

TECHNOSTRESS IN DISTANCE LEARNING: THE POSITIVE LEARN PROJECT

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Abstract

During the recent Covid-19 pandemic, school education has massively shifted to online-only learning. One of the key lessons learned from the pandemic was that many teachers and students were unable to deal with new technologies in a healthy way, resulting in various psychological effects such as anxiety and stress.

Technostress in online education refers to the negative effects of using technology on a person's well-being, including physical and mental health, work-life balance, and overall quality of life. It is a phenomenon that affects both teachers and students. Technostress can arise from a variety of sources, such as: difficulty of adapting to new digital platforms and tools, information overload, technical problems and feelings of isolation. This can lead to decreased motivation, burnout, and negative impacts on mental and emotional well-being, and negatively impact learning outcomes and performance.

Managing this digital transformation requires developing digital readiness, resilience and capacity. There is a need for profound overhauls and changes that address wellbeing and mental health. The POSITIVE LEARN ("Distance learning positification: technostress relief and wellbeing") project starts against this background. POSITIVE LEARN aims to empower school professionals and modernise teacher education through curriculum innovation to meet the demands of the emerging online-first learning paradigm.

The focus of the present paper is twofold. The first objective is to investigate how technostress is affecting Distance Learning in schools, its causes and effects. The second objective is to present the goals of the POSITIVE LEARN project and to report on early research findings.

Keywords: School, online education, emergency remote teaching, technostress.

1. Introduction

The recent Covid-19 pandemic has had a profound impact on schooling. Widespread lockdowns have disrupted traditional school operations. According to the OECD (2021), lockdowns in the first year of the pandemic left 1.5 billion students in 188 countries unable to attend school in person. As a result, schools have massively switched to online-only learning. Overnight, teachers and students had to adapt to the use of distance learning platforms and other technology-based forms of learning delivery. This has put digital learning in the spotlight, highlighting its strengths while also revealing some key weaknesses. A specific term has been coined to describe the nature of teaching in these urgent circumstances: emergency remote teaching (Hodges et al., 2020).

One of the key lessons learned from the pandemic was that many teachers and students were unable to deal with technology in a healthy way, resulting in various psychological effects such as anxiety and stress (Pressley et al., 2021; Robinson et al., 2023).

It became clear that a new "normal" is emerging in school education. Schools are reopening to a new reality in which digital learning will continue to play an important role. Managing this digital transformation requires developing digital readiness, resilience, and capacity. There is a need for profound overhauls and changes that address wellbeing and mental health. Well-being needs to be addressed in the context of the use of technology, and as teachers play a crucial role in the educational process, it is crucial that teachers become active agents of change in implementing technological innovations.

Consequently, the effective take up of digital technologies and innovative pedagogies in education calls for a rethinking of the portfolio of digital competences of educators, namely competencies

and skills to (a) move seamlessly towards digital learning scenarios and (b) react to psychological effects such as technostress, depression, or isolation.

In the following sections we first discuss technostress in the context of Distance Education in schools, its causes, and effects. Following we present the goals of the POSITIVE LEARN project and to report on early research findings. The POSITIVE LEARN project is funded in the context of the ERASMUS+ Programme. Its goal is to support school professionals and modernize teacher education through curriculum innovations to support the effective adoption of digital technologies and innovative pedagogies in online education.

2. Technostress

Originally, Brod defined technostress as ‘a modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner’ (Brod, 1984). Since then, the term has been widely used and studied in various fields, including school education and, more recently, distance learning.

Today, technostress is often understood more broadly as “stress experienced by individuals due to their inability to cope with new computer technologies in a healthy manner” (Tarafdar et al., 2007). The effects of technostress can be very diverse, depending on the situation and the individual. Mäkikangas et al (2017) noted that stress can be physical or mental for an individual. Technostress can have different causes, strains, inhibitors, and impacts (Nisafani et al., 2020). Salo et al. (2019) analyzed it in terms of **stressors** (technostress sources) and **strains** (technostress results or consequences). Stressors can include factors such as information overload, constant interruptions, difficulty using new technology, and fear of technology obsolescence. **Strains** can include physical symptoms (such as headaches or eye strain), emotional symptoms (such as anxiety or frustration), and behavioral symptoms (such as decreased job performance or increased absenteeism). Technostress can arise from various sources, such as difficulty adapting to new digital platforms and tools, information overload, technical problems, and feelings of isolation. It can lead to decreased motivation, burnout, and negative impacts on mental and emotional well-being, and can have a negative impact on learning outcomes and performance.

In their study of the “dark side of technologies”, Salanova et al. (2013) investigated two psychological experiences of technostress associated with the use of information and communication technologies (ICT), i.e., **techno-strain** (Users report feelings of anxiety, fatigue, skepticism, and beliefs about ineffectiveness associated with technology use) and **techno-addiction** (users feel bad due to excessive and compulsive use of these technologies).

Over the past few decades, much effort has been devoted to combating the various adverse effects of technology. **Positive computing** has emerged for building digital environments that can make us happier and healthier, not just more productive. It comprises concepts, processes and systems which contribute towards the quality of life and well-being of users (Pawlowski et al, 2015). **Positive psychology** has been promoted as a scientific approach to studying human thoughts, feelings, and behavior, with a focus on strengths instead of weaknesses, building the good in life instead of repairing the bad (Peterson, 2008). Similarly, **positive education is pursued** as ‘education for both traditional skills and happiness’. (Seligmann et al, 2009). Efforts also include the design and development of technologies to “**support well-being and human potential**” (Calvo and Peters, 2014).

3. Technostress in online education: The POSITIVE LEARN project

Technology has become an increasingly important part of classroom equipment at all levels of education. Joo et al. (2016) noted that teachers using new technology in classrooms have experienced technostress, which influenced their intentions to use technology and caused adverse effects in the active adoption of new technologies.

Technostress in online education refers to the negative impact of technology use on a teacher’s or student’s well-being, including physical and mental health, work-life balance, and overall quality of life. This can lead to decreased motivation, burnout, and negative impacts on mental and emotional well-being, and negatively impact learning outcomes and performance.

The POSITIVE LEARN project aims to address this key challenge by (a) developing teachers' competencies to ensure well-being and health; (b) providing learning scenarios and materials to mainstream wellbeing; and (c) creating a unique open exchange platform to foster skills development and collaboration across Europe. The goal is to support school professionals and modernize teacher education through curriculum innovations to support the effective adoption of digital technologies and innovative pedagogies in online education.

We believe that to support the effective adoption of digital technologies and innovative pedagogies in education, a rethinking of the digital competence portfolio of educators is required. POSITIVE LEARN will address the key emotional challenges of the Covid-19 pandemic by applying a positive computing/psychology approach beyond technological/digital solutions. The project will support innovation, resilience and change to help schools in the education system cope with the uncertainty caused by the pandemic and build support for change. We consider positive psychology/positive computing as a necessary skill to address psychological/emotional issues.

The main goal of POSITIVE LEARN is to provide teachers with tools to create positive views, emotions and atmospheres in times of crisis. To become effective promoters of resilience in education, teachers need access to relevant, quality professional development and support during the crisis to effectively implement technological innovations. The project will support and train teachers so that they can optimally use the possibilities of new technologies to develop and implement innovative teaching methods. POSITIVE LEARN thus contributes to the professional development of teachers.

The project work revolves around the “**positification**” of education, a term coined to conceptualize the transformation of (digital) education to support the development of students' potentials, and to achieve positive impacts and overcoming potential negative effects of IT, such as technostress. Our examination of the current state of school education found that technostress can affect students and teachers in a number of ways.

Students often experience difficulty adapting to new digital platforms and tools that can hamper student learning and increase stress levels (Fuchs, 2021; Chiu & Lapeyrouse, 2021; Mu et al., 2022; Yang et al., 2022). The balance between online classes and other tasks and distractions can lead to time management issues and stress. Students can experience information overload and stress from managing and processing large amounts of digital information. Online education can limit face-to-face interaction and lead to feelings of isolation and stress. Technostress can lead to decreased motivation, burnout, and a negative impact on mental and emotional well-being. Technical issues and glitches can disrupt learning and cause stress.

Similarly, **technostress can affect teachers** in several ways (Mokh et al., 2021; Nang, et al., 2022; Siddiqui et al., 2023). Integrating technology into the classroom and using up-to-date digital tools can increase their workload and stress levels. Technical problems can lead to frustration and stress. Additionally, teachers can feel overwhelmed when transitioning to new digital tools and platforms. The balance between technology-enhanced teaching and traditional teaching methods and administrative tasks can lead to time constraints and stress. Technostress can lead to burnout, reduced job satisfaction and reduced motivation (Aktan & Toraman, 2022). Technostress can negatively impact teachers' mental and emotional well-being, leading to anxiety and depression (Estrada-Muñoz et al., 2020).

Overall, Technostress **can arise from a variety of sources**, such as difficulty adapting to new digital platforms and tools, information overload, technical problems and feelings of isolation. As new digital tools and platforms are introduced, teachers may need to learn new skills and ways of working. This can create stress, especially when the technology is complex or not user-friendly. Furthermore, with so much digital information available, identifying what is important can be difficult. This can leave teachers and students feeling overwhelmed and stressed. Technical issues such as system crashes, slow internet connections or device malfunctions can be frustrating and stressful as well. In addition, the extended use of technology in communication can lead to feelings of isolation and disconnection from others, especially when face-to-face interactions are reduced.

The main **technology stressors** (Donham et al., 2022; Aktan & Toraman, 2022) associated with the use of technology in online education include: technical difficulties (e.g. poor internet connection, hardware failure), time management and workload, difficulty in adapting to new digital platforms, lack of human interaction and social support, distractions and lack of concentration, information overload, difficulty in staying organized and motivated, feeling isolated and disconnected from classmates and trainers etc. Overall, technology stressors can be roughly divided into four main categories:

- **Technical challenges:** Difficulties with hardware, software, or internet connectivity.
- **Learning Challenges:** Adapting to new digital platforms, information overload and difficulty staying organized and motivated.
- **Social Challenges:** Lack of human interaction, social support and feelings of isolation.
- **Time Management Challenges:** Heavy workloads, difficulty balancing multiple responsibilities, and distractions.

The POSITIVE LEARN investigation of technostress situations in distance learning classrooms included dedicated focus groups and interviews with teachers and technostress experts in Greece, Germany and Finland. The study identified three core themes and relevant mitigation strategies.

- Theme I refers to “**technostress related to technology use and network connections**”, such as power cuts, empty batteries, scarcity of devices, hybrid learning situations etc.

- Theme II is about “**Technostress related to Access to learning materials/educational content**”, such as Digital content being either too basic and unmotivating, or very disruptive, teachers’ perceived lack of control over the digital content that students watch in classroom etc.
- Theme III refers to “**Technostress related to Professional development of teachers mechanisms**”, including their lack of technical skills, lack of motivation to use technology, the poor pedagogical support for teaching with technology during teacher education etc.

This implies that **the support teachers need** to better deal with technostress spans several areas, ranging from professional development opportunities to technical, peer and administrative support, and access to mental health resources (Whalen, 2020; Dennis, 2021; Daneshmand et al., 2022). Access to training and professional development programs can help teachers develop the competencies they need to effectively integrate technology into their classroom. Availability of technical support staff can help resolve technical issues and provide assistance with digital tools and platforms. Opportunities to collaborate with colleagues will allow teachers to exchange ideas, experiences and strategies for coping with technostress (learn from others’ experiences and knowledge, solve problems related to technology use, receive social support). Support from school administration is needed in terms of providing adequate resources, reducing workload and recognizing the importance of managing technostress. To this end, the availability of mental health resources, training and support for teachers struggling with technostress is critical. Furthermore, teachers need a combination of **technical, pedagogical and social and emotional competencies** to better deal with technostress.

Similarly, **students are in need of technical, academic, and social and emotional support** to better manage the challenges of online learning and promote their overall well-being. Technical support involves access to reliable internet and devices, resources to troubleshoot common technical issues, as well as assistance in navigating and using online learning platforms and digital tools. Academic support includes clear instructions and expectations for online learning assignments and assessments (Rahim, 2020; Rodrigues et al., 2022), support for time management and organization of online learning tasks, as well as opportunities for interaction and feedback from teachers and peers. Social and emotional support includes access to mental health resources and counseling services, and support and opportunities for social interaction with teachers and peers.

4. Conclusion

While scholars like Hodges et al. (2020) draw attention on the differences between emergency remote teaching (ERT) during the COVID-19 pandemic and regular online learning, stating that ERT cannot be equated with online learning, since “well-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster”, there are valuable lessons to be drawn.

The analysis underlying the POSITIVE LEARN project was based on the fact that the “positification” of distance learning in school education is often overlooked. The lack of awareness, capacity and professional skills of educators to design and implement positive e-learning interventions represents a significant barrier, but a comprehensive approach to teaching e-learning positivity is lacking.

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