Aufsatz

Attention Management in a Completely Online Class

Why virtual teaching cannot replace the traditional classroom

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Abstract

The COVID-19 pandemic has had a deep impact on the global education sector. Online classes have offered only supplemental forms of learning besides conventional classes so far. Migrating from traditional learning to online delivery strategy will not happen overnight. Fully online learning is an effective mode in times of crisis, but – and that is the thesis of this article – distant education without a school atmosphere cannot be a substitute for group learning in physical classroom environment.

Furthermore this essay presents examples how tech industry giants exercise soft governance by digitalizing school leadership, by the conversion of teaching and learning material into intelligent software, by offering resources, training courses, lesson plans and how-to guides for remote learning. EdTech companies believe that online education will become an integral part of school education.

Finally the article outlines the challenges of designing distance learning alternatives to traditional attendance classes. It sketches a media study perspective on the educational use of video conferencing in the situation-dependent interactive education system. The essay provides insights into the reasons why can't we fully transfer the regular classroom teaching into the digital space.

Keywords: COVID-19, distance learning, video conferencing, EdTech companies

Introduction

In response to the spread of coronavirus disease 2019, the political decision makers globally validated the idea of transforming education into a series of distant online interactions. The industry of education technology (EdTech Industry) conducts an effective lobby for the promotion of virtual (online) education. However, the global pandemic created a situation, which the

global giant enterprises and the advocates of the digitalisation in education politics never even dreamed of: they suddenly had the chance to *conduct experiments* concerning the conversion of education into a digitalized form in a real environment and in a global setting.

Early in 2020, the tech enterprises invested a lot into the development of education technology. They took advantage of the biological vulnerability of humanity. They presented their lucrative investments as the dedication of technological knowledge to the service of social objectives. The socialisation of digital technology as a mission of the industry branch used the same image of humanity as a reference that educational governments also use in their technophile arguments. According to this, the students have to be trained into well-informed consumers of technology, so that they would be able to appreciate the impact of info-communicational services upon their life qualities.

We have crossed a threshold of an era. Our computer screens have become virtual classrooms. The world, in which we had no idea how the everyday routines of education can globally undergo an irreversible transformation by the insertion of video conferencing software, has disappeared.

And we, educators–driven by work ethics, the protection of our jobs, or simply led by curiosity–transformed our classes into a virtual form without being well prepared for it. No managerial strategies, no teacher training, no debates on technological design or politics, no arguments about the pros and cons–we just did it. We fulfilled the directive to simulate classroom interactions with online digital technology.

From the aspect of communication technologies, the process of digital transition seems to be quite simple. If technical conditions are appropriate, the teacher and the students get into contact, seeing each other's live image; they become able to ask questions in oral (by the mediation of microphone and headphones) or written (chat function) form, and they are even able to share their own screens. However, in comparison with the intoxication of the technical approach, the methodological and pedagogic observations are quite sobering. It is essential to know that the virtual method doesn't need to mean rejecting the traditional classroom pedagogy. The convenience and low-cost model of virtual learning cannot replace the experiential learning of human values and character development of the physical classroom setting. Teaching methods cannot be transported seamlessly into a fully digitalized classroom by the use of technological tools. Education is not just learning some subject matter, and collecting pieces of information, and keeping them in memory to reproduce them in examinations. The process of learning is full of social interaction between teachers and learners with different background and abilities. There's no doubt that completely online learning is comfortable and offers greater flexibility, but even in distant education must be established an active teacher-student relationship, and

the use of digital technology in online classroom should be pedagogically informed to support student engagement.

While face-to-face contact provides a full picture of the level of tension or ease in the physical environment surrounding the teacher and the students, virtual conferencing allows only a fraction of emotions and nonverbal cues to be conveyed. It's undeniably true that the majority of distance learning courses include some face-to-face time with other students and teachers, but it is still important to make more effort to encourage social interactions in online classes and to develop interpersonal skills. Never has there been a time for a coordinated and collaborative global response to the best practice principles for online instruction. Fully online learning is an effective mode in times of crisis (no other alternative is yet in sight to continue providing education despite pandemic), but it is quite likely that distant education without a school atmosphere cannot be a substitute for group learning in physical classroom environment. Online smart classes should be used only additionally to enhance the physical learning process. Switching over to a remote learning environment should not mean that educators give up their efforts to collaborate with learners online in real-time, share lessons, make a lesson interactive during a video conference, create useful assignments, do grading and give personalized feedback all in one hub.

All things considered, distance learning is able to support continuity during a transitional period of the pandemic, but cannot constitute a permanent alternative neither to traditional, nor to blended classrooms. My essay is about the theoretical reasons of this observation. Moreover, I present some examples about the global influence of tech enterprises upon the decisions of education management in the course of the transition to emergency remote teaching.

1.   Distance education in a completely online class

My essay is about the forms of interaction. What has been lost during the transition to distance education? What are the possibilities for attention control in an online class? What I mean is the *classroom* situation of digital education. Here, the phrase "digital classroom" signifies the process of attention-focus in the online space, where the participants join together and perceive each other while being able to reflect to this perception: they can communicate. However, the creator and the conveyor of this shared space, this classroom is purely digital technology. My subject is the *virtual presence* in a digital ecosystem, where everything is saturated by computer technology, but the physical contact between people is temporarily reduced to zero, thus digital classroom education is completely *distant*.

For the sake of conceptual understanding, let us separate three educational situations according to their medial characteristics!

1) In the years preceding the COVID-19 pandemic, the objective of the *preparation for digital education* was to create an environment in which (online) digital tools support up-to-date visuality, immediate evaluation, cooperation, personalisation and the reflection of the learning process. The teachers endeavoured to help students to get used to the applications that support learning, both in the physical classroom and in the course of individual learning at home. For example, if the collaboration was to be executed in a form of digital classroom, it was implemented as a flipped classroom. The teacher made preparatory materials available online, and by the use of these, the students gained preliminary knowledge at home, which was followed by collective elaboration in the real environment of a contact lesson. The acquisition of digital skills occurred in the course of *moving back and forth* between online and offline influential areas (Villano 2016)

2) Another learning management form from before the school closings is *distance learning*. Here, interactions between the teacher and the students aren't necessarily present; several distance learning courses are created in a way that the multimedia curriculum, assignments and tests could be completed with minimal assistance from the trainer. However, if an appointment is necessary, it can occur both online or offline: through video chat, or by consultations organized in offline environment. Thus it can also operate as a *hybrid* system.

3) A radical change in 2020 was that the need for *distant online education* resulted in the creation of *completely online classes*. The teacher and the students can only cooperate as an exclusively virtual community. Learners in distance learning courses need guidance and counselling services. It is also important to build a framework of diverse support supplies around the learning process (Zawacki-Richter 2020: 221). The decision makers in education politics could come up with the idea of the transition, since the technologies of online interaction (digital classroom software that are capable of bi-directional video contact: OneNote class notebook, Edmondo, ClassLink, NoRedInk) and the frameworks of online education management (Moodle) are already in use for years.

The transition to completely online education assumes the existence of necessary household computer technologies, and as much as the creation of environments that are suitable for studying (the lack of these circumstances results in dropping out of education, escalates social inequalities and causes self-assessment crises). Fully remote education requires conscious creation of flexible individual learning tempo and behaviour, as well as willingness to self-tuition. The teacher has to secure a continuous provision of training materials and comprehensible assignments towards the students, verify the persistence of substantive learning while maintaining learning willingness

by providing encouraging feedback. The feedback can be promoted by the use of education management software. The communicative deepening and the collaborative use of the acquired knowledge have to be supported by the regular insertion of virtual meeting phases. In an optimal case, the cooperative use of an education management system (Moodle) and a video conferencing application facilitates the fast transition to distance education. The modules of Moodle help the teacher to structure curriculum, to create practice assignments and to compile tests; while the student is able to plan his/her own self-supporting advancement, the shared forum provides an opportunity for collective debate; and the administration of education is also possible (enrolment, attendance logging, scheduling, monitoring activities, evaluation and grading). And whenever there is a need for live communication and real-time collective discussion, the learning process can be transformed into a virtually interactive form by the use of video conferencing applications and digital classroom software.

The primary obstacle in the way of instant transition to completely online education during the coronavirus pandemic was neither the lack of information or practice, nor technophobia (of course these also contributed to the process). The main problem was that in the daily praxis of the teachers there were no training materials or lesson outlines that would have been suitable for online education management. (The necessary set of tools is also missing in several families; and a sizable proportion of the students lack the ability for self-directed learning). The creation of a fully distant online school as a *permanent* substitute is not explainable.

Teaching must take the form of interaction systems that are maintained and developed through the participants' mutual observations, giving them the necessary complexity of proficiency. With persistent efforts, a good teacher is able to use online education management software ingeniously: in case of sufficient work input the information content and the assignments can be structured in a way that the learners can distinctly understand what they are expected to do. The arrangement of teaching assignments by subject and the daily and weekly distribution of the different subjective content and assignments can be coordinated well with appropriate awareness. Learners have to recognize an efficient time management framework and a content-structure system in distant online education, which they can align to.

However, *interactions* in a clearly digital classroom will never take place the same way as they would normally do in a physical classroom. Any effort for their transplantation is pointless. In all likelihood, students can have parallel interactions *in* and *outside* of the online classroom. Thus students can participate with each other and outsiders in interactions in and out of the classroom parallel with the face-to-face interaction in the class. Dialogs can also be peer to peer, or in small groups with no transparency for other of the class members or the teacher. So the participants are not necessarily

directed towards the communicative units at the exact same time (Paulsen & Tække 2019: 135). The students who are socialised in an exclusively digital classroom would develop absolutely different concepts about focusing attention, about interactions between teacher and students, about body techniques and about community development. Internet-based interactions cannot substitute physical interactions.

2.   Tech enterprises are the winners of the transition to distance education

Under the banner of social responsibility, global tech enterprises extended their services and made their advanced digital technologies and products including video-conferencing and live-streaming features freely available. These actions of charity enhanced the reputation of these enterprises and promoted the success of their essential business activities. In February 2020 the greatest Chinese cloud service provider, Alibaba Cloud deployed more than 100,000 new cloud servers within a couple of hours in order to support large-scale remote work. DingTalk, Alibaba Group's enterprise chat and collaboration app stepped up measures to help schools continue their lessons online during the coronavirus outbreak. Shortly after China postponed the start of the new school semester, the app launched an online classroom initiative to provide schools with free digital tools. About 120 million students and 140,000 educational institutions across the country have resumed classes through the app (Chou 2020).

The Chinese mega-enterprise of video game industry, Tencent that provides services for hundreds of millions of people via its flagship products like QQ and WeChat, has been developing its Tencent Education brand since 2019. In response to significant demand, Tencent classroom, meanwhile, has been used extensively since mid-February 2020. The company made available the use of Tencent Meeting video conferencing app for Tsinghua University and Wuhan University for free. In Wuhan province, 730,000 students in basic- and intermediate-level education (K-12) study by the use of Tencent online classroom service since the transition to distant online education. The leaders of tech enterprises often declare that their online classroom programs are only the beginning. They will continue working towards creating advanced digital technologies and products to benefit all parts of the education sector. The enhanced integration of information technology into education serves their interest. According to their future vision, online education will constitute a significant part of school education (Li & Lalani 2020).

2.1. Tech enterprises shape post-pandemic education

As the coronavirus pandemic devastates the planet, leading to quarantined cities, states sheltering in place and schools and universities closing down worldwide, Zoom has emerged as one of the leading video conferencing software tools to keep businesses running, students learning and people connected. A free, unlimited access to Zoom was made available for the public education institutions in the plague-stricken parts of China in February 2020, to every school in the USA, Italy and Japan in the middle of March, and to 19 other countries in April (while Zoom seamlessly provided its free 40-minute video chat service for several millions of users– just as they did before the pandemic). It probably cost a huge amount of money, as video conference calls have enormous resource demands. Zoom is forced to invest into public cloud services, spending a fortune on bandwidth extension. However, charity pays out: Zoom is already on its way towards becoming name that represents video conferences in general. Zoom also became a social-media phenomenon almost overnight. On Twitter, TikTok and elsewhere, Zoom went viral—quite a feat for a piece of business software. One Twitter user joked, getting more than 21,000 likes: "Lol you thought you were better than me because you went to Harvard??? We're all attending Zoom University now." The real Harvard is conducting all of its remaining classes on, what else, Zoom. (Konrad 2020)

Since April 2020, IBM and T-Systems provide professional support for domestic schools in order to help them to introduce Webex free video conferencing service developed by Cisco into distance education. A shared partner of the tech enterprise and the IT services provider is the Program Office for Sharing Networking Knowledge Foundation; the objective of their cooperation is to equip the teachers' community for online classroom education, since certain forms of this are worth considering in schools even after the pandemic.

2.2. Latent influence over education management

Tech enterprises are the new, unseen managers of the virtual world. By the use of the data assets that they create or provide, data mediators produce also the evaluation systems, software and databases which other sectors will use as the foundation of their own decision-making processes. For example, whenever national education systems or local institutions decide about the issue of digitalisation, the data used for the decision is provided by the global info-communication tech enterprises. As non-state intermediary actors with governmental influence, data provider companies practice *latent* directional authority in more and more educational contexts: they influence knowledge management decisions (purchase of software licenses), but they also have an impact on school class knowledge produc-

tion and knowledge processing. Software engineering companies, big data providers and online learning platforms play via latent policy coordination an increasingly relevant role within the process of educational globalization (Hartong 2016: 529–530).

Organizations as the Technology Based Assessment or the German Institute for International Educational Research focus on the improvement of digitalized learning and school technologies, and on the data-based support of educational research. They serve as a national project manager within the PISA survey, thus they influence the evaluation of the students' knowledge by the management of the data asset. Mediatory data service suppliers, such as the Data Processing Center (part of the International Association for the Evaluation of Educational Achievement) offer cloud solutions to educational data management, convert teaching and learning contents into intelligent software. Microsoft Education Centre exhorts school headmasters, teachers and university students to become partners of the tech platform. They offer badges and certificates for the completion of their training materials, they provide virtual classroom connections; promote teaching by virtual school trips, and lesson-outline collections. By initiating and coordinating mutual learning activities, and by presenting useful practices adapted from different countries, Microsoft exercises *soft governance* between local and global level. Microsoft Educator Center popularizes good examples as success stories, and publishes them in white papers. By doing so, Microsoft piles up a set of arguments for the advocates of digital classrooms. As a digital hub for teachers and learners, Microsoft Teams states to bring conversations, content and apps together in one place, and thus promises to allow creating vibrant and personalized learning environments. The example of Microsoft demonstrates how successfully data mediators urge educational decision makers to make developments towards the direction of online classrooms.

3.   Why digital classrooms are not able to map physical ones?

As an interaction form of distant online education, video conferencing provides an opportunity for me to outline from the aspect of *media-based culture sciences*, why completely online contact lessons cannot be considered as long-term alternatives to physical ones. The reason is that attention focus is executed in a different manner. Since the end of the 18th Century, school tuition (*institutio*) and education (*educatio*) blended in a form of classroom teaching: the participants of classroom interactions perceive that they are exposed to perceptions in both reciprocal and retroactive manners. We try to synchronize behaviour according to our observations. The participants decide according to cultural, social, institutional habits, what is included in the focus of public attention, and

what is excluded from it. The stronger is the technical influence on the situation, the more compelling (but also the more autonomous) is to define what kind of behaviour would be considered as participation (Luhmann 1987: 564). The harmonization of different behaviours cannot be executed if the participants of the video conference (either the teacher or the students) block the broadcast of their camera. A digital classroom is a completely different form of participation and interaction than a physical classroom. "Smart" classrooms should be used only additionally to enhance the physical learning process in the post-pandemic era.

3.1. Cognitive and emotional aspects in a human/equipment/office configuration

In case of teaching in a digital classroom, the teacher possesses broadband internet connection, there is a computer on his/her desk, a camera broadcasts the shared screen, and the voice is transmitted through a microphone. In a video conferencing application, the participants are able to see each other's camera image: the synchronised view of all of the participants is a new experience (in a physical classroom not everyone can see each other at the same time). However, the image set of classmates is only temporary; the camera images become partially covered when the teacher shares his/her own screen. At this moment, the student is required to make a choice: he/she can choose to look at the teaching material, or share his/her attention since being also interested in the images of the rest of the participants; but in order to see them he/she has to click through the live camera images. The student performs it without the teacher noticing what his/her student actually does.

As software users we enter into a system of continuities and obstacles. The teacher's ability to act depends on the computer, and is also limited by the objective accessories of the "home office" interior (chair, desk, equipment, lights). It is not easy to stand up, and it is impossible to walk: the effects of performative competence are reduced by the limitations, which leads to mentally exhausting reception situations. The lack of movement is also hard to follow on the students' side. This is counterbalanced by the variation of interaction sequences. It is possible, since Moodle supports the storage of diverse electronic resources – text, image, video, assignments, test and questionnaire – in one platform. However, switching between episodes also weaken the focus of attention.

3.2.   Tricks, body techniques, self-presentations in the course of educational video conference

Video conferences allow the use of several activity functions and presentation forms (texts created by community cooperation, voice and/or image recording in the cloud, voting outcomes, chat messages, links, shared screens, emoticons), which would be impossible or at least implausible in a traditional classroom. There are also some lost aspects: the three dimensional, stereoscopic, tactile and smelling components of participation cannot be transmitted.

If students have something to say at a video conference, they are only able to draw the teacher's attention by rudimentary methods. They can choose to disturb the class (yell in through the microphone, but it is a dispossession of the audio channel: this way they take away the talking opportunity from the teacher). They can also generate a misunderstanding (waving into the camera, but it is not an obvious sign, as the direction of the waving is not clear). They can also resort to the technical solutions that are deprived of emotional characteristics (they can write chat messages, click the "lifted hand" icon on the control bar, or refine the meaning of their message by adding emoticons).

It is hard to adapt well-tried body techniques and self-representing gestures in the online classroom in an unchanged form. A simple eye gesture is not enough to reprimand, spatial positioning and theatrical movements (sitting on the teacher's desk, walking along the aisles, grinding chalk on the blackboard) cannot be used to focus attention. However, the teacher can block the students' screens as a "basic setting", thus preventing them from causing a stir (in a physical classroom it is much harder to ignore the perceptions that cannot be integrated into the course of teaching).

Certain practices that cannot be reconciled with the traditional forms of behaviour on a school session appear in educational video conferences. Students are able to disappear (turning down the volume, switching off cameras) and to exit the educational space for a short while; they can even send a chat message about their absence ("will be back in 5 minutes"). The *cultural* roots of this kind of self-positioning are found in multiplayer computer gaming ("afk": *away from keyboard*).

The teacher also has to take on the role of a technological administrator. Technical issues always occur. From a didactic-methodological point of view, the operation of the technical equipment requires collecting experience, preparing alternative solutions, as well as reimagined lesson planning and time management.

Subjective positions are also transformed: both the teacher and the student become subjects for the camera. Due to visual perception, there is a good chance of scrutinizing, judging (without others noticing) the look, the

behaviour, the private environment (from the parents' workroom, through the children's room, up until garden furniture) of others. The camera image and the structural order of visible things constitute the visual arrangement of the digital classroom. Completely new "visual regimes" and aesthetics appear whose presence was previously unthinkable in the course of education (Weich 2020).

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