R4.10 Implementation guideline

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EXECUTIVE SUMMARY

The POSITIVE LEARN project addresses a crucial and timely challenge: how to balance the increasing integration of technology into education with the need to safeguard and promote the well-being of both teachers and students. As the digital transformation of schools accelerates, issues such as technostress, emotional distress, and reduced motivation have become widespread. Recognizing this, POSITIVE LEARN aimed to develop practical strategies and resources to help educators integrate technology positively, creating supportive and resilient learning environments.

This implementation guideline synthesizes the project's key findings, particularly insights gained from large-scale trials conducted across different European educational settings. It highlights the importance of addressing the psychological impacts of technology use in education by merging technical skills with emotional and social competencies. Teachers' experiences reveal that stress can stem from technology itself, organizational structures, or individual skill levels, and managing these challenges requires a multifaceted approach.

The guideline provides actionable recommendations and resources for applying Positive Digital Solutions, including validated best practices, positive learning scenarios, and support tools like the Positive Scenario Template, the Technostress Analysis Canvas etc. It proposes a structured framework for implementing positive education, focusing on four key areas:

- Empowering teachers by developing their socio-emotional and digital competencies.

- Integrating technological innovation with well-being-focused pedagogies.

- Promoting teacher collaboration and resource sharing through platforms like the Co-Create Lessons platform.

- Actively engaging all stakeholders—educators, administrators, parents, students, and policymakers—in creating a positive education ecosystem.

POSITIVE LEARN promotes a holistic and sustainable approach that blends innovation with human-centered educational practices. By equipping teachers with the necessary knowledge, skills, and support systems, and by encouraging collaboration at all levels, schools can ensure that technology enhances both academic achievement and student well-being, rather than hindering them.

1. INTRODUCTION

The aim of the implementation guideline is to summarize the outcomes of our project, with a particular emphasis on the insights gained from the large-scale trials conducted across various settings. This guideline is designed to facilitate the transfer and adoption of our findings by educators throughout Europe, ensuring that the benefits of our research can be effectively harnessed in classrooms.

As technology integrates seamlessly into the educational landscape, a range of well-being challenges has emerged. Issues such as technostress, diminished motivation, and heightened emotional distress have surfaced, impacting both students and educators alike. While the advent of educational technologies presents exciting new avenues for learning, they also pose significant challenges. Many educators and students find themselves grappling with the overwhelming pace of change, struggling to adapt to the continuous influx of novel tools and platforms. This combination of opportunity and adversity necessitates careful consideration and proactive strategies to ensure a balanced and supportive learning environment. **Educational technologies and tools can impact the well-being of teachers and students. Technostress** is described as the inability to cope with new computer technologies healthily and represents a frequent adaptation challenge of modern life [1][2]. Technostress can affect students and teachers [3][4]. In recent decades, significant efforts have been made to address the various negative effects of technology.

In addition to outlining the main findings of the project, the implementation guideline will offer specific, actionable recommendations for utilizing Positive Digital Solutions in educational practice. It will serve as a roadmap for teachers, detailing best practices and strategies to integrate these innovative solutions into their teaching methodologies.

Ultimately, this document will condense the essential results of the project, capturing key practices, lessons learned, and evidence-based strategies that educators can apply. By doing so, it aims to empower teachers with the knowledge and resources necessary to enhance learning outcomes in their schools.

2. LESSONS LEARNED IN THE POSITIVE LEARN VALIDATION

In the course of our project, we have cultivated extensive insights into the POSITIVE LEARN approach, specifically aimed at mitigating technostress within educational settings. This endeavor has allowed us to refine and adapt our learning scenarios and materials, which we have now distilled into a comprehensive set of best practices. These practices serve as valuable resources for the ongoing development and application of innovative teaching materials and methodologies.

2.1 Teachers' Views on ICT Use-Related Stress

Teachers engaged in POSITIVE LEARN workshops and validation activities identified a variety of situations that can become stressful for teachers or their students in educational ICT use. In addition, they suggested different strategies that can be used to address the challenges and to promote well-being in the classroom. The following subchapters present the findings from the interviews that are categorized according to the emergent themes. The thematization is accompanied with quotations from the data.

Often, the challenges brought up by the teachers were focused on the characteristics of the technology used, organizational practices or the teachers' and students' skills and preferences while using technology. Although all the challenges are inherently related to ICT use, the core of the challenge might not be rooted in the features of the ICT itself. Thus, the challenges could be divided into three categories: 1) ICT/digital material-focused challenges (e.g., technical challenges), 2) organization-focused challenges (e.g., lack of social support), and 3) individual-focused challenges (e.g., inadequate ICT skills).

Table 1: Challenges underlying teachers' stressful encounter with ICT use

Focus	Challenge	Examples
ICT / Digital Material	Technical challenges	Bad connections; unexpected updates
	Differences and incompatibility of devices	Encountering unfamiliar ICT; different devices within/between schools; students have a different view than the teacher
	Uncertainty related to new technologies	The role of ChatGPT in future education
	Availability/suitability of digital materials	Difficulty to find useful materials; Materials not available in your own language
	Distraction/low engagement of ICT use	The students play games on devices instead of focusing on the lesson; difficulty keeping both local and online participants engaged in hybrid education
Organization	Insufficient ICT use practices/infrastructure	ICT use instructions not up to date; inadequacy of ICT infrastructure; unfamiliarity with ICT use practices
	Lack of social and technical support	ICT-related knowledge not shared between colleagues; not enough technical support to assist with ICT-related challenges
Individual	Inadequate ICT skills	A big portion of the lesson is spent getting the ICT to work instead of focusing on the actual topic; teachers do not have time to participate in ICT-related training; students' ICT skills are not at a required level
	Consumingness of the teaching profession	Blending of work and leisure time; feeling unmotivated to develop professional knowledge alone

2.2 Strategies to Address ICT use-Related Stress and Promote Well-Being in the Classroom

The teachers could describe various strategies for addressing stressful encounters with ICT and promoting well-being in modern classroom environments. According to their characteristics, the strategies could be broadly divided into three categories, namely 1) ICT equipment and materials 2) ICT use practices and 3) ICT skills

Table 2: Teachers' strategies for addressing stressful encounters with ICT use and promoting well-being in classroom

Focus	Strategy	Examples
ICT Equipment and Materials	Fostering effortless and consistent ICT use	Same device at school and at home; easy access to usernames and passwords; justified ICT investments
	Being aware of helpful digital materials and their limits	Finding existing and new materials regarding technostress; viewing digital material as complementary
ICT Use Practices	Monitoring and regulating students' ICT use	code-of conduct for students' ICT use; less software available; playing games as a reward
	Creating flexible ICT use practices	Being prepared to different situations that can happen with ICT use; having contingency plans
	Promoting interaction in online and hybrid education	Videos and microphones on for online participants in hybrid education
ICT Skills	Having Social support and collaboration	Receiving support from school; using students as ICT experts; having parent volunteers
	Leveraging teachers' accumulated professional knowledge	Using digital materials to enrich teaching
	Increasing teachers' and students' ICT skills	Participating in courses and trainings; having ICT integrated into teacher training; learning about technostress as part of ICT education

 Positive computing has emerged to create digital environments that promote happiness and health rather than just productivity. It encompasses concepts, processes, and systems that enhance the quality of life and well-being of users [5]. **Positive psychology** is recognized as a scientific approach to exploring human thoughts, feelings, and behaviors, emphasizing strengths over weaknesses. Its focus is on building the positive aspects of life rather than merely fixing the negative [6]. In a similar vein, positive education aims to provide instruction in traditional skills while also fostering happiness [7]. Additionally, ongoing efforts are to design and develop technologies that "support well-being and human potential" [8].

A **shift towards a positive psychology-inspired educational paradigm is necessary**. Positive psychology emphasizes understanding and fostering the elements that enable individuals,

communities, and societies to thrive rather than merely addressing existing pathologies [9]. It aims to improve participants' well-being and enhance their success, meaning, fulfillment, and resilience across all areas of life.

Accordingly, while traditional education systems often focus on addressing inefficiencies and proposing solutions to close the learning gap, it is essential to highlight the learning process's strengths and positive aspects to promote well-being. **Positive education** is centered on developing not only traditional skills but also happiness. It emphasizes cultivating abilities that enhance resilience, positive emotions, engagement, and a sense of meaning [7]. Positive education supports academic achievement while nurturing valuable character traits such as resilience, empathy, gratitude, and emotional intelligence. By implementing positive education, schools can create a supportive environment that fosters happiness, improves learning and performance, and reduces mental health issues among children and teenagers [10].

Advancing positive education requires a holistic approach that balances technological advances with wellbeing-focused pedagogies. The POSITIVE LEARN project [11] has underscored the urgency of addressing these issues by rethinking educator skills, incorporating emotional e-literacies alongside digital skills, and developing learning scenarios that take technology-related stress into account. The POSITIVE LEARN project studied technostress in distance learning classrooms through focus groups and interviews with teachers and experts in Greece, Germany, and Finland. The project introduced the term "**positification" in education** to describe the positive transformation of digital education aimed at fostering students' potential and achieving positive outcomes while mitigating potential negative effects of IT, such as technostress. A strategic approach that balances technological advancements with well-being-focused pedagogies is essential to promote positive education.

Furthermore, integrating positive education into schools requires the **active engagement of all involved stakeholders**—students, educators, administrators, parents, and policymakers—to create a supportive environment in which well-being and academic success coexist. [12] emphasize the need for both **organizational interventions** and **training programs** to enhance teacher wellbeing in schools. Key strategies include improving school climate through supportive leadership and respect among staff, as well as developing individual teacher traits like social-emotional skills, self-efficacy, and emotional intelligence to mitigate work-related stress and mental health risks. Educators need to be provided with training and support to design and effectively integrate positive pedagogy and technostress mitigation techniques into their teaching; School managers and administrators implement school-wide policies that balance innovation with mental health priorities. Parents are involved in reinforcing positive

habits and emotional resilience at home; policymakers support resource allocation and policies that prioritize well-being in education; and students actively participate in creating positive learning environments. Encouraging collaboration between these groups can maximize the potential of positive digital education.

The following section examines essential factors to consider when developing a strategy for implementing positive education.

3. IMPLEMENTATION OF POSITIVE EDUCATION

3.1 Teacher empowerment

Teacher empowerment is an important element when developing a strategy for implementing positive education. Teachers have a vital role in fostering a positive educational environment within the classroom. Their influence goes beyond simply providing content; they cultivate a nurturing environment that encourages both emotional and intellectual growth in students. At the same time, the well-being of teachers is equally crucial. A teacher's mental and emotional health can significantly affect their effectiveness in the classroom. When **teachers are thriving, they are more likely to create engaging** and supportive learning experiences, which can lead to improved outcomes for their students.

Teaching is regarded as one of the most challenging and stressful professions in the world [12]. Teacher well-being is increasingly in the public spotlight due to its connection with teaching effectiveness, student outcomes, and educational governance [13] [14]. [15] argue that **occupational well-being** is" a positive evaluation of various aspects of one's job, including affective, motivational, behavioural, cognitive and psychosomatic dimensions". [16] describe teachers' well-being as having four essential components: physical and mental well-being, cognitive well-being, subjective well-being, and social well-being. teachers' well-being can be affected by working conditions. **Occupational stress in teachers** refers to the negative reactions individuals experience in response to work stimuli (demands and pressures) that **exceed their knowledge and abilities** [16]. Increased stress levels are associated with lower self-efficacy in teaching, decreased job satisfaction, and poorer quality interactions with children. Additionally, stress can lead to higher rates of mental health issues, such as depression, irritability, anxiety, and frustration. This environment can also foster reduced commitment among educators, contributing to **burnout,** characterized by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment. Ultimately, these factors can negatively impact students' well-being and academic performance [12] [16]. Teachers are the most important school-related factor influencing student learning, as noted by [16]. Supporting teachers' well-being has a positive impact on their job satisfaction, the quality of their teaching, and the overall well-being of both students and the school community [12] [17].

The POSITIVE LEARN project emphasized the importance of building teachers' capacity to effectively integrate technology while managing technostress, proposing a rethinking of educator skills needs [18]. Addressing the challenges to the well-being of teachers and students

in digital education requires integrating digital skills with emotional competencies, incorporating positive pedagogical approaches, and ensuring lesson planning is mindful of technostress. Ultimately, teachers require a blend of technical, pedagogical, and social-emotional competencies to leverage technology effectively and tackle the challenges posed by educational technologies. Digital competence frameworks should be adapted, and professional development in positive pedagogy, emotional intelligence, and mindfulness practices should be provided to help educators develop the skills, knowledge, and confidence they need to incorporate technology in their teaching in a positive way.
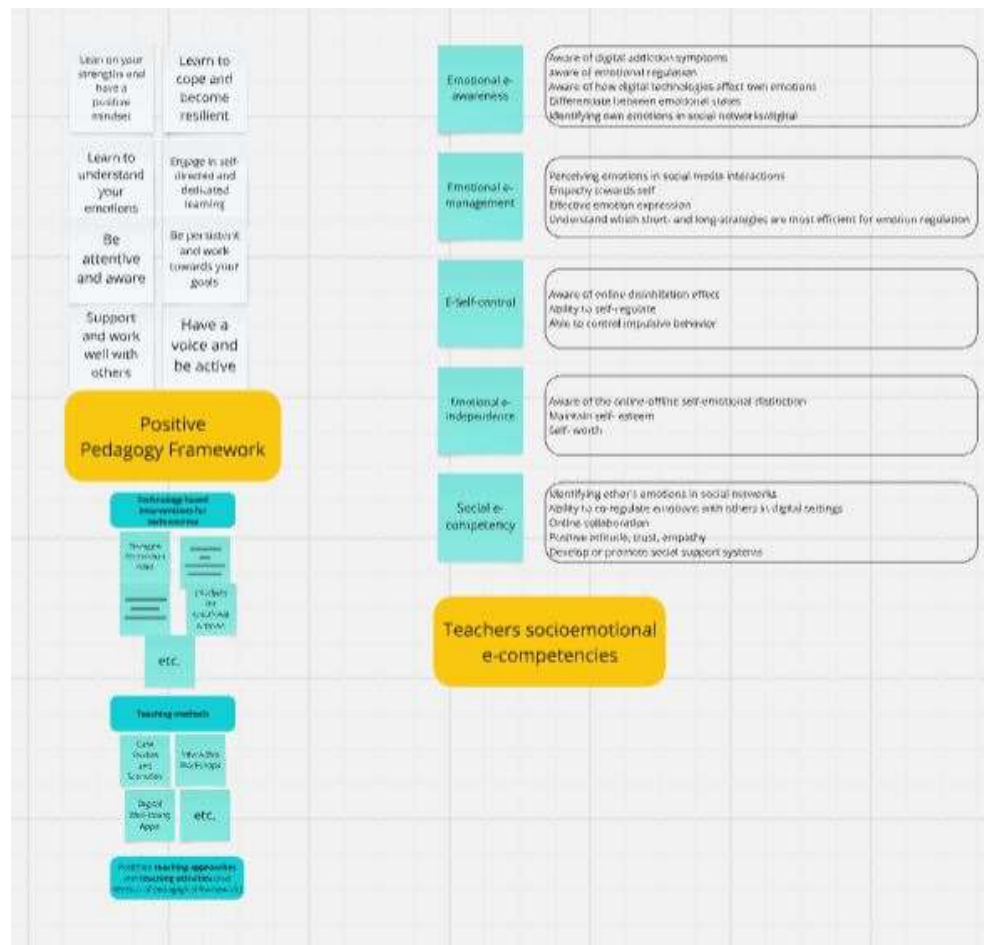
Figure 1: Teachers' socioemotional competencies and positive pedagogies

3.2 Integration of technological Innovation with well-being-focused pedagogies

Positive learning scenarios describe carefully designed and well-structured educational experiences primarily focusing on creating an environment conducive to positive and enjoyable learning [19]. A positive digital learning scenario implies a virtual environment in which learners

and teachers feel encouraged, empowered, and motivated to actively participate and succeed in their digital learning journey while minimising potential challenges and stressors associated with digital education. Empowering teachers for positive education means providing access to ready-to-use positive learning lessons, along with guidance and support for developing and implementing these learning scenarios, and connecting to a community of practitioners.

When developing a distance learning scenario, it is important to assess and identify potential stressors and negative psychological impacts of using technology on teachers and students. It involves evaluating how technology, such as digital devices, software applications, or communication tools, may lead to stress, anxiety, and decreased well-being among participants in conjunction with the planned learning activities, the learning methods etc. This analysis can help instructional designers understand the sources of technostress, develop strategies to mitigate its effects, and create a healthier and more productive technology-enabled environment.

R3 delivered Open Learning Scenarios (R3.2), an Exchange Platform (R3.3) for collaboration around positive education, and support materials for educators. Educators can access Open Learning Scenarios for positive education in English, Greek, German, and Finnish on the project's website and Exchange platform. The developed learning scenarios integrate positive education across various subjects and interdisciplinary teaching, as opposed to current methods that typically focus on well-being in physical education. We also propose positive learning scenarios for the STEAM subjects. The learning scenarios are enhanced by Open Educational Resources for educators to use in their classes.

POSITIVE LEARN also developed guidelines for designing effective positive learning scenarios (R3.1.1). The guideline proposes an adaptation of the ADDIE instructional design model for mitigating technostress and ensuring a positive learning experience.
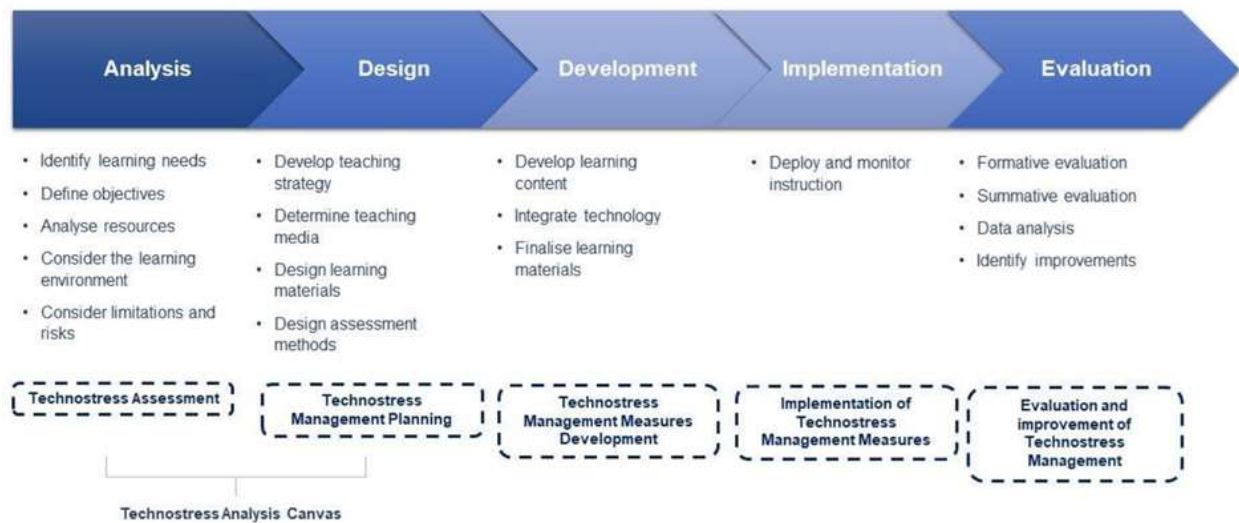
Figure 2: The adapted ADDIE instructional design process for positive learning experiences

R3 also produced a visual framework as a guide for creating learning scenarios. The Technostress Analysis Canvas is a practical tool to help educators assess and address technostress factors in distance learning scenarios. It serves as a structured approach to understand, analyse, and address technostress systematically, making it a valuable tool for instructional designers looking to create healthier and more productive digital learning environments.

In addition, POSITIVE LEARN proposes a learning scenario template specific to positive education: the POSITIVE LEARN learning scenario template.

Figure 3: The POSITIVE LEARN learning scenario template

3.3 Encouraging collaboration among teachers

As technology continues to evolve, it is essential to develop a continuous support system for teachers. This system must provide immediate peer assistance and resources while promoting professional growth and adaptability to the rapidly evolving educational landscape.

Fostering a collaborative environment among educators where they can exchange valuable insights and personal experiences related to positive education is essential for mutual support. A positive learning strategy should emphasize the co-creation of positive learning scenarios that enhance the educational experience and the provision of support to allow teachers to collectively design and implement approaches that promote positivity and well-being in the classroom. By working together, educators can inspire one another and cultivate a more supportive and effective learning atmosphere for their students.

Under the R3 result, an interactive platform was created to promote positive resource sharing and the exchange of best practices. The IDEA Space platform (idea-space.eu), which is widely used for collaboration in open education, has been adapted for the purposes of the POSITIVE

LEARN project to allow for the co-creation, sharing, and/or customisation of positive learning scenarios within the educator community. The resulting Co-create Lessons platform (https://co-create-lessons.eu/) will serve as a dynamic hub where teachers can share, and refine their educational experiences beyond the project duration
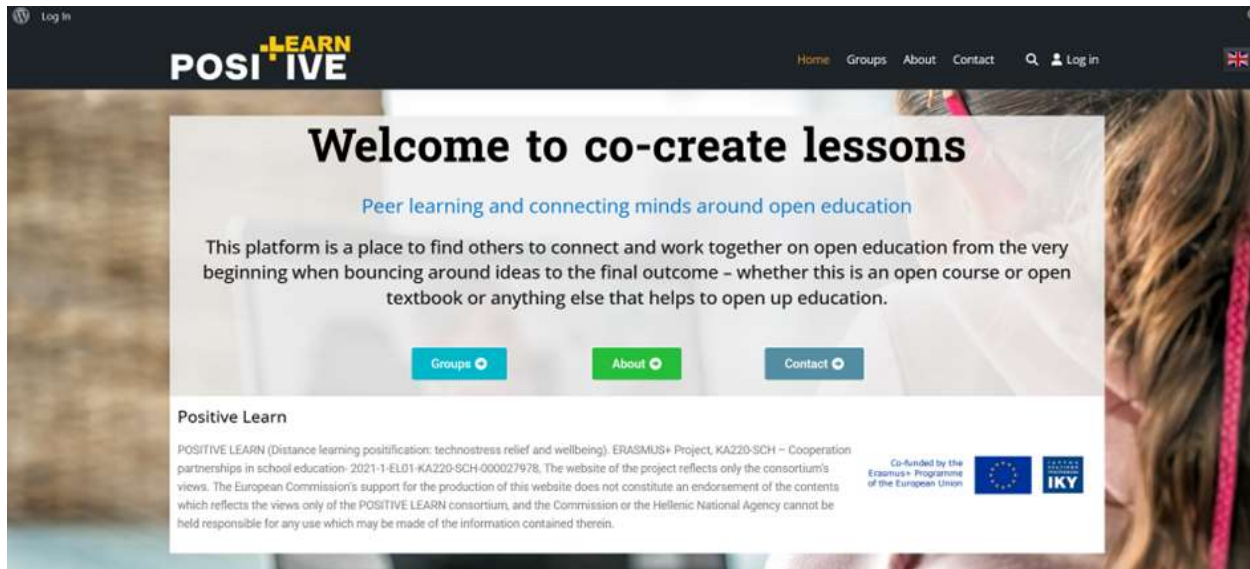

Figure 4: The Co-create Lessons platform

3.4   Stakeholder Engagement

It is essential to ensure that all stakeholders actively participate in promoting positive educational outcomes and in tailoring interventions to meet the specific needs of various educational contexts. The importance of mobilizing and collaborating with all stakeholders to work together for the well-being of students should be thus emphasized. In addition to educators, other groups play a crucial role in supporting positive education. Educators should be provided with training and support to design and effectively integrate positive pedagogy and technostress mitigation techniques into their teaching; School managers and administrators implement school-wide policies that balance innovation with mental health priorities. Parents are involved in reinforcing positive habits and emotional resilience at home; policymakers support resource allocation and policies that prioritize well-being in education; and students actively participate in creating positive learning environments. Collaboration among educators, administrators, parents, and policymakers can foster a supportive environment for effective educational practices and help maximize the potential of positive digital education.

Establishing school-wide policies that prioritize mental health and emotional well-being, alongside academic performance, is essential for fostering a supportive environment for both

students and staff. It is important to implement initiatives to address stress and burnout, as well as develop positive technology utilisation guidelines. Furthermore, to ensure the sustainability of such positive education initiatives, securing long-term funding and resources is essential for ongoing success and growth.

Overall, it is essential to foster a cultural shift towards positivity, inclusivity, and resilience, integrating these values into daily practices to enhance the school community's strength and overall well-being.

The Framework proposed by POSITIVE LEARN for the promotion of positive education in schools (R5) represents a structured approach to implementing a positive education framework in schools, progressing through five key steps that engage both schools and policymakers. This framework outlines a step-by-step process for integrating positive education strategies into schools, emphasizing collaboration between educators, infrastructure providers, and policymakers. The goal is to foster a supportive environment that enhances both student and teacher well-being while addressing the broader educational ecosystem.

The journey begins at the school level, where leadership teams define and adopt a comprehensive strategy for embedding positive education principles. This step involves assessing the school's needs, setting well-being goals, and building a foundation for systemic change.

To enable effective implementation, schools must have access to the necessary technological infrastructure and IT support. This step ensures that digital tools and platforms align with positive psychology principles, facilitating a seamless integration into daily school operations.

Developing curricula that integrate positive education concepts, such as mindfulness, emotional regulation, and a growth mindset, is a critical step. Curriculum designers work with educators to embed these elements into existing subject areas, creating a cohesive approach to well-being.

Teachers play a central role in fostering a positive school culture. This step focuses on providing professional development programs, resilience training, and mental health resources to equip teachers with the skills and tools they need to support students effectively.

The final step ensures ongoing support as schools implement positive education strategies. This includes continuous feedback loops, monitoring progress, and addressing challenges in real time. Policymakers play a pivotal role in sustaining these efforts by enacting supportive policies and allocating resources.
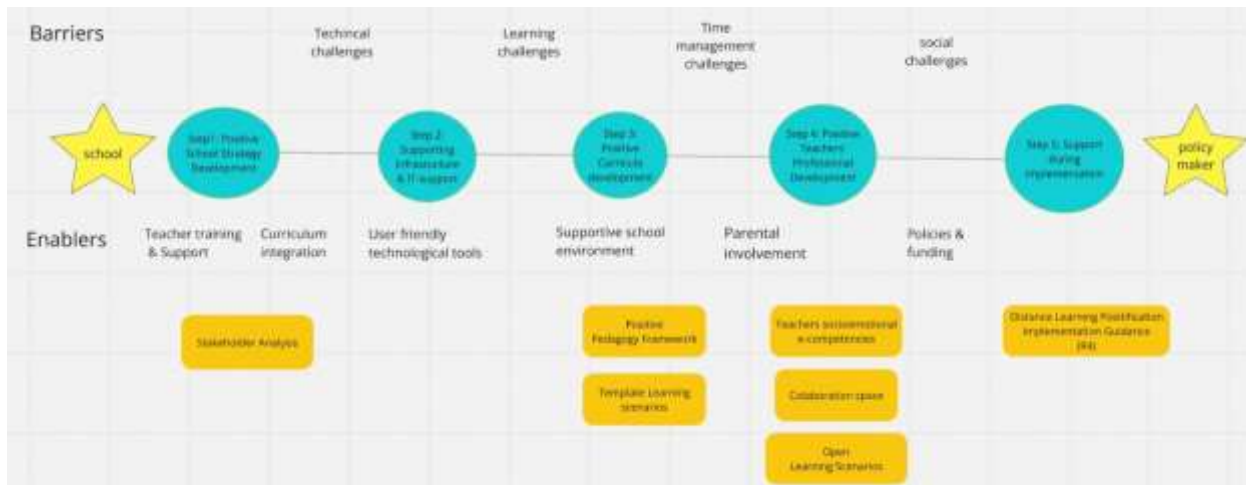
Figure 5: Mapping the road to Positive Education in schools: contribution of POSITIVE LEARN results.

Figure 5 presents a detailed overview of the key outputs produced by the POSITIVE LEARN project. This figure highlights how these outputs align with the essential steps taken to integrate positive education into school environments. This illustration captures the multifaceted approach of the project, showcasing how it effectively supports educators and students in fostering a nurturing and positive learning environment.

4. CONCLUSIONS

In conclusion, as educational technologies continue to evolve, it is crucial to address the challenges to well-being that they present for the success of both students and educators. The POSITIVE LEARN project has highlighted the importance of integrating emotional competencies with digital skills to reduce technostress and foster a positive learning experience.

Exploring the challenges of technostress in digital education, the POSITIVE LEARN project concluded that teachers need a combination of technical, pedagogical, **and social and emotional competencies** to harness the capabilities and better deal with the challenges of educational technologies [18]. The project argued that the way forward is to integrate digital competences with emotional e-competencies, towards developing a holistic framework for **positive digital learning**, in line with the learnings of **positive computing** and p**ositive psychology**. Technostress-aware lesson planning implies the development and implementation of positive learning scenarios, i.e., carefully designed and well-structured educational experiences in which the primary focus is on creating an environment that promotes effective and enjoyable learning [19].

A holistic approach is needed, combining technological innovation with pedagogy focused on well-being. It is essential that all stakeholders–educators, administrators, parents, policymakers, and students–actively participate in creating supportive and inclusive environments.

Educators require training in positive pedagogy and stress management, while administrators should implement policies prioritizing innovation and mental health. Parents and policymakers must support these efforts at home and through resource allocation. Collaboration among all groups will enhance the potential of technology-enhanced education, creating a balanced and sustainable approach to promoting well-being alongside academic achievement.

5. REFERENCES

[1] C. Brod. "Technostress: The human cost of the computer revolution". Basic books. 1984

[2] M. Tarafdar, Q.Tu, B.S. Ragu-Nathan, and T.S. Ragu-Nathan, Monideepa, et al. "The impact of technostress on role stress and productivity." Journal of management information systems 24.1: 301-328. 2007

[3] B. Chiu and N. Lapeyrouse. "Student Experiences and Perceptions of Emergency Remote Teaching." Advances in Online Chemistry Education. American Chemical Society, 2021. 123-134.

[4] A. F. M. Nang, S. M. Maat and M. S. Mahmud. "Teacher technostress and coping mechanisms during Covid-19 pandemic: A systematic review." Pegem Journal of Education and instruction 12.2 (2022): 200-212.

[5] J. M. Pawlowski, S. C. Eimler, M. Jansen, J .Stoffregen, S. Geisler, O. Koch ... and U. Handmann."Positive computing: a new trend in business and information systems engineering?." *Business & Information Systems Engineering* 57 (2015): 405-408.

[6] C. Peterson. Pursuing the good life: 100 reflections on positive psychology. Oxford University Press, 2012.

[7] M. E. Seligman, R. M. Ernst, J. Gillham, K. Reivich and M. Linkins. "Positive education: Positive psychology and classroom interventions." *Oxford review of education* 35.3 (2009): 293-311.

[8] R.A. Calvo and D. Peters. Positive computing: technology for wellbeing and human potential. MIT press, 2014.

[9] M.E. Seligman and M. Csikszentmihalyi. *Positive psychology: An introduction*. Vol. 55. No. 1. American Psychological Association, 2000.

[10] E. Cabanas and J. González-Lamas. "A critical review of positive education: challenges and limitations." *Social Psychology of Education* 25.5 (2022): 1249-1272.

[11] D. Pappa, J. Pawlowski, K. Clements and S. Sotiriou. "Technostress in Distance Learning: The POSITIVE LEARN project". In Education and New Developments 2023. https://doi.org/10.36315/2023v2end110

[12] E. Conte, V. Cavioni, and V.Ornaghi. "Exploring stress factors and coping strategies in Italian teachers after COVID-19: Evidence from qualitative data." *Education Sciences* 14.2 (2024): 152.

[13] T. Hascher and J. Waber. "Teacher well-being: A systematic review of the research literature from the year 2000-2019." *Educational research review* 34 (2021): 100411.

[14] R.F. Cann, R. Riedel-Prabhakar, and D. Powell. "A model of positive school leadership to improve teacher wellbeing." *International journal of applied positive psychology* 6.2 (2021): 195-218.

[15] J.E. Van Horn, T. W. Taris, W. B. Schaufeli and P. J. Schreursl. "The structure of occupational well-being: A study among Dutch teachers." *Journal of occupational and Organizational Psychology* 77.3 (2004): 365-375.

[16] C. Viac and P. Fraser. Teachers' well-being: A framework for data collection and analysis. 2020. https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/01/teachers-well-being_bdafdeaf/c36fc9d3-en.pdf Accessed 18.01.2025

[17] F. Zheng. "Fostering students' well-being: The mediating role of teacher interpersonal behavior and student-teacher relationships." *Frontiers in Psychology* 12 (2022): 796728.

[18] D. Pappa, J. Pawlowski, K. Clements and S. Sotiriou. "Positive digital learning: challenges and path forward for educators". Education Applications & Developments IX (M. Carmo, ed) ISSN 2183-2978. inScience Press, 2024

[19]   D. Pappa, J. Pawlowski, K. Clements, S. Sotiriou, S. Mehtälä and S. & Kocak. "Positive digital learning: guideline for developing positive distance learning scenarios". In EDULEARN24 Proceedings (pp. 10180-10189). IATED. 2024