusing the call to thinking and listening – refusing to be the subject of one's decisions.

Conclusions

To summarize, I have sought the educational conditions which would enable two of the most prominent challenges faced by contemporary education – technology and the ecological crisis – to 'occupy' the same classroom. This task requires a focus on subjectification, on the being subject of the children (Biesta, 2017). As to the practical methods, the pedagogical model of holistic craft is one possibility, provided that the following further parameters are observed. First, the holistic craft process needs to maintain a balance between craft and other art forms as ways of *relating to* technology, on the one hand, and reflection about the purpose of technology which allows the essence of technology to emerge in this relation on the other hand. Second, the children need to be responsible for the whole process so that they are not only 'spoken to' by technology but are also positioned as respondents. However, it is important to be aware of the danger that a focus on *self*-expression, e.g. using technology to express the children's personal preferences, would take a step back towards the instrumental understanding of technology (cf. Furu, 2019).

Although I have illustrated the holistic craft process with a practical example, an important open question for future studies is the perspective of the child in such projects. For the Windmill project, no data about the children were collected. It was therefore impossible to analyse how the children engaged with the designed activities. There also remain open questions of a theoretical nature. A point mostly assumed in this paper is that technology, or more precisely, the essence of technology, can speak to a person. It is not at all clear that this might be the case. Finally, the necessary distinction between subject-ness and following instructions needs to be elaborated in more detail than has been possible here. To conclude, the present inquiry has opened a very specific path for the possibility of technology education for sustainability. It remains to be seen, however, whether this proves to be a sustainable path.

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