A Disruptive Disease

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A technological disease spreads around the world. It degrades and counteracts age-based primary education like almost no other technological development before. It disrupts family life and disparages parents that question it. And other than one might think, schools hail its arrival and stick to its implementation, regardless of their limited understanding of its short- and long-term impact. They even feel encouraged to let the spreader of this disease take over curricular development [1]. The disease is subtle. It uses strategic advantages, such as its potential hosts being entirely clueless about how the disease works. Its mere powerful presence is overwhelming, and not knowing about it is potentially harmful and embarrassing for the hosts to admit. Consequentially, they become proponents of the disease and aid in its implementation and spreading. This is indeed less because of them being convinced, but more because they can shift responsibility to the disease itself. They don´t even address the disease´s origin and the potential interests of the originator, but instead merely accept that they cannot avoid its spreading to happen. The disease disguises itself in beautifully designed outfits. Those that got infected feel chosen, they even decorate their possessions with stickers to show they got infected. The disease is not seen as a disruptive technology. It is far too pretty to be addressed as such. It is slim and shiny, and its metallic surface and elegant design mimic not only pecuniary but also educational value. The disease is the iPad, indeed. It flooded primary education, was welcomed by many, and swamped out established pedagogical approaches in no time. Curricular achievements that developed over decades were rendered obsolete without questioning. For certain, the device is not necessarily evil by nature. It is a technology that has the capacity to have a positive impact on education. What is evil is the lack of pedagogical critical analysis of its impact on learning, kids´ health, family life, social interaction, and the general development of ICT skills. It is undoubted that its unstructured implementation, lack of well-adapted pedagogy, missing expertise, and absence of regulatory measures, caused a dire situation within many schools and families. The paper addresses these deficits based on our experience as parents and educators, and from discussions with numerous parents. It describes occurrences that are paradigmatic for how disruptive - in the truest sense of the word - technology can be for a kid´s well-being during its formative years.

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1. Disruption is negative by nature

The term “Disruptive Technologies” became a buzzword for everything that replaces an existing process, item, or technology. Disruptive Technologies appear cool and innovative. Speaking about which usually entails a positive connotation. However, the term disruptive refers to the Latin word “disrumpere”, meaning to tear or to destroy something, and that is indeed a lot more negative than anticipated. It goes without saying that these technologies always have a negative effect on humans that are concerned with the particular aspect that is to be replaced. It is widely known that these technologies aim to supersede traditional practices [2], but a myth is that they always lead to success. Initially, the iPad didn´t aim to replace anything, it rather tried to bridge the gap between smartphones and laptops. Education, as a potential beneficiary of this development, wasn´t necessarily on the radar, but for sure a target group of youngsters that were affine toward Browsing, Email, Photos, Video, Music, Games, and eBooks [3].

1.1 Disruption One - The Implementation

“The iPad came upon us almost out of nowhere and hit us entirely unprepared”, says Phoebe, the mother of a 7-year-old boy at a British Curriculum School. Two weeks before the start of the school term, the principal emailed parents, stating that the kids need an iPad. “We´re tech-savvy people,” she says, but never really involved ourselves in the various devices available on the market. We started our homework, not really being convinced of the matter, but coming up with a device almost everyone else came up with at the same time. And even though we live in a large city, these devices were all already sold out. Hence, the kids started school without iPads. The delivery took so long, that the little one had to use the teacher’s iPad, sitting in front of the entire classroom. It reminded of the past when

kids had to stand in the corner, because of misbehavior. But indeed, he didn´t misbehave. He did nothing wrong. And even though the teacher knew about the supply bottleneck with the devices, our son was continuously asked to bring “his” iPad, she added. She then continues that they knew iPads would be used one day in school, but what really hit them was the fact that no one came up with an explanation, a pedagogical concept, something that explained the “Why and What” and all other questions parents might have if a seven-year-old starts his endeavor into the digital world. The occurrence is prototypical of what continues to happen at many schools. It doesn´t need a lot of research to understand that the decision to implement iPad technology in the classroom is not a pedagogical necessity, but of mere competitive nature. What the schools are missing out on is getting parents on board and explaining how the device is going to affect learning and what changes it will bring to the teaching environment. Unfortunately, most schools neither have the well-trained staff (see Voogt and McKenney [4] for an overview of TPACK and the pre-service curriculum), nor do they have the guts to actively address that the pedagogy of predetermined curricular structures does not match with the opportunities the device might offer. This leads to the fact that advanced technology is wrapped around traditional learning content, leading to a disruptive dichotomy of what is and what should be.

1.2 Disruption Two - The Arrival

The arrival of the iPad at home is celebrated. The Unboxing ceremony is worth being streamed on YouTube. At least, it is worth putting on your best clothes. And that is indeed what happens to the device as well. Out of pure anxiety that something might happen to the precious object, parents usually decide to cloak it in a rubber cover that rather looks like a deep-sea diver, than a high-tech device. And what was formerly sleek and slim metal, turned into a bulky, but slip-proof, disguise. And it is indeed the parents that the kids hold responsible for the embarrassment at school. This is the first disruption happening to the families, and most likely for the first time, a device used for teaching in school triggers confrontation between kids and parents.

1.3 Disruption Three - The New Normal

From Unboxing day onwards, the device is omnipresent. Kids use it at the breakfast table, on their way to school, during class, and when coming home. They use it at every possible chance and argue that they just want “to look into something”, most likely referring to the learning aspect, as induced in school. Looking into something is exactly what happens there. Asking kids what they are using the iPad for, the answer most certainly is “for research”. Asking kids that do not use iPads what they have been doing in school would almost never be responded with “research”. This unintendedly also demonstrates the misusage of the device in schools, where it is merely used as an information gauge, but by far not to what its true potential entails. First and foremost, the device is mobile, it is computationally powerful and lightweight at the same time. It also has a superb display and can be networked. Information retrieval such as research does not need all these features. It is obvious that such technology can be used for far more complex tasks, but the pedagogy in school lacks the demand for such complexity. The curriculum doesn´t provide answers as to how this specific technology can be utilized, and it remains a mystery why it must be used if devices such as stationary computers, laptops, or even non-digital means can accomplish the same tasks. We have integrated a device into the curriculum without a necessity. It is apparent, however, that the new normal disrupts family and social life. Kids are so drawn to the device that it massively impacts their behavior at home. Instead of reading a textbook, they do their research online with the iPad. Instead of asking questions and discussing their work with their parents, they prefer the anonymity of their personal devices. And instead of watching TV - most likely on a much larger screen - they again prefer the iPad, watching in isolation. Altogether this leads to a massively increased screen time that is far beyond anything that is recommended by health professionals [5]. Schools must develop strategies, as to how this time can be effectively reduced without triggering a confrontation between parents and kids.

1.4 Disruption Four - Social Skills

The pandemic boosted the use of mobile devices, and many see it as proof of how beneficial the technology is. We see institutions of primary, secondary, and even higher education starting to rethink their curricular structures, willing to foster remote learning even more. It is true, that without mobile technology the pandemic would have even had a more drastic effect on teaching and learning. Kids would have had a very hard time adapting to a situation being on their own with books only. However, it is also true that many kids - despite being well-acquainted with technology - faced dramatic drawbacks when using the iPad as their only means to interact in the classroom. It can only be

speculated what exactly caused these drawbacks, but it is apparent that yet again unadapted pedagogy and a disconnect from the kind of social interaction that feels real, is what triggered the effect. Online technology changes the notion of what matters, what behavioral rules apply, and what respect or friendship means. It is an educational task to find answers to these questions, but essentially it is up to the schools to develop solutions.

1.5 Disruption Five - Regulatory Measures

The iPad is thought to revolutionize the classroom [6]. It changes the way classes are taught, and at the same time depicts deficiencies in the educational system that come along with this revolution. Schools that communicate a strategy of how this revolution is going to happen are rare. Schools that integrate parents and explain the changes the technology might bring to their homes barely exist. Out of pure cluelessness, we are relying on a technology being praised for its benefits, wittingly neglecting that it might have its downsides. Murray and Olcese [7] already depicted that “in order to prepare current K-12 students for productive lives in the 21st century more emphasis is needed on models of teaching that take into consideration more modern theories of how people learn”.

1.6 Disruption Six - Technological Expertise

Oftentimes, teachers defending the use of the iPad in school refer to it as “making the kids ready for the future”, leaving it open what that really means. It appears as if they believe a person who can use an iPad or an app is ready for what the future brings, at least regarding technology usage. What they disregard is the fact that technology is manifold, and that with the introduction of the iPad many other technologies were dispelled or no longer maintained. Computer labs with diverse peripheral devices are rendered obsolete since the belief is that with mobile devices kids always have their data at hand. It is not unusual that newly built schools do not even have workshops anymore. Schools neglect the value of the traditional, not understanding that mergers of digital and analog technologies open a whole new world of opportunities. The influence of apps on the iPad is limited if they are not tied toward an understanding of what their actual effect on the real (non-digital) world is. Therefore, they remain questionable in early childhood education if not supported by profound and well-adapted pedagogy.

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