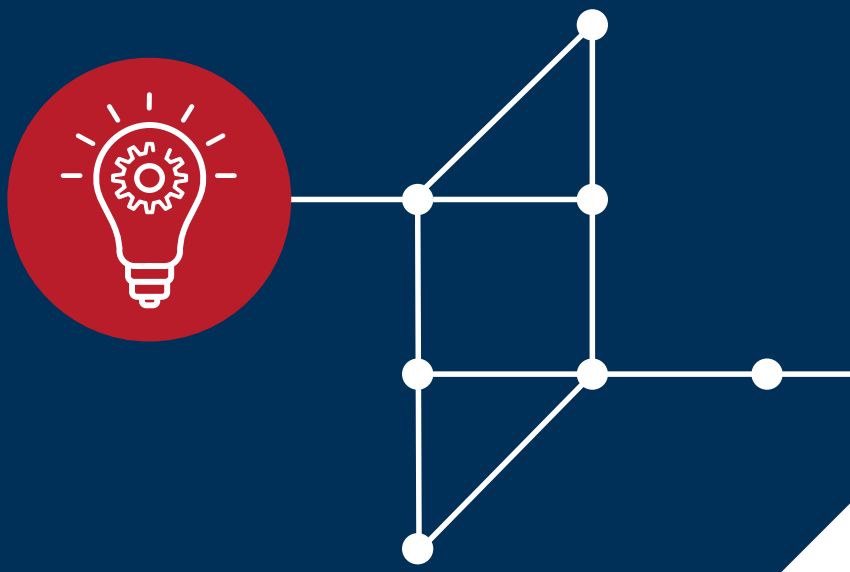
Actualising Questions For EdTech Impact

A Social Imaginary for the Public Value of Humanity in Education



Acceleration plan
Educational innovation with ICT

EdTech

Actualising Questions For EdTech Impact

A Social Imaginary for the Public Value of Humanity in Education

Zone Acceleration of Educational Innovation with EdTech

Acceleration plan
Educational innovation with ICT

John Ford Walker
Autumn 2022
Acceleration Plan EdTech

Introduction:

While educational work becomes increasingly digital in the Netherlands, the conversation around the technological impact of digitisation continues to grow alongside it. Public values as a framework for discussing the pressures of digital transformations and keeping other, more social values on the priorities list. Digital transformation [then] can support educational values, but the use of digital technology can also put them at risk (Bok et al., 2022). In order to help move forward the use of the public values framework proposed by organisations like SURF, this report provides a new way to bridge the conversation between higher educational institutions and public values in educational technologies (or EdTech). Through a speculative social imaginary, this report first sets to understand what kind of conversations could happen with ICTO coaches and the stakeholders involved with EdTech. The discussion will be focused on an innovative technology called 'Pandora,' which for this report does not actually exist, but serves to resemble real EdTech tools being implemented today in higher education. This discussion and debate had amongst the conceptual team about the EdTech tool will then generate new questions concerned with the humanity-focused part of public values. Questions generated from section 3 of this report are then to be realised in the Technological Impact Cycle tool.

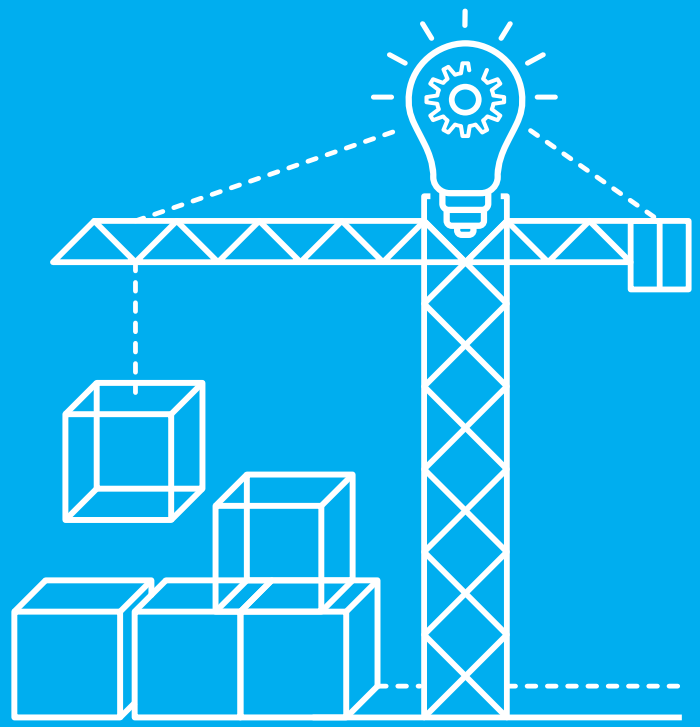
Purpose:

The purpose of this report is twofold. First, the report will elucidate new ways of considering the 'humanity' public value found within the SURF *Value Compass* (2022). Second, the report's own conceptual analysis of the situations ICTO coaches find themselves in with EdTech tools will be used to generate new questions for future public value discussions that are concerned with the humanity value in education.

Partnership:

This report was made in partnership with the Technological Impact Cycle Tool (TICT) team at Fontys. TICT is a free tool by Fontys University of Applied Sciences that helps teams estimate the impact of (new) technologies in their institutions through raising relevant questions. The Acceleration Plan and the TICT Team plan to produce a new version of TICT that focuses on public values with educational technologies. This report and the questions generated in it are some of the first experimental pieces to that tool which will be hosted by the TICT website. Find out more at tict.io and AccelerationPlan.nl.

Keywords: Public Values, Humanity, Edtech, Educational Technology, ICTO, Higher Education, Impact



1 Framing Public Values

Digital transformation solutions continue to change educational strategy, practices, and ways of learning. These digital solutions can help ease stresses by automating tasks or helping us see new ways of thinking through challenges, but they also pose disruptive risks to our everyday educational work. The disruption of digitisation may be alleviated or avoided by including public values into the conversation of digital solution design and implementation. Recognising that the importance of public values allows a much broader discussion to decision making and the development of technologies in a socially responsible manner (Van Est et al., 2018, pg. 93). In other words, considerations for the development of technologies without public values can lead to worse outcomes for personal livelihoods and the blatant disregard for underrepresented communities. For education, this means recognising that technologies should not be implemented only for the sake of efficiency and production, but also regarding other social values such as justice, humanity, and autonomy (Bok et al., 2022). Humanity as a public value in the Value Compass comprises “social cohesion, meaningful contact, respect, safety, health and well-being, and self-development” (Bok et al., 2022); these component values lend to new conversations in the education sector about how they may be considered going forward with innovative technologies.

1.1 Humanity as a public value

The public value for humanity has several parts that offer new insights into how technologies could impact student life, professor work and administrative responsibilities. For example, educational institutions should be seen as places for social connection and meaningful contact, which in turn asks administrators, policy holders and directors alike to create an environment that can encourage such behaviours and community. Respecting humanity of students requires reminding ourselves that well-being of persons in the institution can come first, but the technologies we choose to apply and procure will impact and (re)shape that same well-being later.

The components of the public value humanity could be respected from the lens of responsible design. A responsible design approach can attune to the broader scope of the value ‘humanity’ while still giving consideration to design recommendations and application in educational contexts. Responsible design may also find connections between ideas and valuable vocabulary for the Public Values discussion, allowing for more consistent and accessible lexicon.

1.1.1 Connections between Humanity and EdTech

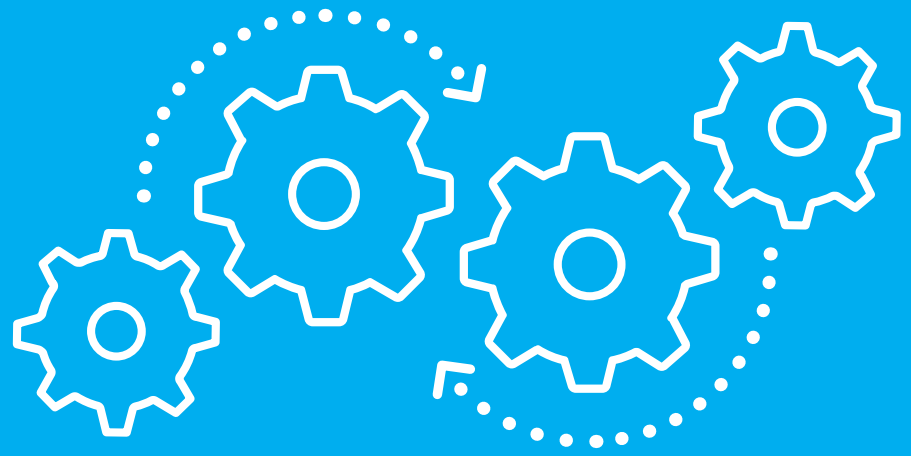
Acknowledging the role of technological impact on educational work means agreeing that the technologies we choose to implement in our higher educational institutions can change things in unexpected ways. To do this means to mitigate risk by, "protecting the public as much as possible from the risks associated with digitalisation" (Van Est et al., 2018, pg. 104). For EdTech and companies that develop the technology, it means understanding that their tools can have consequences for the public value that an institution is trying to protect, understand or respect. Tools such as learning management systems, chatbots, mobile apps for learning, and even scheduling platforms all can mediate and change the relationships people have to an institution (Walker and Baten, 2022). In other words, these technologies can all have an impact on the components of 'humanity' from the Public Values compass (2022) such as meaningful contact, safety, respect, social cohesion, health and well-being, and personal development.

To move this discussion forward, responsible technology designers can consider the physical, psychological, and socio-technical aspects of technological impact. One of the most fundamental considerations for this is to understand that EdTech should not take advantage of human vulnerabilities. An example of such a value is found within 'humane centred design' discussions. Vulnerabilities such as attention grabbing and stress inducing colours, dark patterns, unwanted or relentless notifications, and more all lend to discourse on what responsible and humane design of technologies are (CHT, 2022). Here, connections can be made to the values found in the Public Values compass, such as well-being and meaningful contact. By taking seriously values such as these, EdTech tools have the chance to not only experiment with healthy behaviour-shaping approaches, but also change education in ways that have not been done before. In turn, this means acknowledging that our technologies have consequences, and the movement for a *social* values-based approach requires us to challenge those who only focus on the benefits of new technology use based on what the new tech offers as a new value. Guides, research, and design approaches for these more social relevant approaches exist and will be used as examples in the next sections (CHT, 2022; Pijpers & Bomas, 2020).

1.1.2 Social Imaginaries as Value-based Discussions

Social imaginaries serve as an exploratory method to examine relationships between ideals or ideas and practices within a given context. Social imaginaries can help us assess the practices that we go through every day, by considering the [social] values within those practices (Taylor, 2002). In this report, the relationships are based in a context of education, between ICTO coaches and their educational tooling, with regard to educational practices and scholastic ideals. The social imaginary for this report will produce an evidence supported scenario that is generated by the writer in respect of time, budget, and discussion.

The imaginary scenario aims at capturing a realistic situation that ICTO coaches and educational advisors who advice on EdTech implementation often face. These situations and discussions will be used to then generate and form the inquiries necessary for further development of an EdTech-focused and public values centred question-list.



2 A Reasonable Social Imaginary

Envisioning and actualising the ways in which technologies impact educational practices always requires experimenting and re-imagining what we do every day in our educational institutions. The following scenario will be based on current research and use cases done in the Value compass and Weighing Values reports, which guide the conversations and important considerations for the imagined advisors.

ICT & Education coaches, or ICTO for short, try to bridge the gap between technical problems and educational solutions. These coaches are often relied on for understanding both how digital resources can be used in an educational setting, but also how to move forward with blended learning, hybrid learning and implementing experimental technologies safely. Using technologies in the classroom is often met with challenges regarding didactics and responsible approaches. ICTO coaches then must also coach teachers on site who may not know what to do with these technologies. In essence, ICTO coaches often find themselves asking whether or not a technology should be used and how, an important position for the future of and impact on public values in higher educational institutions. The following social imaginary will rely on such a position.

Rowan is headed to work today to meet with their team of ICTO coaches and advisors. It's been a long summer of learning and relaxing in the sun. For Rowan, the summertime means catching up on materials that they are interested in, including new technologies for the classroom. The higher educational institution Rowan works for has decided that public values must be considered in order to account for more responsible use and application of technologies in education. This complex topic has left Rowan puzzled all summer and now there is an innovative technology needing to be deployed this coming school year. Rowan decides to read the educational technology's description online.

'Pandora' is a new tool to refresh your curriculum! Pandora is designed to gamify any learning materials that are imported into it. The technology has two sides, the 'back-end', which teachers use for their interface and the 'front-end' for students to see. The back-end allows for teachers to generate games from a variety of topics including math problems, engineering situations or even story problems. Pandora uses AI methods to read text and generate small games such as: Tic-tac-toe, matching puzzles, new stories, or moving animations that can be interacted with, such as physics puzzles. The Pandora application

generates not just the game, but also a 'leader board', other similar problems, and 'how-to-play' instructions. By gamifying any learning material, Pandora enables more engagement and more fun in learning! It saves time by turning boring reading material into an engaging animation in just a click!

From an educational innovations point of view, the Pandora application seemed like a neat solution for various needs. Indeed, gamification has become one of the leading ways in which educators try to engage students in learning materials. Rowan continued to investigate the company further and found that the tool may also automatically grade learning material in the future as well. Impressive, but Rowan wanted to run this by his colleagues for more input.

2.1 Meeting with the Team

Pandora is inspiring for Rowan's team and they are considering it for application in their institution. They enjoyed the content that the application generated and found the games intuitive for each member of the team. They also looked at use cases for Pandora, found positive research about it and even found a supporter in their teaching community.

Eventually, the questions regarding public values came up. The team specifically wanted to focus on the category 'Humanity' for this tool. The team debates amongst themselves what comprises this category for an educational context and agrees on the following three parts: Meaningful Contact, Social Cohesion, Well-being (Bok et al., 2022).

✓ *Meaningful Contact* was interpreted as an important and meaningful connection between students and teaching staff (Pijpers & Bomas, 2020, pg. 19). The team discussed and found multiple points of consideration between meaningful contact and Pandora:

- The tool encourages more meaningful contact...
  - ... because it helps lecturers and teachers share their curriculum in new ways to students.
  - ... because it could contribute to students' feeling of being included in the classroom in a new, more playful way.
  - ... because it boosts teacher-student interaction in the class by moving away from reading and instead to interactivity.

- The tool does **not** encourage more meaningful contact...
  - ... because the games may distract students from the learning process and become unguided by teaching staff.
  - ... because the games actually separate teacher from students and therefore are unable to guide the learning process or form a more emotional connection with students (Pijpers & Bomas, 2020, pg. 20; Van Est, & Gerritsen, 2017, pg. 58).

  - ... because the teachers are not prepared to have all learning material changed to games. Moreover, it is not clear how these games would influence didactic changes in the classroom, possibly overruling teacher autonomy (Pijpers & Bomas, 2020).

✓ *Social Cohesion* was understood by the team as the social connections and trustworthiness that higher education institutions should promote amongst students and teaching staff (Moiseyenko, 2005). For Pandora, this means that the technology should not only enable more social cohesion, but should also be considered as a possible new way of bringing students and teachers together in a positive manner.

- The tool encourages more social cohesion...
  - ... through creating a more playful environment with learning materials.
  - ... because creativity and development are encouraged as this technology asks students to think differently about the curriculum and unfamiliar problems.
  - ... it may relieve some social friction between students by mediating their interaction through games while still training a new topic.

- The tool does not encourage more social cohesion...
  - ... because teachers may not be interacting with students more and cooperation becomes less prominent with these games.
  - ... increased presence of mobile devices is leading to more disruption of communication between students, and can reduce the feelings of empathy and trust (Przybylski & Weinstein, 2013; Pijpers & Bomas, 2020, pg. 20).
  - ... because AI methods in educational technologies should be assessed and reviewed before being placed in new courses; AI methods are not going to solve social challenges in the classroom (Pijpers & Bomas, 2020; Walker & Baten, 2022).

✓ *Well-being* was also part of the three focused points of humanity in the team's discussion. Well-being as a term was narrowed down by the team to respect the vulnerabilities of students and avoiding causing harm to them. Well-being means seeing the technologies we procure in education as having a consequence for everyone involved. Meaningful contact and social cohesion can both benefit the well-being of students as well, showing the correlation and complexity of public values for education.

- The tool encourages well-being...
  - By enabling students to learn more self-insight and self-sufficiency from being able to view the curriculum in new ways (Pijpers & Bomas, 2020).
  - The games and leader board may contribute to student confidence which can boost well-being (Pijpers & Bomas, 2020).
  - Other students may be able to help with the curriculum and increase cooperation in course-work.

- The tool may impact well-being negatively...
  - If teachers are unable to interpret game outcomes to their learning goals, impacting educational impact.
  - If students feel that they always need to 'win' a game in order to learn or be a part of the classroom experience.
  - If students and teachers feel monitored constantly by the system, privacy may also be threatened (Pijpers & Bomas, 2020).

2.2 A Decision

The team concludes their meeting with mixed favour for the Pandora application. While weighing values has helped the discussion move along, the team feels that their answers are unstructured and need time to settle. Strong points were made after much reflection that adding this tool to the curriculum may not be necessary. It's clear that there is a need for more discussion about how these values are impacted by new technologies in education.

3 Deriving Questions

From the social imaginary in section 2, it is important that we consider the questions that may have been raised when such debates were being had over an EdTech tool like Pandora. In this case, the focus was on components or core values that build on the public value of Humanity. The following is a list of questions that were raised during this exercise.

✓ *Questions for Meaningful Contact*

- Does encouraging meaningful contact in our educational institution currently require a technological device or application?
- Are teachers and students understanding the goal of the curriculum? Is this tool making this goal more clear to both parties?
- Do our students need more time socialising? Is this platform going to encourage better conversation time and/or curriculum discussions?
- Are students being encouraged to play with new concepts, ideas and thought experimentation?
- What interactions between students and teachers have been disincentivised? Is there a need for closer teacher-student interactions that are light-hearted?
- In what ways can the new tool distract from learning?
- What kind of curriculum is this tool not well-suited for?
- Will the tool separate students from their teachers digitally? Can the tool be re-appropriated to bring them closer together?
- Where is teacher autonomy in the classroom affected by this new tool?

✓ *Questions for Social Cohesion*

- Does encouraging social cohesion in our educational institution currently require a technological device or application?
- How is play currently incentivised in our curriculum? How will this EdTech tool increase play in our learning material?
- In what ways do instructors currently personalise or re-introduce curriculum to their students?
- How will gaming be communicated as learning time in the classroom?
- Do instructors understand how to work with both the EdTech tool in a social and technical way?
- How might current educational practices suffer or become worse from the implementation of this tool?
- Is it viable to increase screen-time in the classroom or lecture currently in a way that incentivises socialising? Is this technical solution needed to increase socialising effectively?

- How can our instructors obtain the right competencies to use these edtech tools for social cohesion?

✓ *Questions for Well-being*

- In what ways can this tool enable students to be self-reflective? How can instructors shape this interaction?
- Are all the features within the EdTech tool needed? Can some features be removed for the benefit of our students' well-being?
- In what ways can this tool increase learning material collaborations between students? How will instructors incentivise more collaboration on a gamified platform?
- Do instructors understand how this tool will enhance or create learning goals?
- Does the tool have any pedagogical or didactic research behind its features or methods?
- In what ways is competition between learners impacted by this application? Is the impact beneficial to the learning environment?
- Does this tool clearly communicate to students and teachers what data is monitored and recorded?

4 Concluding Statement

In order to recognise the plurality of beliefs, ideas, and concepts found within discussions about public values in education, this report chose social imaginaries as a method. The social imaginary recognises not only the complexity of numerous perspectives on any one value, but also the need for continuing the conversation as values change over time and with new technologies. Indeed, technologies (re)shape our values in ways we can't quite grasp, but nevertheless should be recognised and explored. In education, the value of humanity brings with it notions of well-being, social cohesion, meaningful contact and others including those not discussed here.

From the social imaginary about Rowan, the ICTO coaches gave particular accounts of the ways in which the team felt about the new Pandora tool. The outcome is not only a complicated discussion about values, but also one of collecting each other's beliefs. Beliefs that may well shape the future of education in their institution and the lives of those who have to educate with them. Respecting this role in the educational institution, the ICTO coaches try their best to navigate the complexity of humanity as an overarching value. With the questions generated, the next step would be to actualise them. These questions could be used in various contexts, but this report's intention is to see them used in the Technological Impact Cycle Tool or TICT (see TICT for more). By being guided through these questions in the TICT, ICTO coaches and those with similar responsibilities could answer each to their best ability. Ultimately, the hope is that these questions generate the conversations that lead to a more clear and better understanding of not only the teams' views on public values, but eventually the educational institution at large. Future research could continue to develop the other remaining public values such as Autonomy and Justice; hopefully allowing for a more complete collection of questions that could be used for any EdTech tool. As technologies continue to shape education, the risks, and opportunities associated with them should serve as new ways of thinking about learning as well as reflections on how we want to shape the citizens of our future societies.

References

Bok, C., Huis in 't Veld, I., & Pijpers, R. (2022). *Value Compass*. surf.nl/en/about-surf/value-compass-supports-discussion-on-public-values-in-digital-transformation

Center for Humane Technologies. (n.d.). *Additional Resources*. For Technologists. Retrieved August 29, 2022, from humanetech.com/technologists#resources

Est, R. van, E. de Bakker, J. van den Broek, J. Deuten, P. Diederen, I. van Keulen, I. Korthagen & H. Voncken (2018). VALUABLE DIGITALISATION – How local government can play the 'technology game' in the public's interest. The Hague: Rathenau Instituut

Harvard STS Program » Research » Platforms » Sociotechnical Imaginaries » Sociotechnical Imaginaries » Frequently Asked Questions about Sociotechnical Imaginaries. (n.d.). Retrieved August 26, 2022, from sts.hks.harvard.edu/research/platforms/imaginaries/imaginaries-faqs/

Moiseyenko, O. (2005). Education and Social Cohesion: Higher Education. *Peabody Journal of Education*, *80*(4), 89–104. doi.org/10.1207/S15327930pje8004_7

Pijpers, R., & Bomas, E. (2020). *Weighing Values*. Kennisnet. kennisnet.nl/app/uploads/kennisnet/onderwijsvernieuwing/document-en/Kennisnet-Waardenwegen-ENG.pdf#page=1&zoom=auto,-17,604

Przybylski, A. K., & Weinstein, N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships*, *30*(3), 237–246. doi.org/10.1177/0265407512453827

Taylor, C. (2002). Modern Social Imaginaries. *Public Culture*, *14*(1), 91–124.

Walker, J., & Baten, D. (2022). *Promises of AI in Education*. Zenodo. doi.org/10.5281/ZENODO.6874315

Special thanks to those who helped inspire the creation of these questions and give feedback on this report, including:

- Jo-An Kamp
- Rens Van De Vorst
- Pytrik Dijkstra
- Jelle Kok
- Leontien van Rossum
- Wladimir Mufty and the Public Values team at SURF

The Acceleration Plan for Educational Innovation with IT is a four-year programme of SURF, the Netherlands Association of Universities of Applied Sciences and the Association of Universities in The Netherlands. The aim of the programme is to bring together initiatives, knowledge, and experiences and to quickly and concretely get started with opportunities for higher education. This is done in eight different "zones". In the acceleration zone EdTech, six institutions are working in two tracks to facilitate EdTech in higher education in the Netherlands.

For more information and our publications, visit
www.versnellingsplan.nl