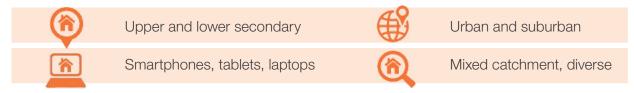# 9.7. A long-term approach is needed to achieve change with technology in Switzerland

This case study shows that implementing a BYOD policy has helped two schools in Switzerland to embed technology and to progressively improve teaching and learning.

Upper and lower secondary		Urban and suburban
Smartphones, tablets, laptops		Mixed catchment, diverse

Background

In Switzerland, the main responsibility for education is delegated to 26 cantons (administrative divisions), which coordinate their work at national level. The Internet and mobile devices are an indispensable part of young people's lives; the 2014 JAMES Study (ZHAW 2014) found that 97% of Swiss teenagers own a smartphone. However, to date this ubiquity of mobile technology has had limited impact on the school environment at primary and lower secondary levels with most schools forbidding the use of smartphones and mobile other devices in the classroom. Few cantons or local authorities have produced policy recommendations for BYOD[1], but a small number of innovative schools have started BYOD pilot projects.

- **Gymnase Intercantonal de la Broye (GYB)** is a public upper secondary school for 1,100 Swiss French speaking students in a small market town close to the cities of Bern, Fribourg and Lausanne and serving two different cantons. It is a relatively new school, founded in 2005, with a record of innovation with technology. The GYB uses open source software solutions whenever possible and they were one of the first Swiss schools to have interactive solutions in every classroom.

- **Orientierungsschule Region Murten (OSRM)** is a lower secondary school for 500 Swiss German-speaking students in a small town close to Bern. It has a strong track record of embedding technology into learning and has made extensive use of the national VLE, educanet 2, with its students.

1 The Canton of Basel has recommended BYOD for its secondary schools: *http://www.baselland.ch/ Newsdetail-Bildung-Kultur-Sport.309168+M5f190993c94.0.html*;

The Canton Lucerne has produced BYOD policy recommendations for upper secondary schools: *http://www.lu.ch/-/media/Kanton/ Dokumente/BKD/Aktuelles/Paedagogisches_Konzept_BKD_Kanton_ Luzern.pdf*

The mobile devices

A survey by GYB prior to starting the BYOD project found that 75% of the entering students owned a laptop or tablet. When beginning upper secondary school, 75% of entering students/parents choose to sign up for the "iGYB" BYOD project. In iGYB students can use any computer or tablet device they own in the classroom if it meets basic requirements including a minimum screen size of 10 inches and Internet capability. Student equipment used includes: 30% iPads, 10% Android tablets, 15% PC laptops, 15% Mac laptops and 5% a mix of various tablets and computers. All the devices are registered to monitor access to and usage of content as required by Swiss law. The school does not allow smartphones to be used during lessons.

At OSRM, a few innovative teachers take advantage of the opportunity offered to students to connect their personal smartphone to the school Wi-Fi for school-related activities. The only condition for usage is that devices have to be preregistered so that access can be monitored and filtered.

Funding arrangements

In both schools students or their families pay for the devices. GYB has invested in infrastructure by implementing an MDM (mobile device management) solution, improving Wi-Fi coverage and upgrading bandwidth to 100 Mbps thanks to a successful partnership with the National Telecom Carrier Swisscom that has been sponsoring *Swiss schools' Internet connections* since 2002. This has addressed the issue of limited Wi-Fi coverage that caused problems in previous pilot projects. OSRM has also improved its Wi-Fi coverage.

Objectives of BYOD in the schools

At GYB the school head teacher wished to extend access to portable technologies to more students and thus adapt his school to real world conditions. The *goals* set for the BYOD initiative are to: take advantage of available digital resources; make classroom learning more personalised; enrich the homework experience; and simplify administrative communication with the students.

The school head is cautious not to set overambitious pedagogical goals which may worry teachers. He sees opening the school to technology as a normalising process that will provide students with opportunities to develop a critical eye about the media-rich world they live in.

By opening up its wireless network to student devices, OSRM pursues its strategy of ICT integration into the curriculum. The teacher involved in BYOD wishes to facilitate the seamless integration of technology in different subjects. He encourages students to document their own learning process and develop their creativity. This he hopes will, in turn, bridge the gap between school and home and develop a more reflective culture in relation to the use of technology.

Participation in BYOD

The iGYB started in 2013 with year 1 students and will expand progressively to all students over a four-year period. Participation is voluntary. 20-25% of students/ families opt out of iGYB and choose the "classic" option. The school believes families that do not allow their children to participate are concerned about the cost involved, the difficulty of monitoring students' use of devices or the possibility that it may be bad for children to spend all day in a technological environment. At the end of each year, students can opt in or out, and more students are opting in than opting out.

At OSRM, involvement is more informal and depends on the interest and commitment of individual teachers. Only one or two teachers use the students' devices on a regular basis, for Internet research, multimedia and art projects.

Advice and staff training

Because a majority of GYB teachers are technologically literate and willing to experiment with technology in the classroom, there has been little formal CPD. However, several staff meetings have been dedicated to issues related to BYOD raised by teachers including: copyright and digital resources; the selection of appropriate apps and web resources; and the use of response systems to test student understanding of scientific concepts.

For the first two years of the project, teachers were not required to embed the technology into their teaching scenarios, only to "accept" student usage of the devices during their lessons. This was intended to give teachers time to adapt to the new environment and benefit from the examples of their more adventurous colleagues. For the coming school year, however, the principal has asked each subject group to pilot one implementation.

Science teachers are testing the *Socrative response system* for the evaluation of learning in sciences, English teachers are working with a digital textbook and *English File by Oxford University Press*, German teachers are using tools including *TopVoc* app to make students more autonomous in vocabulary learning, French teachers are switching to online reference tools and will test the impact of reading and analysing a work of literature as an e-book instead of a printed edition.

To help students make better use of the devices, a 'big brother' scheme was set up in which technologically literate students offered their help to their classmates. Some after school courses were organised but attendance was very low, suggesting that students do not wish to give up their free time and/or do not perceive they need the extra tuition.

Large scale BYOD requires new skills from the IT and administrative teams as they need to spend less time managing machines and more time managing the infrastructure, setting up online help and resource distribution.

At OSRM no formal staff BYOD training has been provided, as the few teachers involved have been integrating technology into the curriculum for many years, but a very active technology coordinator provides support, input and advice when needed.
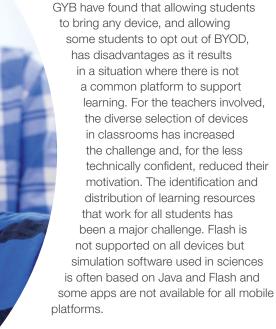
Successes and Benefits

GYB's school head says that whilst it is still too early to judge the full impact on teaching and learning, BYOD offers teachers and students the opportunity to progressively adapt to the new tools, resources and opportunities to support learning in and outside of school.

Impact that has been informally observed includes improved communication between students and the school administration (distributing information, signing up for courses, etc.) and between students and teachers (e.g. electronic submission of homework). It is estimated that savings made by parents on resources and tools (e.g. dictionaries, books, calculators) can cover the initial cost of BYOD devices. These estimates do not include the

GYB have found that allowing students to bring any device, and allowing some students to opt out of BYOD, has disadvantages as it results in a situation where there is not a common platform to support learning. For the teachers involved, the diverse selection of devices in classrooms has increased the challenge and, for the less technically confident, reduced their motivation. The identification and distribution of learning resources that work for all students has been a major challenge. Flash is not supported on all devices but simulation software used in sciences is often based on Java and Flash and some apps are not available for all mobile platforms.

The direction team spends considerable time and energy selecting and organising the delivery of cross platform content and textbooks via the schools' intranet. Although editors could easily produce pdf versions of textbooks, a distribution system is lacking. The school plans to work with *Schooltas* next year to deliver eTextbooks.

Another challenge is teachers' concerns that BYOD may lead to students accessing games or social networking sites during lessons. Teachers need to develop new classroom management skills around when and how devices will be used. Limiting access to certain apps and websites via the school's MDM (mobile device management) solution is possible but this is not a substitute for good classroom management skills and digital media education.

cost of infrastructure and the additional work involved in organising the identification and distribution of digital resources.

At OSRM, the teacher involved in BYOD has commented that students have become more thoughtful in their smartphone usage and now see it as a tool for learning. There has been good acceptance from parents who are happy to see progress in the way students use their phones for learning, not just for communication and gaming. Students have committed to the rules about sharing content (images, video clips, etc.) and there have been no e-safety issues related to BYOD.

Issues and Challenges

At GYB, the more innovative teachers have already enhanced their teaching by using tools available on all mobile devices but getting the more reluctant teachers on board will take time.

The head teacher has observed that balancing, "the slow rhythm of change in education with the incredibly fast pace of change in technologies" is a particularly difficult challenge and, "BYOD is a better fit than 1:1 with school-owned devices that are often outdated before teachers have figured out how to use them".

Lessons learned

Good communication is key. This includes communication with:

- Teachers to develop confidence in the project

- Parents so they feel their needs are taken into consideration

- Students, for example via the students' union, to understand what works best for them.

GYB school leaders report that finding a balance in CPD between theory and practice, and finding the right people to support innovation, are complex challenges. OSRM have found that, "fear of safety issues frightens less able teachers", suggesting that staff training, development and support are required in this area to overcome such fears.

For a large scale BYOD project, the cost of installing appropriate infrastructure is significantly above standard school IT budgets. Planning ahead and looking for partnerships with businesses are key.

A BYOD project can also involve changing roles of school administrative staff. At GYB, for example, one of the secretaries is now in charge of a first level help desk.

Outcomes and Impact

The successes and benefits witnessed to-date at GYB have informed a management decision to roll out the project to all classes. There is little evidence of pedagogical innovation so far but it is hoped that investing in more structured teacher CPD may improve this situation. Although individual teachers at OSRM are very satisfied with the current situation, there are currently no plans to expand BYOD to all students.

A head teacher's advice to other school leaders

Thierry Maire, School Head at GYB says, "you have to give teachers freedom if you want them to be creative, but if you don't challenge them, they rarely leave their comfort zone".

A teacher's advice

Andreas Heutschi, BYOD teacher at OSRM, advises that successful implementation is possible if students experience benefits from using their own devices for learning in school. Also a safe environment can be created by negotiating acceptable use policies with students which then become an integral part of learning.

Effort is required to widen the circle of teachers taking advantage of BYOD beyond the most enthusiastic and technically knowledgeable. To achieve this training and continuing professional development, focusing on technology, pedagogy and classroom management are very important.