

Western and Northern Europe

Case Study 3: Mørkhøj Skole (6-16), Gladsaxe Municipality, Søborg, Denmark

Success factors

- Principal with proven success background brought in to turn the school around
- The principal sets and leads the culture
- Working with international models for 21st Century pedagogy (Fullan's 6 Cs, 'Challenging Learning') where students are more active in, and responsible for, their learning
- Technology is seen to support curiosity which in turn needs to be supported with strong learning strategies and an understanding of how to use the technology in learning situations
- Fast and reliable broadband provided externally
- New models of learning for every student in a specially designed technology Learning Hub
- Students set and evaluate own goals in learning portal
- Ability for students to demonstrate learning in multiple modes
- Local support and funding for digital transformation
- Technology is perceived as critical to the students' future
- Collaboration is key
- Professional development support for teachers is available with specially appointed staff

About the school

The school is in a lower middle class area mainly comprised of rental homes. 30% of students have Danish as their second language with students mainly originating from the Middle East, Africa and Eastern Europe. There are 407 students on roll but there is a large turnover as the area is a transit point for many families. This has an impact on the learning environment.

School achievement

The school was a failing school and the principal's aim is to turn it around in three years. After his first year in post, results in national tests have already increased by 25%. The school's goals are focused on creating progression in learning outcomes and student wellbeing.

Use of Digital Technologies

The school has a one to one strategy in which all students have an iPad. There are smartboards in all classrooms and a digital innovation centre has been established called the Learning Hub. Space was found for the Learning Hub by closing the school library and taking advantage of the proximity of the local library across the road from the school. The library has taken all the books and the staff there are remunerated for offering library facilities to students.

The Learning Hub was created with the support of a local company who paid for the digital equipment. All students use the hub for at least a week and it take a whole year group at a time (there are two classes of 25 students in each year group). The Learning Hub idea was inspired by a New Zealand, Stonefields, where all learning takes place in learning hubs. The hub is divided into

zones and the students engage in a digital design iterative process. Students are divided into groups of five and each are given a role within their groups. The class is given a world problem to work on and have writable walls on which to brainstorm and develop their ideas and end up with a prototype solution.



The Learning Hub is divided into zones. Students start in the Presentation zone where the problem is discussed with teachers and subsequently the student groups can brainstorm and develop ideas. They then can go to the other zones: Coding, Innovation, Creativity, Digital design, 3D printing, Virtual reality and several feedback zones to try to create solutions or attempts to that end. The aim is to activate children in learning by creating in iterative design processes. The learning environment is designed to support this.

Students build prototypes of their models making use of digital technology from coding, to robotics with Lego Mindstorms, virtual reality, or through other multimedia tools. Five 3D printers are also available. Through this process, students come to an understanding of product and process and they make decisions about whether to refine their output or to present it. Students make vlogs every day. Those who have problems with traditional learning are thriving in this environment and many willingly go home to continue working on their project.



In traditional classrooms students use digital textbooks instead of books, and there is a school portal run by the municipality where teachers build students goals using a SOLO taxonomy. Students use calculus software for mathematics, grammar exercises are undertaken through adaptive programmes and science apps are available. Students can demonstrate their learning through a range of media.

Technology infrastructure and devices

The school has plenty of bandwidth and good wireless infrastructure. The internet capability is provided by the municipality and is widely available for all. The school taps into that provision and for that reason high volume data such as streaming media is not considered to be an issue.

Although iPads are currently de facto for students and Apple desktop machine are available, the school is seriously considering other devices as their reliability is now considered to comparable to iPads and older students are having challenges using the iPads for their writing.

As money is tight there is little technical support. There are four learning leaders, one of whom is responsible for the Learning Hub and the technology and a new teacher from FabLab (a creative high-tech prototype workshop to transform ideas and projects into physical form) has been hired who is available for technical support.

Students can use smartphones in class but must be given permission to use them by their teacher. Apple TV is also used. Video conferencing is currently used only by staff but there is a desire to use it more with students in the future. Social media is only used for class Facebook pages although there are courses about being good citizens which discuss social media behaviour.

Digital pedagogy

It's about how you learn with IT: technology supports curiosity and this in turn needs to be supported with strong learning strategies and an understanding of how to use the technology in learning situations

The Learning Hub week is based on Michael Fullan's 6 Cs model for 21st century skills is used; students must demonstrate awareness of how they are using each of these skills. The 6 Cs are:

- Character education: building resilience, empathy, confidence and wellbeing.
- Citizenship: referencing global knowledge, cultural respect, environmental awareness.
- Communication: getting students to apply their oral work, listening, writing and reading in varied contexts.
- Critical-thinking: designing and managing projects which address specific problems and arrive at solutions using appropriate and diverse tools.
- Collaboration: working in teams so students can learn with/from others.
- Creativity and imagination: to develop qualities like enterprise, leadership, innovation.

Feedback is essential to the process and must be sought from within the group, from a partner group and the group can also seek feedback from a teacher. The class has teachers (subject matter experts) and pedagogues (social learning experts) available.

The school has 40 teachers, 15 pedagogues, 10 learning agents and 3 learning impact coaches. The Learning Hub, while successful is not yet making enough impact on usual classroom pedagogy. Although 80-90% of teachers are comfortable using technology for personal use, only 60% are comfortable in using it for teaching and administration. However, the school is developing the overall learning environment and is moving from a 'teacher at the centre' model to students becoming active learners by working with the Challenging Learning model, led by James Nottingham in the UK (see figure below), which aims to put John Hattie's research into practice.



Teacher professional development

The school has brought in learning impact coaches to support teachers and another group of teachers have become learning agents to give guidance and to develop classroom teachers' practice. Students spend about 15 hours with one teacher and the remainder with one or two more adults who may be another teacher or a pedagogue, and a learning agent or a learning impact coach and can requested for a specified period. This is in addition to the services of James Nottingham and True North who visit the school. Offsite training is perceived as being of much less value than onsite training and support.

Through the learning portal, students talk to their teacher to select their learning goals and then digitally evaluate their performance and decide whether they have reached the goals they had set themselves. Through the portal students discuss these outcomes with the teacher to understand the how, why and where of achieving their goals. All students create a digital portfolio where all their work is saved. Parents can log in to see their children's goals, what they have learnt and how far they have gone in achieving their goals.

Technology use across the curriculum

Every student has an introduction to technology in the Learning Hub. The principal considers it vital that every student needs to be comfortable with technology in order to ensure students will be competitive and creative and can invent new things. Students must be innovative, collaborative and critical. They do not all need to code so computer science topics such as coding and AI are elective subjects. However, knowing how to communicate globally is essential. Digital technology is perceived as a tool that supports and strengthens the opportunity to create a learning environment that encourages students to be active in finding their own answers, rather than to be simply consumers of learning.

More details of the school can be found at

https://issuu.com/webmaster_gladsaxe/docs/engelsk_temah_fte_2/1?ff=true&e=4000590/52829327