Kennisnet

Weighing values

An ethical perspective on digitalisation in education

Let ICT work **for education**

Inhoudsopgave

Introduction

In many ways, digital technology makes education more appealing, easier and more efficient. Every day, teachers rely on the options provided by ICT. With tablets and Smart Whiteboards, visual and interactive education has become a natural, everyday thing. Adaptive digital learning materials enrich the learning process and eliminate the need for routinely checking assignments. Versatile educational apps motivate students and adapt to the level, pace and individual needs of the user.

But technology also has side effects, and we feel these more and more. Using technological options assumes that schools have full control over technology. But education technology is also shaping education.

Education technology impacts the relationship between teacher and student. The ability to track students through a dashboard very strongly affects interaction. What will it mean when the student competes with the computer for the teacher's attention?

Education technology also shapes the teacher as a professional: they increasingly take on the role of a process supervisor who collects and interprets data. What does that do to their professional autonomy? Is the teacher there to serve the system, or vice versa?

Major tech companies offer their digital education services for free. That also gives them access to student data. What are their interests in that? And what does that do to free time and space within education?

With technology, schools can record more and more student data: achievements, behavioural data and in the future possibly also neurological and biometric data. That offers options for better shaping the learning process. What is the downside? Students are no longer free to develop without constant surveillance, and can feel stressed by being monitored all the time.

Those are just a few technological developments that shape education (often without us realising) and which affect the values that are important to education. Values like freedom, justice, privacy and autonomy.

This publication makes a stand for a more explicit perspective on values. Digitalisation should be shaped less based on ICT, and based more on values. We can do so with ethics. For administrators, directors, ICT coordinators and teachers, ethics should be an essential part of professional reasoning concerning ICT.

For whom?

A course can only be charted if decisions are made by the people working in education. The difficult part is that ethical decisions often cannot be summed up in a simple yes or no: they usually require a compromise.

With this publication, we are showing administrators, directors, ICT coordinators and teachers in primary education, secondary education and vocational education how ethics can help shape digitalisation based on values. An important aspect is the '*Ethics Compass*' in Chapter 3: a step-by-step plan – also available as an online tool – for having an ethical conversation about digitalisation in education. We will start this publication with a practical example.

Case 1: Can smartwatches help teachers in special education?

Would it be right to have students with a behavioural disorder and/or psychological problems wear a smartwatch to monitor their physical condition (e.g. heart rate and blood pressure)? A group of ICT coordinators in special education asked themselves that question.

Buitengewoon Education Group is the overarching organisation for seven schools for (secondary) special education and practical education in Limburg. The schools teach students with multiple or physical disabilities and students with behavioural and learning difficulties. Particularly the group of students with behavioural problems still struggles with tantrums, arguments or stress.

During previous meetings, the ICT coordinators had already briefly discussed the idea: smartwatches for students with behavioural difficulties and/or psychological problems. The coordinators expected that monitoring the students' physical condition could benefit their well-being. The technology could send signals to the teacher in time, so as to prevent escalations, e.g. in the event of tantrums. The technology could also contribute to giving the students more autonomy, because with the smartwatches they would sooner realise when a situation might escalate.

At the same time, the ICT coordinators felt that the use of smartwatches in education would threaten important values, such as privacy. The group followed the steps in the Kennisnet '*Ethics Compass*' to get a better perspective on the issue.

Step 1: Determine the most important values

The group formulated the following important shared values:

- respect
- together
- self-sufficiency
- individuality
- transparency
- honesty

The group saw the values of respect and self-sufficiency as being very important to education.

Step 2: Formulate the ethical question

The group formulated this ethical question:

- **Would it be right to make automated use of students' biomedical data in education by means of wearables like smartwatches?**

Step 3: Collect the initial reactions

The group had the following reactions:

"Don't we constantly behave like smartwatches already? We also monitor the students' behaviour all day long."

"Technology might be more objective than teachers. As a teacher, you always bring your own self into education. And you're not always at your best; we have bad days or bad moments. In those cases, it can be good to have a resource like the smartwatch to use as an extra monitoring tool."

"Students can also check their smartwatches to see how it's going and therefore have more opportunities to reflect on their own behaviour and intervene."

"For our students, it's important to avoid escalations. They cost a lot of time and energy. Of the group as a whole, but also of the student themselves."

"Tracking biomedical data puts the privacy of students at stake. We simply cannot do that."

Step 4: Formulate pros and cons

The group offered the following pros:

It would be right ...
...because teachers can intervene sooner if there is a chance of escalation (e.g. a tantrum). This benefits the student's **well-being**.

...because the student can learn more **self-insight** and thus **self-sufficiency** from being able to view the information themselves.

...because the technology may be more objective than the teacher in monitoring a student's condition, which can contribute to the student's **well-being** and to an objective approach.

And the following cons:

It would not be right...
...because the **interpersonal contact** is limited as the teacher no longer monitors the student's condition themselves.

...because the teacher's **professional autonomy** is at stake when the smartwatch (and not the teacher) monitors the student's condition. Who has the last word?

...because teachers may not be able to properly interpret the information, and that can inhibit **good education**, or the student's **well-being**.

...because the student's **privacy** is threatened if they are constantly monitored and sensitive information about the student is collected.

...because when students are constantly monitored, it takes away their sense of **calm** and possibly also of **individuality**.

...because that way, the student does not learn to monitor their own boundaries and that can also inhibit their **well-being**.

The values independence and individuality, which the group listed in the first step, were covered on both sides. Many new values also came up that may be promoted or threatened by the use of smartwatches.

Step 5: Weigh the pros and cons

The fact that there are many cons does not mean that the answer to the question is necessarily negative. On balance, the pros could be stronger. Furthermore, the objections may be removed by taking certain measures.

The group indicated that promoting the well-being, self-insight and self-sufficiency of students weighs very strongly in education. At the same time, the group also said that these arguments do not measure up against the threat to values like: the professional autonomy of teachers, interpersonal contact, privacy and good education.
The group would only conceive of the smartwatch being used in education if extra measures compensate for the threat to these values. Extra measures could include establishing agreements about the use of data and data security and about the times at which to use the smartwatches.

Step 6: Formulate the answer

The group opted for the following answer:

- An answer cannot (yet) be formulated.

The group wanted to first do further research on the following questions:

- What is allowed by law? What data may be monitored? What about medical data?
- What data do the wearables generate? What is the value of that data? How should that data be interpreted?
- Who will be managing that data? Where will it be stored? How can we make sure that data is properly protected?

The group cannot continue exploring the ethical question until these questions have been properly answered.

Step 7: Evaluate

The overview of pros and cons offers a clear image of the values that may be promoted or threatened by the use of smartwatches. The group found it useful to look at this issue from different perspectives and based on values and to explicitly establish the values that usually remain implicit.

In this case, the ethical conversation mainly made clear the fact that it is important to pause and first answer certain questions properly, precisely because values may be at stake. In this case, it is also important to carefully consider the legislation, such as the GDPR and Article 11 of the Dutch Constitution that states that every individual has the right to inviolability of their person. The process can be repeated in the future once an answer to the aforementioned questions has been found.

1 Digitalisation is not possible without ethics

In this chapter, we will show why digitalisation is not possible without ethics. To that end, we will first define the terms values, digitalisation and ethics.

Definitions

Values
Each educational institute has its own identity and accompanying values.

Values are **general, abstract ideas or ideals toward which we strive and which shape our actions.**

Values can be categorised on different levels, from universal to personal. Universal values are closely linked to human rights and constitutional rights. As a society, we also share a set of public values. Public values are values which we as a society find so important that we structure them at a societal level (Van Dijck, Poell, & De Waal, 2016). Think of the accessibility, quality and efficiency of healthcare and education. In education, there are often shared ideological and pedagogical values. Values like humanity and independence. The personal values of administrators, school leaders, teachers and parents also play a role in how education is structured.

Digitalisation
By digitalisation, we mean **the increasing development and application of, and interaction with, digital technology.**

In the context of education, for example, it concerns the digitalisation of learning resources, the use of cloud technology and the use of social media.

Ethics
With ethics, we can guide the development and the use of digital technology as well as possible. Ethics is often defined as a structured reflection of good behaviour.

In the context of education, ethics can be seen as **the reflection on the (possible) impact of certain decisions or actions on values.**

It is always the question whether those decisions or actions threaten or promote the values of education and of the school.

The Rathenau Instituut posits that digitalisation in society threatens important values like equal treatment, autonomy, privacy and human dignity (Kool, 2017). Digitalisation calls for an ethical perspective. Not only because the use of technology has an impact on values, but also because technology has its own inherent values. This is often implicit and therefore, it is not always clear beforehand what the impact of those values will be.

Technology has inherent values

Technology is often said to be neutral, and it is often said that the question of whether it is a good idea to use technology only depends on how people use it. For example, you could use a hammer to put a nail in a wall, but you could also use it to a more violent end. There are always motives underlying the development of technology; something is strived for, e.g. safety, convenience or efficiency. Think of speed bumps that force drivers to slow down, or social media that seduce users to scroll endlessly on a timeline to read posts. Technology is designed with an intended use, and with that technology influences our behaviour. We shape technology and

technology shapes us; it is good for us to be aware that technology carries values and is therefore not neutral.

Furthermore, the functioning of digital technology is hidden in codes and algorithms. In a magazine, you can look at a table of contents to find an article that interests you. When scrolling through a digital timeline, all kinds of new posts appear without us knowing why or what the intentions are behind them. With the speed and scope of the distribution of digital technology, the impact has become even farther reaching. Fake news that spreads like wildfire on social media can set population groups against each other (Pomerantsev, 2019; Marantz, 2019). The algorithm that gives priority to posts that get the most clicks plays an important role in that, while it is not clear to users how that works.

Technology is not inevitable

A common saying in Silicon Valley is: 'If it can be done, it will happen.' That saying comes from the idea that certain technologies becoming available or the use of those technologies is inevitable.

But the development of technology is not a blind force of nature.

First, technology is a human product, and the personal values of the developers play a role. That is why among major tech companies like Microsoft, Facebook and Google, their own employees are increasingly calling for ethical frameworks within which to develop new technology. Second, whether technology is used is also always a choice made by society. In the Netherlands, for example, we do not permit human cloning, we do not fly drones in the inner cities and we do not film children 24 hours a day, even though we could. We do indeed have a say in the use of technology.

Tech optimism and alarmist thinking

In discussions about technology, there is the risk of ending up in a too optimistic or too pessimistic perspective that clouds our judgement: tech optimism vs. alarmist thinking. The most outspoken tech optimists believe technology will inevitably solve all problems. They dismiss possible objections to technological innovation based on the belief that technology will find a solution to those problems, too. On the other side of the spectrum, the alarmists distance themselves from technology in advance, as it is believed to rob us of our humanity, or even lead to our demise. Both sides arm themselves with an unrealistic panoramic view, which overlooks the decisions required to structure technological development based on values. The challenge is to be aware of these extreme stances and not get carried away with them. It also doesn't help the discussion move forward to label others as 'tech optimists' or 'alarmists' and no longer listen to what they have to say. The point is to find the right nuance in the conversation together.

Structuring with ethics

If you see digitalisation as neutral, as an inevitable development, or as something that is good or bad per definition, you will forget that you can structure it yourself. While there are various ways to structure digitalisation:

- Opting to use or not use certain technology.
- Being involved in the development of new technology.

- Setting preconditions and making decisions concerning the use of new technology that make that use more ethical.
- Being involved in societal discussions about the role and impact of technology.

Ethics – thinking about right conduct and reflecting on values – is essential to this structuring process.

Philosopher of technology Peter-Paul Verbeek believes it is important to not place ethics in opposition to the development of new technology, but precisely to apply ethics to develop technology in the best way possible and to embed it in society (Verbeek, 2014).

Ethics and legislation

Why do we need ethics? Isn't it enough to meet legal requirements if you want to do the right thing?

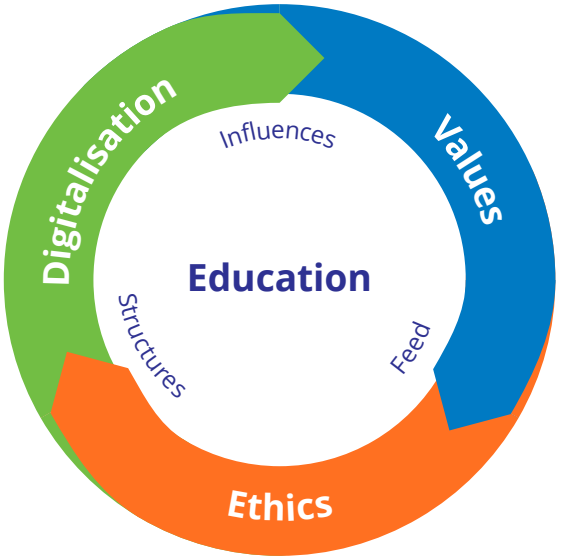
It's more complicated than that. On the one hand, there are ethical standards anchored in the law. Certain universal values like equality and respect for the dignity of an individual are established by law as fundamental rights. Consider Article 1 of the Dutch Constitution: 'All persons in the Netherlands shall be treated equally in equal circumstances.' On the other hand, not everything established by law is automatically ethical. Advanced insights can lead to changes in legislation, such as the abolition of slavery laws in the 19th century.

Legislation often entails a moral minimum ('we should do this at the least'). But organisations and individuals are free to uphold higher standards themselves, or to go beyond the minimum. Many things we see as good and valuable in our society are not specified in the law. They require unique individual decisions. Giving up your seat to an elderly man or woman on the tram is not a legal obligation, but many people believe it's the right thing to do.

The assumption 'if it's allowed, it's okay' might be legal, but not necessarily ethical.

When wondering whether a certain action is right, it is of course wise to first check to see if that action is legal.

Model for structuring valuable digitalisation



With the 'Model for structuring valuable digitalisation', we demonstrate that education can guide or structure the use of digital technology based on values. The process of valuable digitalisation is not a one-time operation; it is cyclical. In practice, it is often prompted by digital developments. The use of new technology impacts values, and that raises the question: which values are promoted and/or threatened? The ethical reflection on that question then helps structure digitalisation. That leads to another use of that digitalisation, which in turn calls for a reflection on the impact it has on values. Thus, the cycle starts again.

According to the Dutch Education Council, digitalisation in education must be implemented in a well-considered manner (Education Council, 2017). Explicitly stating values enables you to guide digitalisation in the right direction with ethics. Your values then form the starting point of the cycle. Take the case of Buitengewoon Education Group on *page 5*, which dealt with the question of whether using smartwatches for its students would be a good decision. With the smartwatches, teachers would be able to more promptly intervene in incidents, for example, which are made visible by monitoring the students' heartbeat and movements. And students would be able to monitor themselves and if possible, be better able to control themselves. But what about privacy? Does this sufficiently respect the students' freedom, safety and autonomy? Is data reliable and easy to interpret? By viewing this ethical issue from a perspective of values, the group was better able to decide the next step. In this case, it opted not to use the technology yet, without further research. This case and other cases in this publication are concrete examples of how school boards or schools have structured digitalisation based on values.

Case 2: Personalised learning with technology

Would it be right for Quadraam to use technology for personalised learning?

The Quadraam Education Group in Gelderland provides education at 14 secondary schools in the Arnhem, De Liemers and Overbetuwe region. In total, around 13,000 students go to Quadraam schools. 1,600 people work for the school board.

The organisation is developing a new strategy. That strategy is focused on structuring education to realize values. Based on an internal study conducted among about 150 employees, it was determined what the most important values for Quadraam currently are. These values are to be made explicit at schools, by means including a continued dialogue.

The dialogue about values also takes into account digitalisation. Patrick Eckringa, director of Quadraam, wonders how digitalisation can contribute to the values of the schools. How can its own values be promoted, against the backdrop of developments like data-driven structuring and making personalised learning available?

The group followed the steps in the Kennisnet '*Ethics Compass*' to get a better perspective on the issue. In addition to the two members of the Executive Board and a strategic adviser, five Quadraam school directors attended the session. In practice, they deal with ethical questions concerning the use of ICT.

Step 1: Determine the most important values

The group formulated the following important shared values:

- Professionalism/responsibility
- Independence/autonomy
- (Working) together
- Trust
- Respect/appreciation (seeing the other person's individuality)
- Space/vitality

In particular, the school directors highly value responsibility and autonomy. In any case, innovating education by means of ICT would have to strengthen and not threaten these values.

Step 2: Formulate the ethical question

The group formulated this ethical question:

- **Would it be right to use technology for personalised learning?**

Personalised learning is seen as an important educational development that the organisation wants to embrace. ICT presents many opportunities to facilitate this. At the same time, the use of this ICT raises ethical questions, as it can affect the autonomy and equality of students and teachers.

Step 3: Collect the initial reactions

The initial emotional responses prompted by this question were both positive and negative. Some of those present pointed to the advantages offered by personalised learning with ICT: meeting the needs of the individual student better, offering more variety and differentiation. There were also concerns: how does learning with technology affect the equality of the students? And how would it affect the position and professional judgement of the teacher?

Step 4: Formulate pros and cons

The group offered the following pros:

It would be right...
...because it benefits the **equality** of students as teacher prejudice is no longer an issue.

...because the right to **equality** is promoted by using more objective information from the system.

...because **passion, creativity** and **development** are encouraged as technology can recognise and unlock a larger range of the student's strengths and possibilities.

...because it can strengthen the student's **autonomy** by offering them more insight into their own development.

...because it can increase the student's **control** over which information about them is shared.

...because it can ensure a better consideration of the student's **personality traits**.

And the following cons:

It would not be right...
...because it diminishes the **personal aspec**t, as it deals with averages as opposed to people.

...because **curiosity about a student** is threatened because data goes against the unconditional aspect of e.g. the teacher's trust.

...because **cooperation** becomes less crucial with personalisation.

...because the right to **equality** is threatened by the lack of professional judgement.

...because the student's **autonomy** is threatened with excessive control mechanisms.

Step 5: Weigh the pros and cons

The group found that the pros and the cons should both weigh heavily. The group believed that Quadraam should only use technology to enable personalised learning if ways were found to respect the values presented by the cons. That would be possible, if a number of conditions were met.

Step 6: Formulate the answer

The group reached the following answer:

Yes, provided...
...it enhances the student's influence over their own learning process (and thus enhances their autonomy).

...measures are taken to protect the human relationship between student and teacher.

...students are able to opt out, which means choosing not to use personalised course materials. This prompted discussion as to whether this would be possible in practice.

...the teacher maintains control over how and when the personalised course materials are used.

Step 7: Evaluate

The group found it useful to approach this issue from different perspectives and based on values. Guiding the structure of the education based on values was also seen as a useful approach.

In this specific case, it was not an ethical examination of the concrete use of a technology or concrete policy proposals, but a general consideration of the ethical consequences of personalised learning with technology. In a following stage, such a concrete use could for example be ethically examined once again with this step-by-step plan. The considerations under 'Yes, provided...' could also serve as starting points for or requirements of new uses. That can prevent the potential threat to certain educational values.

2 The most important ethical issues for education

Ethics in education is nothing new. The purpose of education is the development of (young) people and inherently entails the question of what is proper conduct and which values accompany that. Education is therefore also called moral practice. In this chapter, we show which developments require renewed attention for values that are important to education.

It involves the following developments:

- The shifting balance between human and machine
- Equal and unequal: digital opportunities
- Big tech, big data and free education

Digitalisation also affects the curriculum, the content of lessons, didactics and the values embedded in each of these components. The curriculum is determined at a national level. Teachers themselves are often in charge of lesson content and didactics. In this chapter, we focus on the impact of decisions concerning certain digital tools; decisions that are usually made at a school and school board level.

We conclude each section with discussion questions for school boards and school teams. The chapter ends with an overview of the values we cannot lose sight of in the digitalisation of education.

2a The shifting balance between human and machine

With the exponential growth of their calculation power, computers have approximated or even surpassed human-level performance. They can *diagnose diseases*, beat world champions of *chess* and *Go*, play *music* and write *poetry*. More and more often, machines can contribute to or even take over work that used to be done entirely by humans. At the same time, that raises the question: are we missing out on something by putting the machines to work instead of people? Should everyone in the digital age have the right to meaningful contact? The Rathenau Instituut posits that the digital era calls for *the right to meaningful contact*. Robots should improve and not replace human contact (Van Est, 2017).

In healthcare, there are discussions about *social robots that keep lonely elderly people company*: are they an asset to healthcare, or a depletion? A similar discussion has been ongoing in education since the introduction of the webcam teacher: are teachers who

teach via a screen a welcome solution to the teacher shortage? Or does this development constitute an erosion of education? It is probably more nuanced than that, and calls for answers to questions like: what will happen to the contact between teachers and students when digital learning systems take over parts of teachers' jobs? And what does that mean for the professional autonomy of the teacher?

Machines are not people

We tend to ascribe human characteristics to machines and refer to smart, intelligent or even predictive technology. The fact that technology can expertly imitate expressions of human quality does not mean that technology also contains the abilities that underly those expressions. The approximation of human properties like consciousness, empathy, creativity, morals, humour, self-reflection, conscience, love, compassion and intuition by machines is very far off, if not impossible. The fact that machines resemble people more and more in their expressions does not mean that they are human.

"The attention of both the teacher and the student is drawn to the Smart Whiteboard on the wall. Therefore, I consciously ritualise seeing each other first. When we come in, we make contact, by shaking hands for example. Making contact doesn't have to be physical; a look of understanding also works. When we leave the classroom, we shake hands again or look each other in the eyes. I believe students need that, especially with all those screens. Direct human contact is timeless, but now it has a new relevance. We should re-examine that."

SIMON VERWER, TEACHER AT HYPERION LYCEUM IN AMSTERDAM

Meaningful contact

Meaningful contact is essential for good education. Pedagogue Gert Biesta describes how in education, the question comes up again and again of whether the interplay between the teacher and the student is successful (Biesta, 2015). Education is something that takes form in the moment and in a specific context between teacher and student. A safe atmosphere has to be created in the classroom. And students have to be given space or responsibility at the right time, so that they can independently make progress in their development.

Pedagogue Max van Manen states that it is about responding to the unpredictability of the situation (Van Manen, 2014). Pedagogy mentions pedagogical tact: doing the right thing at the right time, also in the eyes of the student.

In other words: the essence of education cannot be defined in recipes or prescribed instructions and technological systems cannot simply replace the teacher.

Research shows that education in a one-on-one relationship, between a student and

a tutor, yields the best results (Bloom, 1984; Kirschner, Claessens, & Raaijmakers, 2019). This cannot be realised in current education practice. But even in a class with 30 students, the human interventions – like trusting students or offering good feedback – make the biggest difference in terms of learning outcomes (Hattie, 2014; Rosenthal, 1968).

Nevertheless, the development of technology in education was initially, especially in the US, driven for a long time by the idea that digital tutors could replace people. Research shows that technology will not meet this expectation (Baker, 2016). Technology mainly works well as an addition to the teacher. For example, technology can take over teachers' routine work, like checking assignments or registering attendance, and thus make more time for meaningful contact.

Digitalisation can impact the professional autonomy of teachers, both positively and negatively.

Smartphones and concentration

In her book *Reclaiming Conversation*, Sherry Turkle, Professor of Social Studies of Science and Technology at MIT, describes a work group in which students shared their personal stories (Turkle, 2016). During the work groups, the students were unable to leave their phones untouched: they cannot be present without also being present in the digital world. In these particular classes, where intimate stories were told, the students felt that that was wrong. Their divided attention did not align with the topics discussed in the classroom. Turkle and the group agreed to put their phones and tablets away and to only check for notifications at certain fixed times. The conversations immediately became more coherent, and the students more involved.

The professional autonomy of the teacher

A teacher has quite a large amount of freedom in pedagogical and didactic action, in their selection of learning materials and in determining how and when to test students. This is also referred to as professional autonomy. How to act in specific situations is only prescribed to a minor extent, much less so than in some other professions. Teachers determine what the right thing to do is in specific situations from a position of freedom.

The professional autonomy of the teacher increases if they experience more freedom of action thanks to the aid of digital tools. Freedom to do their job following their own insight. Or freedom to conscientiously deal with different students. That is the case, for example, when some of the students do digital exercises, while the teacher has a group conversation with other students or discusses a complex assignment, so that both groups receive attention and spend their time usefully.

However, new technologies can also limit the professional autonomy of the teacher. That is the case when they leave the decisions about (parts of) the student learning process to technology, and when despite that they do not experience extra freedom in doing their job. For example because they have to constantly monitor and interpret all the collected data; the technology then takes up too much of the teacher's time and attention.

Whether the teacher's professional autonomy is limited also has to do with their understanding of the technology, how that technology impacts their profession and the extent to which they can continue to make decisions. If a teacher uses an adaptive learning system for example, with elements of artificial intelligence (AI), the following questions are important: based on what data and considerations does the system make decisions about a student's learning process? Can the algorithm used be explained? Only if the teacher understands what decisions the AI takes over, for what reason and how they can influence that, will they retain the professional freedom to do their job.

Artificial intelligence (AI)

We refer to artificial intelligence (AI) when a computer system solves problems for which people would use their intelligence (Kennisnet, 2019). Algorithms are developed to enable computers to do so. An algorithm is a set of rules that determines what a computer system has to do based on the obtained input. In a traditional algorithm, the rules are set by the programmer. A machine learning algorithm sets its own rules by means of repetition and training.

The shifting balance between human and machine

These education values call for extra attention:

- Meaningful contact
- The professional autonomy of the teacher

Discussion questions

- What example are we setting in dealing with one another online and offline and in monitoring the balance between both worlds?
- To what extent should technology be allowed to take over the teacher's work? And on what grounds?
- What existing rituals in human contact require renewed attention as a result of digitalisation? Think of greeting students at the start of the school day, for example.
- How can we prompt students to pay attention to each other? How can we teach them to handle digital distractions? And how can we set the right example?
- How can we maintain the professional autonomy of the teacher in the context of digitalisation?
- How can we make sure the teacher understands the systems they use as well as possible and that they can use them autonomously? Do we focus on schooling or assistance? What can you reasonably expect of the teacher?

2b Equal and unequal: digital opportunities

Technology offers students the option to learn at their own level and at their own pace. They do not get delayed because the teacher hasn't finished checking their assignments, or because they have to follow prescribed learning paths with study material they have already mastered. The material is repeated at the right time to optimally align with the learning curve (Van Rijn & Nijboer, 2012). But do all students have access to these options? And will this development lead to more equality? How does learning with technology relate to the socialising task of education? Will no one miss out?

Equal opportunity

Digital technology contributes to equality in various ways. With digital communication, it has become easier for everyone to join in the discussion and participate. Thanks to technology, lines of communication have become shorter: among students, between students and teachers and between schools and parents. ICT also removes roadblocks for students with disabilities.

And yet, since the rise of computers, there have been concerns about a digital wedge: between those that reap the benefits of digital technology and those who do not. The first digital wedge concerns the extent to which people have access to computers and the internet. Now, most students in the Netherlands do have access to the internet and digital resources. And yet, schools differ in the extent of the accessibility of digital materials. That can affect equal opportunity among students. Schools in wealthier areas where parents earn a higher income more often have digital materials that can enrich the educational process. This can set students back at schools in other areas.

"When you go to McDonald's, you order your food on a screen. In a high-end restaurant, you pay more for human service. That could be a recipe for disaster in education: less fortunate students learning with ICT, with students with parents who pay more receiving education from real teachers."

PEDRO DE BRUYCKERE, RESEARCHER AT LEIDEN UNIVERSITY

The second digital wedge concerns the use of devices and the internet in students' free time: what do students do on the internet, exactly? Differences quickly arise between students whose parents purchase devices with educational apps and who familiarise their children with the internet, and students who do not have those options or who mainly want to entertain themselves online. Is everyone able to reap the benefits of the digital community to the same extent (Netherlands Institute for Social Research, 2016)?

Pedagogue and researcher Pedro de Bruyckere speaks of *a possible future third digital wedge*, where not only having to learn from a computer is a sign of privilege. Will human contact become a luxury in the future? Particularly when considering the growing teacher shortage, it is important to ask this question.

Moreover, digital learning systems, like adaptive practice software, can impact equality of opportunity. Research done on adaptive practice software shows that the software has a slightly positive effect on learning outcomes for all students. Adaptive software can thus provide opportunities for all students. At the same time, initial research showed that students with a high performance level made the most learning progress (Faber & Visscher, 2016; Molenaar, Van Campen, & Van Gorp 2016). That means that this software increases the wedge between lower and higher-performing students. Whether you find this problematic as a school or institute depends on how you structure and consider values such as equal opportunity, honesty and solidarity. Are you striving for an equal outcome, or for equal opportunity (see section below)? That is a complex question, because equality in education is not feasible in any case, and schools strive to bring each student as far as they can in their development. It is furthermore a societal question: is it a problem for us if school achievements diverge more and more and certain groups benefit more from new technology than others?

Another important question is what the effects are of the use of adaptive software for specific groups of students. Does it work as well for students that suffer from dyslexia or ADHD? It is important for the effects of adaptive materials in different contexts to be properly researched.

Equal opportunity and solidarity

Underlying the emphasis on equal opportunity is an ideal of equality: in principle, if society offers equal opportunity to people with equal talents, everyone who is capable of doing so can get equally far. It is also referred to as the ideal of the meritocracy: whether you achieve something depends on your performance - your merits.

But the existence of equal opportunity does not automatically lead to society becoming more equal; because not everyone is able to make use of opportunities to the same extent. An important part of whether they manage to do so or not has to do with someone's talents and background. In an increasingly complex society in which achievements become more important, the group with less talent and intellectual abilities lags behind (Swierstra & Tonkens, 2011; Vuyk, 2017; Vuyk, 2019). In the context of digitalisation, this is relevant: not only does equality exist by the grace of equal opportunity; it also requires attention to solidarity. The question of whether each student can keep up in the digital world is important at each level of schooling. In the proposed new curriculum, this may be intercepted with digital literacy as a new, fixed component, but schools can start working on this now too.

Inclusivity and learning together

Adaptive learning materials allow students to learn at their own level. That can mean working more individually. In the most extreme scenario, students who do personalised learning mainly focus on their own achievements. With that, the technology behind personalised learning contains inherent values: individual achievements and individual ambition come first.

That does not have to be a bad thing, provided there is still room left for the social aspect of education. Because education is more than just learning and performance: the school or institute is also a community with a socialising function, which promotes inclusivity. By inclusivity, we mean the extent to which everyone can participate in education and in which students pay attention to each other and each other's progress.

Technology can promote inclusivity in education. Technologies that work with peer feedback allow students to provide digital feedback to assignments done by other students. The teacher can oversee the whole and intervene where necessary. That way, everyone has a role in the process.

Some school systems purposefully have students work on projects, or in groups with different ages. Students learn to work as a group as they are confronted with each other's development stages, abilities, personalities and traits. There are many ICT applications that can facilitate project-based working in education.

How technology can promote inclusivity

Being able to explain how something works to others has a motivating effect. Students that are not as good at a certain subject or area often do not have this option: they are the ones who always receive explanations. Therefore, a ***French research team*** had students that had trouble with writing explain things to a robot. The robot repeated their mistakes and showed them back to them. Now the students were able to correct the robot, which improved their skills, their motivation and their confidence.

Another example: the ***VraagApp*** ('QuestionApp') is a free app, specially designed for people with a mild intellectual disability. Around 1,000 volunteers work at a helpdesk, which people with an intellectual disability can call right away if there is an emergency. Are you lost? Are you having trouble with your computer? Ask your question in the 'QuestionApp' and a specialised volunteer will offer a helping hand - via text or over the phone. This kind of technology makes it easier for students with a mild intellectual disability to participate in education and society.

Equal and unequal: digital opportunities

These education values call for extra attention:

- Equal opportunity
- Inclusivity

Discussion questions

- How can we ensure that digital learning systems combat inequality and honour the differences between students at the same time?
- How can we ensure that our students are better able to make use of opportunities in the digital world? Which opportunities do we believe have priority?
- What do we believe is the right balance between allowing students to learn at their own level and learning in a group?
- Can we use technology in such a way that this inclusivity is not limited, but enhanced? Which digital applications at our own schools have reduced inequality? What good examples at other schools in the country can we turn to for inspiration?
- Do we see it as our task to teach the more addiction-prone students to deal with digital temptations and distractions? Do we want to teach students to concentrate better?

2c Big tech, big data and free education

Amazon, Google (under the parent company Alphabet), Facebook, Apple and Microsoft are called the big five of the current tech companies. These major tech companies offer valuable products for education, often at minimal prices. With their cloud and data-driven technology, they make the work of teachers easier and unburden schools in the area of maintenance, integration and ease of use.

The use of cloud technology generates a lot of data over the learning process to education and other parties. Suppliers and schools are therefore looking at the options of big data analyses. They record more and more digitally and are looking into how to use data-based structuring. Data-driven education offers opportunities to e.g. help students in vocational education get their diploma and prevent drop-outs.

But does more data always lead to more insight? Are students still approached with an open perspective? What does digitalised

" In education, how we view the pros and cons of data-driven education might be too instrumental, too technical and too legal. Humanity should come first. We should talk to students. What is their perspective? What do they experience as the right thing? And what is absolutely not the right thing?"

WIM VAN DE POL, DIRECTOR OF ROC NOORDER-POORT IN GRONINGEN

24/7 education do to students' free development? Do they still have room to practise and make mistakes without being watched? And can the interests of the big tech companies be reconciled with the interests of the student?

Education as free space

Our word for school is derived from the Greek word *scholè*, which originally meant: leisure time, or free time. Many pedagogues and other thinkers posit that the function of school should be independent of state, economy, church and other societal domains. The values and objectives of education themselves should be the main focus. For example, in the 20th century, philosopher Hannah Arendt described education as an intermediate space in which students can learn and practise without direct influence, to independently act and make decisions (Arendt, 1958). At the same time, that concept of school as a free, independent space has been under pressure since the dawn of schools. With digital resources, new parties have entered the school that affect that space.

Google, Microsoft and Apple have operated in the education market for around ten years, with hardware (like Chromebooks, Surface tablets and laptops by Microsoft and iPads) and software. Facebook and Amazon have also discovered the education market. Google and Microsoft offer a basic version of their software to schools for free. Combined with the inexpensive and easy-to-use Chromebooks, this has made Google very successful. This way, students whose parents have less dispensable income can still use a cheap laptop at school.

The online services of tech companies are aligning more and more with schools' digital learning environments. They have developed a large and thriving ecosystem, which smaller providers and developers of content and educational apps can easily use. The platforms within this ecosystem – the so-called app stores – offer parents, teachers and students fast and easy access to educational software (which is often free). This has led to a rich and diverse range of educational materials.

However, that ecosystem increasingly revolves around collecting (user) data that can be used for commercial purposes.

The free space in education has become more and more intertwined with an economic space.

As citizens and consumers, we are more conscious of the fact that the revenue model of the big (US) tech companies impacts our privacy and autonomy: we have little to no insight in the data that these companies collect from us, or for which purposes that data is used (Van Dijck, Poell, & De Waal, 2016). However, as an individual user, it is near impossible to avoid the services of these companies. We have lost our digital sovereignty, says Marleen Stikker, founder of the Waag Society (Stikker, 2019). According to Shoshana Zuboff, who coined the term surveillance capitalism, we as users are guided and influenced: the big tech companies have departments where techniques are developed that prompt users to spend more time on their platforms and share more of their data (Zuboff, 2019). With that data, these companies build profiles to predict which goods or services we might want to buy, which cultural or societal topics we are interested in, what our political preferences tend to be etc. Those profiles determine which content is recommended and offered to us.

It is unclear how much student data the big tech companies collect and what they use it for exactly. Google, Microsoft and Apple all promise to abide by privacy laws and claim that they do not build profiles of users within education. But the three companies have currently not yet signed the Privacy Covenant for Dutch Education. The recently conducted '*Data Protection Impact Assessment*' in Dutch government showed that Microsoft collected more data than stated in its own terms and conditions (Government of the Netherlands, 2019). And in Germany, the privacy oversight board of the member state Hessen decided that schools may no longer use Google or Microsoft cloud solutions because they offer insufficient transparency and guarantees. As a result, furthermore the possibility cannot be excluded that the US government has access to students' personal data, and that is a violation of the General Data Protection Regulation (GDPR), which also applies in the Netherlands.

The dependency on big tech companies is reinforced by the market, which offers more and more total solutions. Manufacturers of hardware also offer the accompanying software. Chromebooks come with G Suite with Google Classroom, and iPads come with the Apple ecosystem. The formerly separate roles of educational publishers, distributors of learning materials and suppliers of software such as student administration and student tracking systems, more often fall *under one owner* which offers total packages.

Tech companies profit from familiarising students with their products at an early age. If students turn into Microsoft, Google or Apple users at an early age, there is a larger chance that they will remain users later in life. Of course, there have always been private parties that meet some of the requirements of education. But they do not (should not) view and approach the student as a consumer, or as a data product. In the pedagogical relationship, the student's own interest should be the main focus, and not their value as a user.

Almost every school needs office and intranet software. At similar prices, open source alternatives do not nearly offer the same functionalities. And for an individual

school, negotiating about extra guarantees concerning privacy and data collection is not an option. Sometimes, that makes the inexpensive range offered by the big tech companies seem like an offer you can't refuse. That raises an important question: do we accept the tension between educational values on the one hand, and the terms of use and interests of the big tech companies on the other? Or do we want to opt for a solid alternative based on (our own set) educational values, with or without the big tech companies?

Google for kids

In 2019, de Volkskrant wrote about the growing influence of Google in schools. Children create a Google account at a young age, with their names and dates of birth. One mother objected: "I don't want Google to have that information about my child. My son should be free to make mistakes, without being watched by strangers." (Bouma & Van der Klift, 2019). If schools refuse to offer an alternative to this, it raises questions about every child's right to education.

Free time

The introduction of digital lesson and administration systems in education makes learning less and less linked to a specific time and place. In times of teacher shortages, pressure of accountability and transferring more and more tasks to schools, that offers added value. Because limitations to didactic time and attention can partially be solved by digital exercise methods that students can follow at home (or elsewhere). Administrative services are also improving. Thanks to smart administration systems, test results are directly available to students and parents in an app. Absenteeism (truancy) or other incidents can immediately be traced back in the student file for all parties involved.

But there is also a downside. Always being available, always being 'on', always being tracked: all of that seems more and more to have become the norm in society. And that norm is passed on to students, who, thanks

" We tend to hound the students. To give them very little time to do things. But development is a gradual process. Do we properly consider what students have accomplished, what they know, what they are capable of, how they are feeling? Or are we saying: I don't care, because you have to make it to your next test? You have so much to learn before becoming a real adult who can participate."

JOOP BERDING, PEDAGOGUE AND PUBLICIST

to modern digital means of communication, have access to education anywhere, at any time. Many students feel that their education continues day and night, leaving them no time to take a breather. Do students still have enough free time, time that is not in a certain sense invaded by education?

Students can get stressed when parents tell them to go offline, while notifications keep coming in on multiple systems until 10:00 at night. A notification can come in at any moment: from the teacher in a student tracking system, or from other students in the WhatsApp group text chain. Communicating with classmates can be a good thing, e.g. when they can discuss assignments or homework, but the pressure the student is under increases when classmates compare marks or complain about teachers until late in the evening. The fear of missing something can lead students to keep their screens on day and night. Research shows that half of adolescents (aged 14-15) check their phone after 10:00 pm (Van Driel et al, 2019).

24/7 education

In 2013, the Vlaamse Scholierenkoepel (VSK) organisation stated that students see digital student tracking systems as very useful, but that they want to be left alone in the evenings. In the Netherlands, close to 45% of students check to see if grades have come in until late at night, as shown by research done by LAKS (LAKS, 2019). Teachers who post new homework online after dinner prompt their students – especially if they receive a notification – to check their homework assignment at that moment. That adds extra time pressure and stress and often also leads to a poor night's sleep. According to the VSK, some students feel like education goes on 24/7.

There are more consequences to digital education systems that are always available everywhere. Since parents have direct access to the student tracking systems, students no longer have the ability to keep marks or incidents from their parents or choose the right moment to have a conversation with their parents. A Dutch teacher spoke to the AOb education magazine about this, saying: "My students did very poorly on a test I gave them. They asked me to hold off putting their marks online, because they were afraid of the consequences they'd face at home. I waited to enter their marks until a few weeks later, when they had taken an easier test which they got higher marks on."

Prompted by these signals, the supplier of Magister (the widely used student tracking system) added extra options to the software. Now, schools can choose what information they share with parents and at what time students receive their marks. This is a good example of how values in education can structure digitalisation.

Room to practise and make mistakes

In the non-digital age, students did exercises on paper: in a workbook or notepad. They'd draw a sketch of the teacher, stick figures, made mistakes, crossed things out and started again. Then those pieces of scrap paper ended up in the trash. Doing exercises with adaptive practice software is very different from scribbling in the margins. Digital exercises are the 'fuel' for personalised education. The answers you enter are used to determine how the adaptive system gives you the next exercise. That creates personalised education, which also appears to improve learning achievements. A downside is that students are no longer able to practise freely without it being monitored. Or without all those exercises forming a profile and a judgement. Every exercise becomes a test during which the student has to perform.

According to the Rathenau Instituut, everyone in the digital age *should have the right to not be measured, analysed or influenced* (Van Est, 2017). Digital monitoring in education has an impact on values such as *freedom, privacy* and *free development*. For children and adolescents, it is important to have space during their school years to experiment, try things out and make mistakes. We judge their behaviour differently than that of other groups in society and do not expect the same level of maturity and responsibility. This is threatened by digital monitoring. Monitoring students from an early age threatens the leniency with which we let them practise and fail. Errors and shortcomings from the past can then hurt their chances for the future, especially when they do not have insight into or can influence the traces they have left. Those who know they are being watched, particularly if they do not know when and by whom, feel less free. They act differently, because they tend to see themselves through the eyes of the one (possibly) observing you. This affects students' freedom and personal development.

" In the library, I was able to observe and potentially hack into all 110 of the students' screens. One day, I saw a student type all kinds of awful swear words. I sent him a message: 'Would you cut that out?!' What happened? That student hit the student next to him: he believed his neighbour had hacked his computer! The lesson I learned from that was that if necessary, I have to intervene personally, and not with digital tools."

ROELAND SMEETS, LIBRARIAN AT BARLAEUS GYMNASIUM AMSTERDAM

This is an issue e.g. in data-supported education and in building smart campuses in vocational education. Regional training centres (ROCs) already have a lot of information about their students. Should degree programmes – even with the best intentions – be allowed to collect even more data, for even more efficiency, ease of use and better academic results? That is not only a technological and legal, but also an ethical question. What do students themselves find to be acceptable? Do students still feel like they have space to be themselves? ROC Noorderpoort included students in the conversation, as shown in the case on *page 36*.

Digital monitoring in China

In China, schools are experimenting with headbands equipped with sensors. The bands were developed by an American company that offers neurofeedback technology. As the students learn, their brainwaves appear on the teacher's dashboard. This way, they get information on the students' concentration and emotional engagement. A teacher constantly receiving information on your brainwaves not only affects your privacy; it also affects your freedom to learn, to exist and to practise without someone constantly looking over your shoulder. In China, providers of digital learning systems furthermore have to be linked to the government's system so that all the data can be collected centrally. Based on that collected data, they can track a student's learning path and learning potential and then assign the student to a certain school. China's social credit system, in which citizens are judged based on their behaviour, shows that large-scale collection of citizens' data can have serious consequences. For example, posting content on social media that is critical of the government has consequences such as limiting your access to certain jobs, schools or public transport.

Being approached with an open perspective

Tensions run high in the expectations surrounding *AI in education*. Whereas algorithms used to have to be entirely pre-programmed, systems are now expected to use more and more self-learning algorithms (see section on *page 21*) to identify relationships and rules based on collected data. These algorithms are expected to very effectively respond to students' learning processes.

However, the risk of the increasing use of data analysis and algorithms is that we are not critical enough in our judgement of the systems' outcomes. Algorithms have the illusion of objectivity. But whether an algorithm is reliable depends on different factors.

Problems with algorithms can arise in the *input, throughput* and *output* stages.

- *Input stage*: sometimes, the data set on which the algorithm is based already contains biases and incorrect information; the input is therefore unreliable.
- *Throughput stage*: things can go wrong when the algorithm interprets the data, e.g. because the system wrongly sees the correlation as causality.
- *Output stage*: a proper interpretation of the results by people is very importance. In order to use an algorithm responsibly and to properly indicate the outcomes, you have to know what an algorithm does and how it reaches judgements. The one doing the interpretation must not confuse causality with correlation. And who is to be held responsible when the algorithm makes mistakes?

Furthermore, there is the question of to what extent data and algorithms do justice to the reality of the learning process. The output of technology is always dependent on the input received by technology. This input consists of e.g. information on user interaction (entered answers, clicking behaviour, metadata such as time or duration) and possibly even data from

sensors (facial expressions, neurological data). But no matter how advanced, technology is always a distortion and reduction of reality: it only indicates what can be measured. Not everything that can be measured is relevant, and not everything that is relevant can be measured. That particularly applies to education, which revolves around human relations and human development.

These side notes to the use of data and algorithms show how important it is to keep asking the question: are we still approaching students with an open perspective? With our use of technology, does our approach contain any unforeseen or undiscovered biases and expectations? Of course, those biases also exist in human contact, without the interference of technology. That does not negate the fact that it is important to take an in-depth look at what the pitfalls are of using data and algorithms.

Bias in algorithms

In its recruitment process, big tech company Amazon uses an algorithm that analyses the data of applicants and assigns them a score. This score predicts the applicant's suitability, which saves a lot of time spent searching and analysing manually. After a while, however, the algorithm for technical roles proved to systematically prefer male candidates. As the algorithm was developed based on a data set collected over the past ten years (a period during which far more men than women were hired), it independently concluded that men are more suited to this type of work.

This example shows the danger of leaving decisions to algorithms. Particularly when we do not know for sure whether the underlying data offers a neutral and unbiased picture of reality. Amazon's algorithm perpetuated existing inequalities. In education, there are risks to letting an algorithm predict learning achievements. This could lead to discrimination based on properties like ethnicity and gender, with potential negative effects on which schools the student is recommended.

Big tech, big data and free education

These education values call for extra attention:

- Education as free space
- Free time
- Room to practise and make mistakes
- Being approached with an open perspective

Discussion questions

- Do we want to join nation-wide initiatives like *SIVON* in order to influence the big tech companies?
- How can we make sure that students are able to freely learn and develop without being watched?
- In our education, can we look into or use open-source technology or privacy-friendly alternatives? Is it wise to look at initiatives like *SOLID* and *Public Spaces* or to opt for services like *MedMij* (for example, *EduMij* has been launched in vocational education and higher education) and *Nuts* in the medical industry ourselves? If so, how?
- How can we offer students enough space and quiet time, knowing that digital systems can cause distress? Can we speak to students about how to structure school systems?
- To what extent do we want to keep parents up to date on their children's learning process by means of digital resources?
- How can we continue to approach students with an open perspective, including when we use data and algorithms? How can we check to make sure there are no biases in the systems we use?
- All kinds of data collection and processing require parental consent. But what do we do if the parents will not give their consent? How can we prevent these students from being excluded, or no longer being able to participate in certain lessons?

Values as a guide in ethical considerations

In this chapter, we showed that digital developments call attention to important values in education:

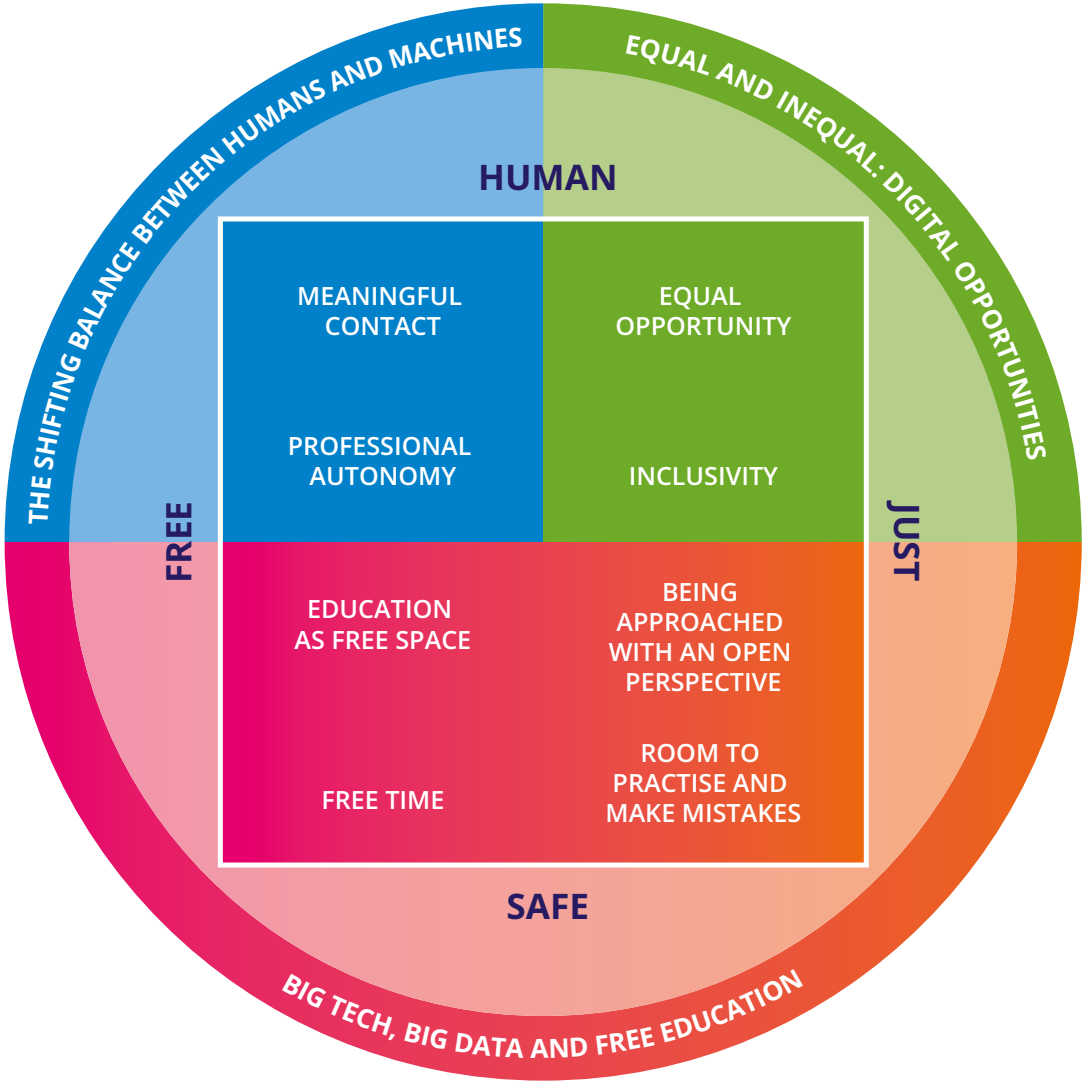
- Meaningful contact
- The professional autonomy of teachers
- Equal opportunity
- Inclusivity
- Education as free space
- Free time
- Room to practise and make mistakes
- Being approached with an open perspective

Digitalisation calls for renewed attention to these values. At the same time, this is not an exhaustive or immutable list: certain values may require more or less attention in the future. To structure digitalisation based on values, it would be useful for educational institutes to formulate a set of core values together. This is also one of the ambitions mentioned in the 'Digitalisation agenda in primary and secondary education'.

Based on the eight values we previously described, you could e.g. identify four core values for education: freedom, humanity,

justice and safety. These core values can be compared to widely used principles in ethics and are linked to educational practice. Medical ethics, for example, lists autonomy, justice, beneficence and non-maleficence (Beauchamp & Childress, 1994). The European Commission identified four principles for human rights: respect for human autonomy, preventing harm, justice and accountability (European Commission, 2018). We opted for the term 'safe' where preventing harm is concerned, and 'free' where autonomy but also space and transparency in education are concerned. The term 'human' is about both the relationship between teacher and student and the importance of human understanding of (and human decisions for) technology. 'Justice' is included as a principle or core value in many ethical frameworks.

These four core values can serve as input for a public debate about the shared values in education. A debate with the purpose of forming a solid set of core values that can serve as a guideline for digitalisation in education.



Values impacted by digitalisation in education

Casus 3 ROC Noorderpoort - Data-driven education

Would it be right for ROC Noorderpoort to know everything about its students to help them get their diplomas?

ROC Noorderpoort comprises 16 schools in the provinces Groningen and Drenthe and has 14,000 students and over 1,400 employees.

ROC Noorderpoort believes it can better help students succeed with data-driven education. A lot of the data the degree programme currently has is not yet being used. Can linking and analysing new and existing data contribute to better education so as to prevent students from dropping out?

Wim van de Pol, director of ROC Noorderpoort, is considering the possibilities and impossibilities, and in doing so includes an ethical perspective. He is doing this not just for the ROC he is in charge of, but for other ROCs in the country as well. Van de Pol is working to develop the strategic agenda for digitalisation in the vocational education industry and data-driven education is one of the key issues. But how to structure that? And are values like freedom and privacy at stake?

Van de Pol regularly talks to students about ethics and wonders: how do they see this issue? He decided to have a conversation about ethics with students taking a course in 'Ethical Hacking' as well as with their teacher.

The group followed the steps in the Kennisnet '*Ethics Compass*' to get a better perspective on the issue.

Step 1: Determine the most important values

The group formulated the following important shared values:

- honesty
- trust
- kindness
- respect, giving each other space
- no discrimination
- political and religious freedom
- freedom
- equal opportunity
- purity
- helpful, empathy

Students mainly appreciate the values honesty, trust and respect. Respect was defined as: having the space to move freely, and to make mistakes.

Step 2: Formulate the ethical question

The group (students, teacher and administrator) formulated this ethical question:

- **Would it be right for ROC Noorderpoort to know everything about its students to help them get their diplomas?**

To get the discussion going, in the conversation with the students about ethics, there was a conscious decision to exaggerate by using the word *everything*. ROC Noorderpoort does not have the ambition to know *everything* about its students. It is considering the question of increasing student success with data collected in an ethical way.

Step 3: Collect the initial reactions

The initial emotional responses prompted by this question showed that the students had a relatively positive view. They recognised that the degree programme could do more to help students and that data could contribute to that. At the same time, some wondered about the ROC's intentions: does the degree programme only want to collect more data to help students, or is it only in the degree programme's interest to prevent drop-outs and thus make more money? After all: the more students leave the degree programme with a diploma, the more funding ROC Noorderpoort receives.

Step 4: Formulate pros and cons

The group offered the following pros:

It would be right...

...because it contributes to the students' positive school experience. Good results boost their **confidence** and **well-being**.

...because it increases students' chances of graduating and their chances on the job market, and thus their **independence**.

...because it increases the **effectivity** and **education quality** at the ROC, because it can anticipate what the student needs in a more targeted way.

...because the ROC can help students promptly see which areas of study do and do not suit them. That expands students' **freedom** and **self-sufficiency** to choose what is best for them.

...because the ROC can make a better assessment of bullying. As a result, the bully (who in many cases is also bullied) and the person they are bullying can receive better help. This promotes the victim's **well-being** and enables the degree programme to inform the bully of their moral obligation. All of this contributes to **social safety** at school.

...because the school can intervene if it sees that a student is having trouble, e.g. at home. This makes the student feel seen, which promotes their **well-being**.

...because students dropping out costs money, and preventing this in time leads to more **welfare**.

And the following cons:

It would not be right...

...because it threatens students' **privacy**, especially when it comes to personal information that does not directly relate to their academic careers. If the school collects a lot of data, it will increase the risk of privacy violations if it is hacked. The same applies to rising political powers that want to expand their influence and make improper use of the students' personal data in order to do so.

...because the data can be sold and thus used for commercial purposes (instead of increasing student success). Even if the school promises not do, it still could. Who is to say it will not? This infringes on the school's **independence** and the student's **freedom**.

...because the school making decisions for the student based on data is an encroachment on the student's **freedom**.

...because students can feel that they are being constantly watched, causing them to feel **unsafe**.

...because, with the school always making decisions for the student, the students will not learn to take their own **responsibility** and become **self-sufficient**.

...because it gives the ROC the option to reject students who have a higher chance of dropping out according to the data. That poses a threat to the **fair** and **equal** opportunities they should be given.

Step 5: Weigh the pros and cons

The group found that the pros and the cons should both weigh heavily. The group believed that the ROC should only use data-based structuring if ways were found to respect the values presented by the cons.

Step 6: Formulate the answer

The purpose of the conversation about ethics was not to reach a definitive answer to the ethical question: Is it a good thing that ROC Noorderpoort knows everything about its students to help them get their diplomas? Each participant in the conversation formulated their own responses to help the school board make the right decision. This led to the following three possible answers:

No, unless...
...only data is used that relates to the students' academic careers.

...the student can choose when they are and when they are not monitored.

...the data is only used when the student's academic progress is in jeopardy.

...the student retains the freedom to choose.

...the student can see the recorded data concerning them.

...the data is immediately deleted upon graduation.

...students have the same rights to view the teachers and the ROC's data.

No, because...
...I see how often data is wrongly interpreted or used for other purposes. Even after establishing agreements now about properly handling data, there is no guarantee concerning decisions parties will make about the existing data in the future.

...people should not be allowed to be rejected based on data. There should be an allotment right for degree programmes.

...as a student, you should have the freedom to be judged without bias.

...if you do not learn to take responsibility, you will not be able to fend for yourself later on.

...there may be other or better ways to solve the drop-out issue.

Yes, provided...
...the student is able to view all the data the school collects from them.

...the school cannot access students' personal data.

...the data only relates to school.

...the students can determine the extent of the data collection.

Most of the mentioned values were also mentioned in the pros and cons. The value of honesty came up in the discussion about

preconditions for data-driven education. "Shouldn't students be equally able to view the school's data and data concerning teacher performance?" a student suggested. The value of trust mainly came up in the argument that students should also learn to take their own responsibility and that the freedom of choice that accompanies that should not be inhibited by data-driven education.

Step 7: Evaluate

The students had positive reactions and recognised the importance of these kinds of conversations. Beforehand, the teacher thought the conversation should not take more than an hour and fifteen minutes. When we were done after two hours, a student raised his hand and said: "For me, it was both interesting and fun."

Director Wim van de Pol drew the following conclusions from the students' recommendations:

- This conversation should be held with the student council and with the school's own policymakers.
- It is important to have these conversations about ethics with students more often.
- When it comes to data-driven education, every ROC should have this conversation. Van de Pol wants to advocate this in the group of school boards working on the digitalisation agenda for vocational education.
- The '*Ethics Compass*' helps to structure these kinds of conversations.

3 Structure digitalisation based on values

In the previous chapter, we described how values are affected by digitalisation. In this chapter, we will demonstrate how ethics can be used to structure based on values.

Ethics is about the question of what is proper conduct. That is a philosophical question, but in many cases, it is also a practical one: what is the right thing to do in a certain situation? An ethical question is also normative: it concerns the issue of what we should do. Ethical questions often come up when two or more values appear to clash in practice, e.g. safety and transparency. Or equality and accessibility. When that happens, it constitutes an ethical dilemma. In philosophical ethics, different answers have been given to the question of how to know whether an action is right. See Appendix 2 for an overview of the main ethical schools of thought in philosophy.

Prompt questions to help determine whether you are dealing with an ethical question

- Does the question speak to a certain emotion or intuition about right and wrong?
- Are there values at stake and why is that the case?
- Could it cause harm to someone (or a certain group of people)?

Moral deliberation

The question of whether an action is right does not always have a clear answer. The answers to ethical questions are often temporary, and depend on the norms and values of those involved in a situation. That does not mean that an ethical judgement is non-binding.

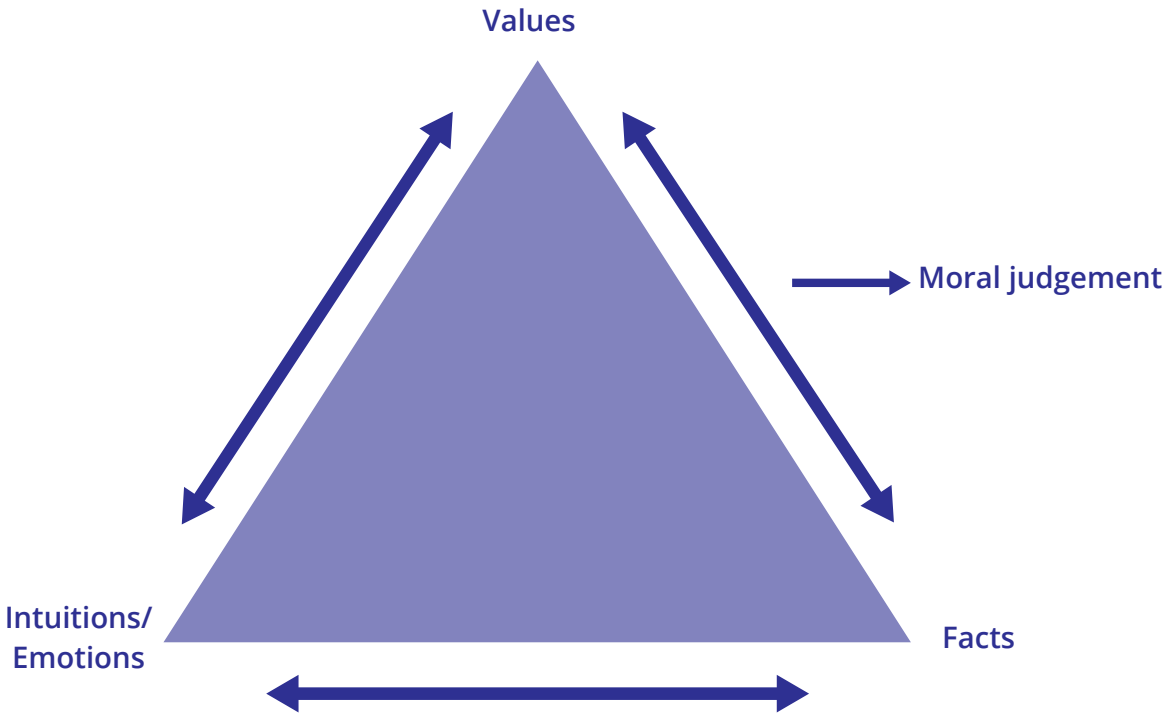
Moral deliberation can help to systematically approach ethical questions and reach well-founded answers.

In the case of moral deliberation, a group discusses an ethical question. In that discussion, you explore the issue, gather arguments and weigh those arguments. It is important to think separately from your own personal interests and to reason from the perspectives of the various parties involved. This is also referred to as omni-partiality.

In its most practical application, moral deliberation is a question of argumentation. The final goal is to reach weighed moral judgements based on arguments.

But ethics is more than just an intellectual activity. Emotion and intuition often serve as the starting point for ethical reflection. Moral intuitions and emotions can be seen as an antenna for ethical issues. Placing those in the context of the available facts and existing norms and values enables the one asking the question to try to reach a balance by means of a weighed process that helps to formulate a moral judgement. This is shown in the following diagram.

It is not always possible to reach a consensus with moral deliberation. That does not mean that the deliberation was useless: even if the group does not reach a consensus, it still explicitly stated which values are at stake and what the members of the group think of those values.



This model comes from the 'Utrecht step-by-step plan' by Bolt, Verweij and Delden and was included as shown in the publication 'Ethics in policy: weighing values with emotion and reason' by the Ministry of Economic Affairs, Agriculture and Innovation (2010).

The following step-by-step plan is a concrete delineation of moral deliberation for questions surrounding education and digitalisation.

The Ethics Compass: delving into an ethical question together

This step-by-step plan (based on Bolt, 2003) is intended for everyone in education dealing with ethical questions surrounding digitalisation. What you view as good conduct is determined by the values you care about. Therefore, the 'Ethics Compass' starts with values.

Step 1

Determine the most important values

Determine the most important values for your school, board or group.

Values are general, abstract ideas or ideals toward which we strive and which shape our actions. Values can be categorised on different levels, from universal to personal. In education, these are often a mix of public, personal, ideological and pedagogical values. Examples include: equality, privacy, autonomy, safety.

Step 2

Formulate the ethical question

Formulate the ethical question as follows: would it be right to...?

Step 3

Collect the initial reactions

What are the initial reactions? Does the question prompt a certain emotion or intuition?

Make notes describing your initial thoughts about the issue. These notes do not have to be a final draft.

Step 4

Formulate pros and cons

Which pros and cons can you think of? When coming up with arguments, consider:

- What values are promoted or threatened and for whom?
- What is the rationale behind that? What facts or assumptions are you basing this on?
- Use the principle of omni-partiality: think separately from your own personal interests and reason from the perspectives of the various parties involved.
- Are the perspectives and prompt questions from the main ethical schools of thought (*see Appendix 1*) relevant to this consideration? For example, the prompt question: would you trade places with the people who will be affected by this? Why or why not?

If needed, look over your notes from the previous step about your initial reactions, intuitive judgements or emotions. Those are often based on certain values. Those can help you with your argumentation.

Step 5

Weigh the pros and cons

If needed, add arguments and adjust or remove less strong arguments. In doing so, follow these steps:

- When supporting your arguments, examine the following: what do we already know, what don't we know yet, and what has yet to be researched further? Make notes if you need to.
- Do all of the arguments hold up? Do they contain fallacies used (*see Appendix 2*)?
- Does it sufficiently cover the perspectives of different parties?
- Are values mentioned that you identified as an important value for your education in Step 1?

Which arguments do you find to be the most important? Highlight these to indicate their importance.

Step 6

Formulate the answer

Discuss what the answer to the ethical question should be. Use the pros and cons from Step 5. You may not be able to find an answer yet. If so, use this step to provide commentary.

a. Yes, because...
b. Yes, provided...
c. No, unless...
d. No, because...
e. An answer cannot (yet) be formulated, because...

Step 7

Evaluate

Evaluate the process with the group. Ask the following questions:

- Does everyone believe the ethical question was properly answered?
- Do the process or parts of the process need to be repeated?

Ethics by design

Ethics can also be used to influence the development of new technology. Schools and school boards can enter into conversations with providers and designers of digital resources based on values. For example, by asking questions like:

- Can the teacher still understand why a learning system presents a student with certain content? Or why a student does exercises at a certain level? Can the workings of the system be sufficiently explained to teachers?
  Underlying value: **autonomy**
- Will using the system have a negative effect on certain groups?
  Underlying value: **equal treatment**

For more questions, see the ethics conversation frameworks in *Appendix 3*.

When educational values are included in the design, we call it ethics by design. By being involved in the design process, education can structure digitalisation.

"Everything has to be designed. If you don't design it, other people will shape it for you."

JEROEN VAN DEN HOVEN, PROFESSOR OF ETHICS AND TECHNOLOGY AT DELFT UNIVERSITY OF TECHNOLOGY

A concrete tool here is establishing a value hierarchy. In the *value hierarchy*, the school or school board lists its most important values, from which norms are derived, each of which can be translated to design guidelines. In your education, for example, justice may be a core value and when using a digital learning system, values like equal opportunity, autonomy and inclusivity form the starting point. That could lead to a set of norms and design requirements, as can be seen in the figure below.

This value hierarchy is just a sketch and far from complete, but the example gives you an idea of how you can enter the conversation with software providers and designers.

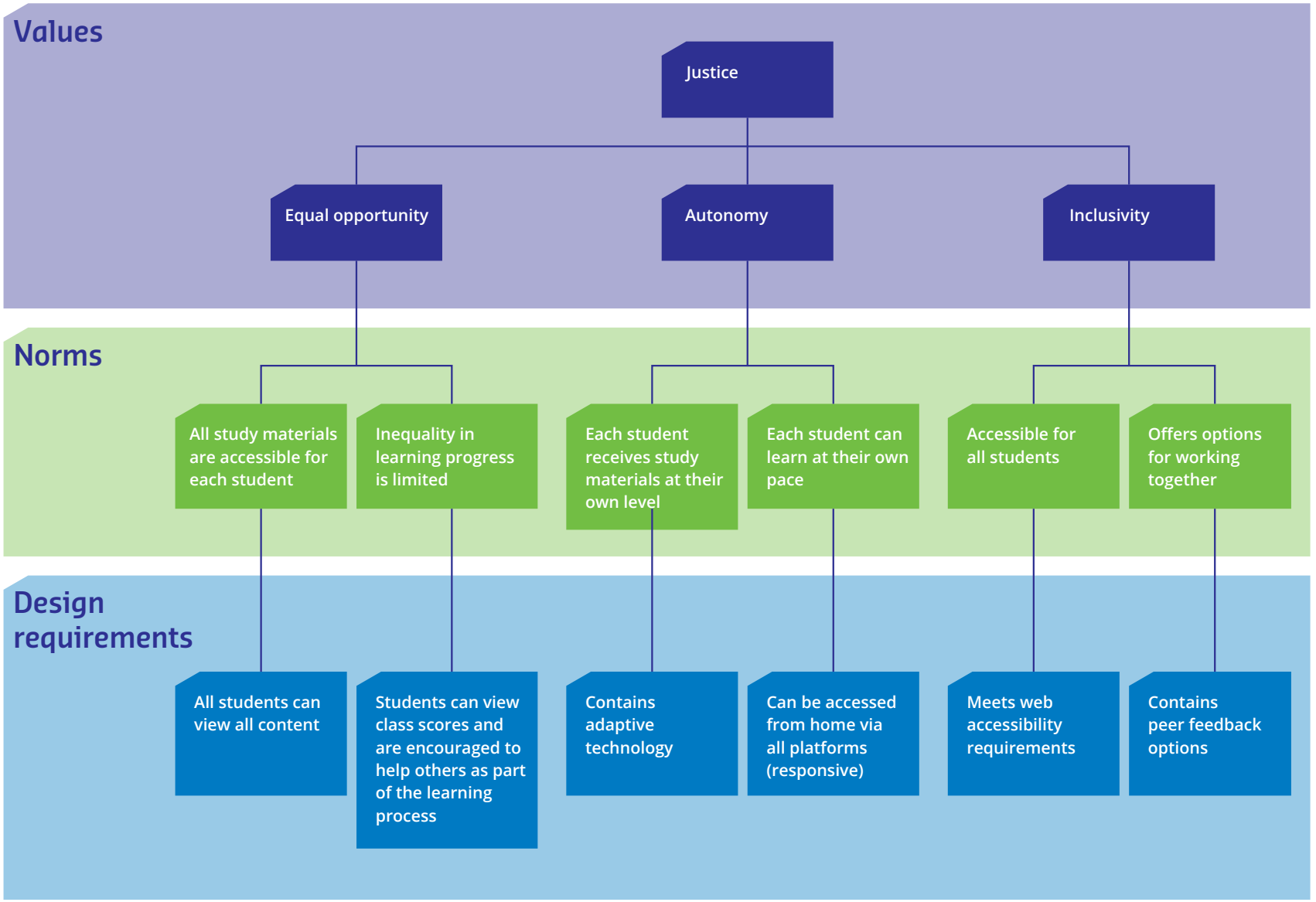
Do realise that such a value hierarchy is a snapshot. Over time, more or less emphasis can be put on structuring certain values.

Think of how we look at privacy, for example. In the 19th century, the very first interview in the newspaper was seen as a violation of the privacy of the person interviewed. Now, it is seen as normal for people who are interviewed to reveal lots of information. And since the rise of social media, the boundaries between private and public have been extended too.

Ethics is not checking off a list

Ethics calls for a constant focus on different levels. Therefore, make room for ethical reflection in your educational organisation. Include it in the policy cycle, for example, in conversations between directors and administrators and in conversations with teams or with the participation council.

Values are important to schools. They determine the vision and course of the school. Because education technology has a heavy impact on educational values, a constant focus on ethics is required. In concrete terms, that means that sometimes, you have to take a step back to closely examine your own values. But slowing down can then help you more clearly see how technological possibilities can reinforce your values.


Values
Justice
Equal opportunity
Autonomy
Inclusivity
Norms
All study materials are accessible for each student
Inequality in learning progress is limited
Each student receives study materials at their own level
Each student can learn at their own pace
Accessible for all students
Offers options for working together
Design requirements
All students can view all content
Students can view class scores and are encouraged to help others as part of the learning process
Contains adaptive technology
Can be accessed from home via all platforms (responsive)
Meets web accessibility requirements
Contains peer feedback options

Conclusion

Schools and institutes have the ambition to offer their students the best possible education. Technology can contribute to that. It is only logical that schools are researching how technology can help to improve education and offer a solution to problems. But there is a side note: the more we allow digitalisation to be instrumental to education – without a focus on ethics – the higher the risk that it will take a toll on a different level.

Because technology is a double-edged sword: education technology offers solutions that reinforce values in a positive way. At the same time, it shapes education in invisible ways. Important values can be undermined in that process.

That is clearly shown by the three developments mentioned in this publication:

1. The shifting balance between human and machine
Digital technology (the machine) facilitates personal education, but can also drive a wedge between the teacher and the student. Furthermore, technology enriches the teacher's didactic repertoire and helps them enable students to learn better. But that same technology can also limit the teacher's professional autonomy.

2. Equal and unequal: digital opportunities
Digital technology expands opportunities for students to participate, including for those who are vulnerable and would usually be presented with fewer opportunities. However, digitalisation can exclude students in certain ways, for example because not everyone has a device available to them or because some are not equally able to benefit from adaptive materials.

3. Big tech, big data and free education
Since the dawn of education, schools have always been under pressure as independent and public spaces. However, with digital resources, new parties have entered the school that affect that space. Companies like Apple, Google and Microsoft offer digital roadmaps for life. That means liberating convenience, but also growing dependency. These roadmaps partially determine the roadmap of education. Their effect can be seen in the increasing importance attached to data collection. Education has its share in that, too: more and more student data is recorded. As a result, however, values are put at stake – the student is helped and at the same time, they can feel limited in their freedom.
Ethics is not a way to separate yourself from technology; it enables you to properly structure technology in education.

Follow-up

The aforementioned developments lead to the following conclusions:

- Digitalisation in education **calls for an ethical perspective**. That perspective is important on various levels: that of the administrator, the director, the ICT coordinator and the teacher.
- At the same time, it is not realistic to expect that an individual school or individual school board will find or develop the right ICT to perfectly align with its own values. That will remain a complex challenge while facing big, powerful companies. **Schools and school boards can't do it alone**. The necessity for schools and school boards to join forces and firmly position themselves is even greater, now that technology has so strongly pervaded our society and our education.

- **Wisdom is in the system – in education as a whole**. Education as an industry cannot work without constant reflection on the question of what can be defined as the public role of education. That discussion should be had in education, but also more broadly in society.
  - What can schools do together to enable technological education innovations to align with important values for education?
  - How can the government provide support in that area?
  - Which themes should be given priority in the public and public-private dialogue? Would it be wise, for example, to join public open source initiatives?

The good news is: there is a solid foundation to build on.

On the level of collaborating school boards:

- An important new development is that for ICT issues, school boards are joining forces in the cooperation SIVON. That way, the education sector will have more clout when it comes to digital developments that disrupt educational values.

On an industry level:

- Dutch education has a tradition of collaboration and public-private dialogues, including where ICT is concerned. The Edu-K platform and the privacy covenant are examples of that.
- Ethics is one of the five themes covered in the Dutch 'Digitalisation agenda for primary education and secondary education'. The basic principle is: technology offers many possibilities, but there are limits to what we actually want to use it for in education. The programme plan of the Dutch 'Strategic agenda for digitalisation in vocational education' explicitly focuses on the ethical dimension as part of 'data-driven education'.
- Sector councils are working with school boards in primary and secondary education to develop new visions for education and ICT. That is done in vision groups of collaborating school administrators. These vision processes reveal ethical issues that are also covered in this publication. Schools have to and want to get to work on that.
- The Primary Education Council and Kennisnet appointed an Ethics Advice Council to examine current ethical issues in the area of digitalisation. The advice helps the sector and individual school boards make the right considerations.

On a national/European level:

- On a national and European level, new legislation (like the GDPR) ensures public values. Handles, regulations and guidelines are provided for e.g. the proper use of AI, like those of the European Commission, the Council of Europe and the Dutch Government. Among the issues researched by the Parliamentary Assembly of the Council of Europe (PACE) is the impact of digitalisation on human rights.

The challenge is linking a good action perspective to this foundation. Only a continued education dialogue in all industries (from primary education to higher education) will provide a context within which schools and institutes can structure digitalisation instead of being structured by it.

Acknowledgements

This publication would never have been possible without the expert input and feedback from people working in education, science and business. We want to offer special thanks to the following people:

Academia
Joop Berding,
Rotterdam University of Applied Sciences
José van Dijck,
Utrecht University
Niels Kerssens,
Utrecht University
Piet van der Ploeg,
University of Groningen

Education
Ingrid de Bonth,
administrator for Lucas Onderwijs
Eugène Bernard,
administrator for Secondary Education Limburg
Theo Douma,
administrator for Public Education Group Groningen
Laurence Guérin,
citizen expertise platform leader at ROC Twente
Pieter Hendrikse,
former administrator for the OMO school board
Jente Koopmans,
former board member for LAKS
Paulo Moekotte,
expertise platform leader in media prudence for Mediacollege Amsterdam, Vocational College for Woodworking, Furniture and Interior Design and MBO College West - ROC Amsterdam
André Poot,
former policy adviser for Information Security and Privacy for the Secondary Education Council, ICT staff member of CVO-AV (Christian Secondary Education Alblasserwaard-Vijfheerenlanden)
Peter de Visser,
administrator for Stad en Esch
Simon Verwer,
teacher at Hyperion Lyceum
Pascal Marcelis,
school district ICT coordinator for Buitengewoon Education Group
Patrick Eckringa,
administrator for Quadraam
Wim van de Pol,
administrator for ROC Noorderpoort
Anouk Folstar, Marijne Tesser and Stijn Temmen,
Primary Education Council
Roel van Hulten,
Secondary Education Council

Business
Stephan de Valk,
Director of GEU

Independent experts
Henk Boeke,
Bureau for Youth and Media and Civil Rights Protection Platform

Members of the Ethics Advisory Board, an initiative by the Primary Education Council and Kennisnet:
Pedro De Bruyckere,
Leiden University and Artevelde University of Applied Sciences in Ghent
Tom Demeyer,
Waag Technology and Society
Rinie van Est and Barst Karstens,
Rathenau Instituut
Jeroen van den Hoven,
Delft University of Technology
Inge Molenaar,
Radboud University

Sources

Van Dijck, J. Poell, T., & De Waal, M. (2016). *De platformsamenleving - Strijd om publieke waarden in een digitale samenleving* ('The platform society - the struggle for public values in a digital society'). Amsterdam: Amsterdam University Press. Accessed on 16 December 2019

Kool, L., Timmer, J., Royakkers, L., & Van Est, R. (2017). *Opwaarderen: Borgen van publieke waarden in de digitale samenleving* ('Upgrading: Ensuring public values in the digital society'). The Hague: Rathenau Instituut. Accessed on 16 December 2019

Pomerantsev, P. (2019). *This Is Not propaganda. Adventures in the war against reality*. London: Faber & Faber.

Marantz, P. (2019). *Antisocial. Online extremists, Techno-Utopians, and the Hijacking of the American Conversation*. New York: Viking.

Verbeek, P. (2014). *Op de vleugels van Icarus* ('On the wings of Icarus'). Rotterdam: Lemniscaat.

Education Council (2017). *Doordacht digitaal: Onderwijs in het digitale tijdperk* ('Sensibly digital: Education in the digital age'). The Hague: Education Council. Accessed on 16 December 2019

Van Est, R., & Gerritsen, J. (2017). *Human Rights in the Robot Age: challenges arising from the use of robotics, artificial intelligence, and virtual and augmented reality*. The Hague. Accessed on 16 December 2019

Biesta, G. (2015). *Het prachtige risico van onderwijs* ('The beautiful risk of education'). Culemborg: Phronese.

Van Manen, M. (2014). *Weten wat te doen wanneer je niet weet wat te doen* ('Knowing what to do when you don't know what to do'). Driebergen: Nivoz.

Turkle, S. (2016). *Reclaiming Conversation: The power of talk in a digital age*. London: Penguin.

Bloom, B. S. (1984). The 2 sigma problem: The search for methods of group instruction as effective as one-to-one tutoring. *Educational Researcher*, 13, 4-16. doi:10.3102/0013189X013006004

Kirschner, P., Claessens, L., & Raaijmakers, S. (2019). *Op de schouders van reuzen: Inspirerende inzichten uit de cognitieve psychologie voor leerkrachten* ('On the shoulders of giants: Inspiring insights from cognitive psychology for teachers'). Meppel: Ten Brink. Accessed on 16 December 2019

Hattie, J. (2014). *Leren zichtbaar maken* ('Making learning visible'). Rotterdam: Bazalt.

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development*. New York: Holt, Rinehart & Winston.

Baker, R. S. (2016). *Stupid tutoring systems, intelligent humans. International Journal of Artificial Intelligence in Education, 26(2)*, 600-614.

Kennisnet (2019). *Technology compass for education: Education in an artificially intelligent world*. Zoetermeer: Kennisnet. Accessed on 16 December 2019

Van Rijn, H., & Nijboer, M. (2012). *Optimaal feiten leren met ICT ('Optimal fact learning with ICT'). 4W: Weten Wat Werkt en Waarom*, ('Knowing what works and why'), Vol. 1, 6-11. Accessed on 16 December 2019

Netherlands Institute for Social Research (2016). *De Toekomst tegemoet: Leren, werken, zorgen, samenleven en consumeren in het Nederland van later* ('Facing the future: Learning, working, caring, living together and consuming in the Netherlands of the future'). 2016 Report by the Netherlands Institute for Social Research. The Hague. Accessed on 16 December 2019

Faber, J.M., & Visscher, A.J. (2016). *De effecten van Snappet. Effecten van een adaptief onderwijsplatform op leerresultaten en motivatie van leerlingen* ('The effects of Snappet. Effects of an adaptive education platform on learning outcomes and student motivation'). Enschede: Twente University.

Molenaar, I., Van Campen, C., & Van Gorp, K. (2016). *Rapportage Kennisnet. Onderzoek naar Snappet; gebruik en effectiviteit* ('Kennisnet Report. Research on Snappet; use and effectivity'). Nijmegen: Radboud University.

Swierstra, T., & Tonkens, E. (2011). *De schaduwzijde van de meritocratie: de respectsamenleving als ideaal* ('The dark side of the meritocracy: the society of respect as an ideal'). *Socialisme en Democratie* ('Socialism and Democracy'), 68 7/8, 37-44.

Vuyk, K. (2017). *Oude en nieuwe ongelijkheid. Over het failliet van het verheffingsideaal* ('Old and new inequality. On the bankruptcy of the ascension ideal'). Utrecht: Klement.

Vuyk, K. (2019). *De feilbare mens. Waarom ongelijkheid zo slecht nog niet is* ('The fallible human. Why inequality isn't all that bad'). Utrecht: Ten Have.

Arendt, H. (1958). *De crisis van de opvoeding* ('The crisis of child-rearing'). In J. Masschelein (ed.). *Dat is pedagogiek: Actuele kwesties en sleutelteksten uit de westerse pedagogische traditie* ('That's pedagogy: Current issues and key texts from the Western pedagogical tradition'). Leuven: Leuven University Press.

Van Dijck, J. Poell, T., & De Waal, M. (2016). *De platformsamenleving - Strijd om publieke waarden in een digitale samenleving* ('The platform society - the struggle for public values in a digital society'). Amsterdam: Amsterdam University Press. Accessed on 16 December 2019

Stikker, M. (2019).
Het internet is stuk: Maar we kunnen het repareren ('The Internet is broken: But we can fix it'). Amsterdam: De Geus.

Zuboff S. (2019).
The Age of Surveillance Capitalism. New York: Public Affairs.

Government of the Netherlands (2019).
Data protection impact assessments DPIA's Office 365 ProPlus, Windows 10 Enterprise, Office 365 online and mobile apps. Accessed on 16 December 2019

Bouma, K., & Van der Klift, L. (2019, 1 November).
Aan Googles liefde voor onderwijs zit iets dubbels – creëert Google klanten voor het leven? ('There are two sides to Google's love of education - is Google creating customers for life?') *De Volkskrant*. Accessed on 16 December 2019

Van Driel, I. I., Pouwels, J. L., Beyens, I., Keijsers, L., & Valkenburg, P. M. (2019).
Posten, scrollen, appen en snappen: Jongeren (14-15 jaar) en social media in 2019 ('Posting, scrolling, chatting and snapping: Young people (aged 14-15) and social media in 2019'). University of Amsterdam: Center for Research on Children, Adolescents, and the Media (CcaM). Accessed on 16 December 2019

Van Est, R., & Gerritsen, J. (2017).
Human Rights in the Robot Age: challenges arising from the use of robotics, artificial intelligence, and virtual and augmented reality. The Hague. Accessed on 16 December 2019 at

Beauchamp T., & Childress J. (1994).
Principles of biomedical ethics. Oxford University Press.

European Commission. (2018).
Ethics Guidelines for Trustworthy AI. Accessed on 16 December 2019

Ministry of Economic Affairs, Agriculture and Innovation (2010).
Ethiek in beleid: waarden wegen met gevoel en verstand ('Ethics in policy: weighing values with emotion and reason'). Accessed on 16 December 2019

Bolt, L., Verweij, M., & Van Delden, J. (2010).
Ethiek in praktijk ('Ethics in practice'). Assen: Van Gorcum.

Appendix

Appendix 1 Ethical schools of thought

Western ethical schools of thought can generally be categorised as: deontology, consequentialism, and virtue ethics.

- **Deontology** argues that an action is morally correct if the action itself is right. It does not take the consequences of that action into account.
- **Consequentialism** (or teleology) argues that morality is determined by the outcome (or results of the action) and not by the nature of the action itself.
- In **virtue ethics**, the morality of an action is not determined by the consequence of that action or by the principle or duty underlying that action, but by the intentions and character of the person carrying out that action.

Though deontology, consequentialism and virtue ethics can be clearly and separately defined, deontology is not limited to principles, consequentialism is not only limited to consequences and virtue ethics is not only limited to virtue. Good workable ethical theories cover all these aspects.

In addition to the classical Western theories, we also consider Eastern ethical schools of thought that offer their own perspective on proper conduct. We will also briefly discuss the perspective of ethics of care, which can be of interest to education as it concerns values like involvement and support.

Deontology

Deontology argues that an action is morally correct if the action itself is right. It does not take the consequences of that action into account.

The most famous representative of deontology was the 18th-century Enlightenment philosopher Immanuel Kant. His ethics are referred to as duty ethics, as he stated that people can use reason to determine the right thing to do and their moral duties. If we properly use reason, we arrive at a moral law strongly resembling the famous Golden Rule: treat others as you wish to be treated. Kant formulated it as: Act only according to that maxim whereby you can, at the same time, will that it should become a universal law. Following this principle, you should for example not steal from another person, because you would not want them to steal from you. A society in which it is seen as common and acceptable to steal from one another would not be a pleasant society.

Thereby, Kant also emphasises the importance of respecting people's autonomy: we should always include others in decisions that affect them and always see a person as a person of worth and never only as a means to our own ends.

Other theories within deontology are based on principles like justice (is the nature of the action just?) or human rights (does the action infringe on rights?).

Ethical prompt questions raised in deontology:

- Does the action respect people's autonomy?
- Is the action just?
- Would you want everyone to be able to act in the same way?

Consequentialism

Consequentialism (or teleology) argues that morality is determined by the outcome (or results of the action) and not by the nature of the action itself.

The most widely known theory within consequentialism is utilitarianism. Utilitarianism is based on the statement: anything that eventually increases utility (doing more good than harm) is good. The utilitarian philosophers John Stuart Mill and Jeremy Bentham saw morality as realising a psychological state of happiness in people. According to utilitarianism, humanity should strive for the highest level of happiness for the largest number of people, and use that as a measure for determining whether an action or decision is moral.

Because duty ethics and consequentialism apply different principles, in practice they are often in high contrast to one another. Think of the recurring discussion on safety or privacy, for example. What is more important? Defenders of privacy generally argue based more on rights and deontology, while defenders of safety often focus on (potential) consequences.

Ethical prompt questions raised in consequentialism:

- Does the action result in more happiness or well-being for more people?
- Does the action have a beneficial outcome for society as a whole or for a specific group?

Virtue ethics

In virtue ethics, the morality of an action is not determined by the consequence of that action or by the principle or duty underlying that action, but by the intentions and character of the person carrying out that action.

Important proponents of virtue ethics include Aristotle (384 BC) and Alasdair MacIntyre (born in 1929). According to Aristotle, virtue is what helps someone live in accordance with their excellence. In modern terms: they who act virtuously show the best version of themselves. The basic principle of virtue ethics is that you will automatically embody certain virtues when expressing certain virtues through your actions. Examples of such virtues include: moderation, courage and integrity. These virtues may result in principles, duties or certain good outcomes, but the foundation for reaching ethical conduct lies in the virtues themselves. It is about building a good character, which will naturally result in proper conduct. Aristotle speaks of the golden mean: virtue is the golden mean between an excess and a deficiency of certain behaviour. The golden mean between recklessness and cowardice, for example, is courage. And kindness is the golden mean between flattery and rudeness.

Ethical prompt questions raised in virtue ethics:

- Does the action align with the behaviour of a virtuous person?
- Does the action bring out the best in people?

Eastern ethics

Philosophy, religion and ethics are less easily divided in the East than they are in the West. In general, Eastern philosophies and religions have an approach that focuses on (the harmony) of the whole.

For example, Confucianism revolves around creating a harmonious society by encouraging people to develop virtue and fulfil their social and familial duties. It also often emphasises solidarity. All people (and other living creatures) are part of a larger

whole, and inextricably linked. That forms the foundation of the Hindu and Buddhist schools of thought.

The principle of reciprocity or karma also plays an important role in Eastern ethics. It is also defined as cause and effect: you reap what you sow. That can be linked to the tradition of deontology, but also to that of consequentialism. Every action has a corresponding outcome, which will eventually come back to restore harmony, in this life or the next. That provides a guideline for proper conduct: how would you act if you were to experience the effects of your action yourself, in this or another lifetime?

To keep us from getting lost in the consequences of our own actions, various yoga schools of thought as well as Taoism speak of actionless action. That is called wu wei: acting (virtuously) – in line with nature – in a way that does not disrupt harmony. Ethics in this sense is not only about treating yourself and others well, but also your environment. In sum, Eastern philosophies based on unity, reciprocity and equality of life offer ethics which include aspects of deontology, consequentialism and virtue ethics.

Ethical prompt questions raised in Eastern ethics:

- Does the action contribute to the harmony of the whole?
- Would you trade places with the people who would be affected by your actions?

Ethics of care

Ethics of care as an ethical school of thought arose in the 1980s. According to ethics of care, we should – in order to determine what moral action is – also focus on personal relationships and responsibility for others in our considerations.

Feminist authors such as Carol Gilligan and Joan Tronto posited that existing ethical schools of thought were mainly based on rights, obligations and formal reasoning. Underlying those schools of thought is a concept of human beings as striving for individual freedom and self-determination. They believe that is one-sided. They presented a different type of ethics based on care and responsibility. People are always dependent, vulnerable and interconnected.

In ethics of care, moral dilemmas do not (only) result from conflicts between rights and obligations (that can be solved based on rules and principles), but also from circumstances in which people try to maintain social connections without losing their integrity. Thus, it places less emphasis on reason as the sole means of determining what is right. Emotions, social connections and attention to people's needs are also sources of moral knowledge and moral interest. Personal details and circumstances matter.

Ethical prompt questions raised in ethics of care:

- What effect does the action have on relationships or connections between those involved?
- To what extent does the action consider the vulnerability and dependency of those involved?

Appendix 2 Fallacies

Fallacies are common errors in reasoning. They can be invalid or irrelevant arguments. Fallacies can be used intentionally or unintentionally.

Non sequitur: it does not follow; the conclusion does not follow from the aforementioned statements.
For example: all students who got a 9 on the test did not have their telephones with them; therefore, if you do not carry your telephone with you, you will receive higher marks.

Slippery slope: stating that if A happens, Z will also happen (via B, C, D etc.) and that therefore, A should not happen.
For example: first, we started using Smart Whiteboards, then tablets; before you know it, the whole school will be full of screens and we'll have no teachers anymore.

Hasty generalisation: making a general statement based on little information.
For example: my daughter's English improved since she's done exercises in apps on her smartphone; therefore, smartphones help all students with their schoolwork.

Genetic fallacy: stating that something is right or wrong based only on the location, person or institute from which it originated.
For example: this educational app is by a young, innovative start-up from the Brainport in Eindhoven; therefore, we have to try it.

Circular reasoning: using an assumption or statement as an argument.
For example: I think we should use more technology to encourage innovation at our school, because we will become more innovative if we use more technology.

False dilemma: presenting the situation as if there are only two extreme options to choose from, while in reality there are more options.
For example: either we use technology, or we work on our teachers' professionalisation.

Ad hominem: attacking someone personally for who they are and not their arguments.
For example: I get why Martin doesn't want us to use devices; he doesn't understand them himself.

Argumentum ad populum: stating that something is true because many people say or believe it to be true.
For example: this exercise app works very well because lots of people on Twitter say so.

Appeal to nature: stating that something is good because it occurs naturally.
For example: we didn't used to stare at screens all day in prehistoric times; therefore, we shouldn't now.

Appeal to tradition: stating that something is good because it used to be that way.
For example: teachers used to only use books and paper; therefore, that is best for the students of today.

Suggestive question: presenting a presupposition in a question without supporting that presupposition.
For example: you want to use smartphones in class, but why should we as a school contribute to the students' addiction to technology?

Appendix 3 Conversation frameworks and impact assessments

Useful ethical conversation frameworks were developed for the conversations between developers and users of technology. These contain more questions that the people working in education can ask providers of digital products:

- The Electronic Commerce Platform developed an *Artificial Intelligence Impact Assessment (AIIA)*: a tool for organisations that want to use AI and who want to make an analysis of the ethical implications.
- The *Data Ethics Decision Aid (DEDA)* helps data analysts, project managers and policy makers identify ethical problems in data projects, data management and data policy.

There are various conversation frameworks for moral deliberation. Sometimes, such a step-by-step plan is more of a general framework that can be used for various topics. Some frameworks are specifically designed for a certain context, e.g. for healthcare.

- The ECP developed an *Approach to guidance ethics*, for more general ethical issues surrounding technology.
- The *Utrecht step-by-step plan* for ethics is a method for moral deliberation. This step-by-step plan can be used to form a weighed ethical judgement with a structured conversation.
- The *Framework for Ethical Decision Making* from Santa Clara University in California is an aid for general ethical considerations. The framework takes the main insights from classical ethics theories as its basic principle. With that, the method does remain somewhat abstract and theoretical.

The Royal Dutch Medical Association developed an *Ethics tool kit* containing a step-by-step plan for making ethical decisions in healthcare. The step-by-step plan can also be used in other industries.

Colofon

Weighing values

Date of release
January, 2020

Authors
Remco Pijpers
Erwin Bomas
Lotte Dondorp
Jasper Ligthart

Editor in Chief
Lotte Boot

Photography
Saffloer Mohaupt

Design
Corps / Delta3, Den Haag

About Kennisnet
A good education lays the foundation for living, learning and working, and challenges students to bring out the best in themselves. This requires an education that responds to social, economic and technological developments. Kennisnet supports management boards in primary education, secondary education and vocational education in professionally implementing ICT and is the guide and builder of ICT foundations for schools.

Kennisnet is financed by the Dutch Ministry of Education, Culture and Science.

kennisnet.nl

Kennisnet
Postbus 778
2700 AT Zoetermeer

T 0800 321 22 33
E support@kennisnet.nl
I kennisnet.nl