

## Digital tablets and teacher's workload

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The development of Information and Communication Technology (ICT) in society, and especially in the various fields of Economy, is mainly due to productivity gains it has allowed. For example, thanks to desktop tools, a secretary can now do more work without having to work more. With bar code, the passages at the checkout of a supermarket take much less time. In Education, it seems that ICT fail to actually grow. According to Cuban, the introduction of a new ICT in education tends to follow the following cycle: Firstly, a new technology for education appears. Secondly, it is the subject of "scientific" articles that show that it has a real added value for learning. Thirdly, some early trials report successes. Finally, the generalization is a failure! We can wonder whether this failure is because ICT in Education increases the burdens of teacher work. So, opposite to the economy field, ICT in Education does not improve the teacher's productivity. Teacher's workload has greatly risen over the years. If we want they adopt a new ICT, this one has to facilitate their work. However, this is rarely the case.

Through a review of papers, we show that, until now, digital tools available for teachers do not actually meet their needs. Very often, ICT generates for them a work overload. Part of this overload is because computers are rarely in classroom and when they are in classroom, it is in short supply. In both cases, this demands teacher a complex course management and generates for him extra work before the course and during the course.

We show, then, by the study of some cases, that the arrival of digital tablets seems to change the situation. We show how these tablets lighten the teachers' workload and enable them to implement activities that it was not possible to realize before. The analysis of these cases shows tablets do not generate extra work for the teacher because they are similar to the book. Like a book, they are mobile, do not take up space and easily fit in the classroom. Moreover, tablets can lighten the work of the teacher because they are able to store information. For example, in a kindergarten, when a pupil takes a picture of his work thanks to tablet, it avoids teacher to be present. The teacher will be able to evaluate the work in the evening. Teacher's workload will also be lightened because tablets are able to process information given by students and consequently to interact with them. Therefore, tablets support some of the teacher's tasks. For example, some software applications on tablet can correct the student's work and propose him some remedial education exercises. Thus, tablets allow more differentiated instruction. Indeed, in a class of 20 or 30 students, teacher cannot be behind each of them. In kindergarten, for example, he cannot control that each of the 20 pupils does the right gesture when they learn to write. With tablets, it is possible to do it.

So, tablets will behave more and more like tutors. This is why, finally, we present Intelligent Tutoring Systems (ITS). With the development of ITS, we show that the support of student by

tablet will be even more accurate. These ITSs are currently mostly used in distance learning and aim to help student in his learning. Their current development is mainly due to the emergence of two new scientific fields that are Educational Data Mining (EDM) and Learning Analytics. These two fields, are nothing else than the application to Education of studies which are currently done on Big Data. They use machine learning and artificial intelligence techniques and aim to better understand how the student learns to better help him. To do this, they study traces left by the student on the machine during his learning.

In conclusion, if tablets relieve the teachers of a part of their workloads, we can finally wonder how their job is going to evolve.

**Keywords:** digital tablets, teacher's workload, ICT, ITS, EDM, Learning Analytics