

# Mobile Devices and Apps as Accelerators for OER

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# MOBILE DEVICES AND APPS AS ACCELERATORS FOR OER

by Fred de Vries and Frank Thuss

At first sight, open educational resources (OER) and mobile devices would not seem to have much to do with one another. Mobile devices are rapidly replacing normal computers where creating and studying educational resources are concerned. That offers opportunities, but there are also downsides. These are explored in the present article.

## What developments are relevant to using mobile devices?

The higher education sector is gearing up for major changes, with new providers, new educational models (OER, Open Education, MOOCs), and an emerging open European education market influenced by the Bologna process. Today's prospective students no longer become proficient in using desktop PCs but are used to working with mobile devices such as tablets and smartphones, and to being almost constantly connected to the Internet with social media and sources. The combination of these two trends means that the use of mobile devices is beginning to gain a serious place in Dutch education too, not only so as to access up-to-date information but also to support mobile learning and learning in a context. The latter is an important option for mobile learning: the learner's location is taken into account and can be enhanced with artefacts. An example is mobile fieldwork with augmented reality (Ternier, 2013).

A number of higher education institutions are implementing pilots to identify the didactic scenarios in which learning with mobile devices can offer added value, and to determine how mobile learning can be integrated into the educational process after the pilots have been completed. The educational resources and apps utilised can be categorised as OER.



Student fieldwork in Florence supported by Augmented Reality

Recent years have seen the establishment of “repositories” (i.e. storage areas) for educational resources; these may or may not be freely accessible. The educational resources that they contain can be searched using a Web browser and then incorporated into one's own educational material. The work of arranging and processing the material to create a new publication is almost always carried out on an ordinary computer. Besides obvious problems concerning traceability and ease of use/adaptation, most open content is not suitable for simple and effective use by students on mobile devices. It is also difficult or laborious for instructors to make their educational resources available in such a manner that they can be used in that way. That is because not all the file formats used can easily be displayed on mobile devices, either because of file incompatibility or the limitations of the smaller screen. The most commonly used authoring tools often lack an export option with suitable templates for mobile devices.



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## Opportunity

The challenge for providers of digital educational resources in general, and OER in particular, is to encourage use of that content by making it suitable for mobile devices, preferably with open standards being applied. The content itself can be adapted, for example by reformatting text or making use of file formats such as ePub, HTML5, and mp4. Needless to say, educational apps designed for mobile learning can also be made available subject to an open licence.

We are now waiting for the first Dutch educational institution – or even better, a group of institutions acting in partnership – to develop an application that makes it easy to select, edit, and share educational resources using mobile devices.

Here are some examples of applications (whether or not “open”) for mobile devices:

**The Khan Academy** (Dutch version to appear in 2013). This is a popular platform offering all kinds of freely accessible educational resources. The Khan Academy has a number of mobile apps for accessing these resources.



*Khan Academy app*

**iTunes U** is a platform developed by Apple where users of iOS devices can access a large range of freely available educational resources. However, a lot of the material cannot be reused subject to an open licence.



*course in iTunesU on an iPad*

**Temoa** is an iPhone app providing mobile access to the OER portal of the University of Monterrey (Mexico).



*Temoa app*

**Jetpack** is an authoring environment developed by Purdue University with associated mobile apps to enable educational developers to develop interactive resources for mobile devices. Purdue has opted for this approach because it considers that publishing educational resources in the form of e-books offers little added value from the didactic point of view.



*Jetpack app*



**LectureLeaks** is an app that enables students to use a smartphone to film lectures and immediately upload them to the LectureLeaks website. The lectures can also be played back again with the app.

Numerous audiovisual educational resources are also available on YouTube. YouTube apps are available for the standard mobile platforms.

### Downsides

A mobile device can no longer be viewed as something isolated; it in fact forms part of an “ecosystem” made available by a supplier or manufacturer and accessed via a cloud function. By “ecosystem”, we mean a system involving close cooperation between the hardware, the mobile operating system, the associated app store, and accessories. An iPhone user, for example, can download apps and digital resources from the app store. These systems are often “closed”, both as regards access from certain devices and restrictive licences. Educational resources from iBooks and iTunes U, for example, can only be accessed on iOS devices, and are not subject to any open licences.

The closed nature of these ecosystems can be seen as a threat to the open nature of OER. It is therefore advisable never to develop educational resources for only a single distribution platform, always to consider carefully what legal restrictions may apply if it is published for a particular platform, and to utilise open standards and open licences such as Creative Commons. The video clips developed by the Open Universiteit in the Netherlands are a good example. These are stored in a video database but are published automatically on a number of different platforms, including an internal website, iTunes U, and YouTube.

### Mobile content creation

Smartphones and tablets long ago ceased to be used only to access content. Adding a photo and video camera and all kinds of sensors, as well as integration with various social media, mean that mobile devices are increasingly being used to create, edit, and share content. Examples include:

- *Shooting your own films.* Students use their smartphone to video tutorials and share the recording via Facebook or YouTube. This is already being done at a number of universities of applied sciences.
- *Study Buddy.* This app was developed in the framework of the “Apps On” competition organised by SURF and the Waag Society. Learners photograph objects and can add notes.
- *Evernote.* This app is an easy way for users to make notes via a smartphone, and to collect, annotate, and share content via social media and the cloud.
- *Tumblr and Wordpress.* These microblog apps enable learners to create and share content using their mobile device.

These innovations turn students into co-developers of educational resources. Instructors who use and develop OER can come up with appropriate rewards to encourage students to do this seriously, for example by expecting not just comments but also suggestions for improvements, which can then be taken into account in the student’s assessment.

If these content collections are to be used in educational resources, then the “small print” is also important. It may be that a company that provides a social media facility

imposes restrictions on its use and claims rights of use itself; this impedes its free use as part of OER. Many instructors and students will find this a bore, but it is still important for them to give some consideration to the consequences of their choice of tools.

### The future

Taking explicit account of mobile use when publishing OER makes it possible to keep up with the explosive increase in the use of smartphones and tablets. Mobile devices lower the threshold for users considerably when it comes to providing feedback, annotations, and recommendations. Material initially found with a mobile app can also refer to other material that can be accessed on an ordinary computer using a Web browser. Authors of material can encourage use and reuse via the social functions referred to. The selection and improvement of OER can also be promoted via social media.

Ultimately, the distinctions between using PCs, laptops, tablets, and smartphones will become blurred, with the use of open educational resources increasing explosively. Where producing such resources is concerned, computers with a keyboard and a mouse will continue to play a major role for the present. Apps can also be developed that make it easy to publish mashups of OER collected using mobile devices. Developers will still need to be cautious about unintentionally giving away rights of use when utilising certain apps.

The world of education has become inconceivable without the mobile use of tablets and smartphones. Student will assume that teaching and OER will be available on their mobile devices. The Dutch higher education sector can collaborate in this area, for example by sharing expertise and tools, whether or not via cloud services. There may also be opportunities for joint development of applications, for example in the context of SURF: apps that can be used for teaching and educational resources provided by various different higher education institutions.

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