



Research from the Office of RIDIL

Socio-Ecological Technology Integration (SETI) Framework

This white paper provides a summary of a section of the work from:

Crompton, H., Chigona, A., & Burke, D. (2023). Teacher resilience during COVID-19: Comparing teachers' shift to online learning in South Africa and the United States. *TechTrends*
<https://doi.org/10.1007/s11528-022-00826-6>

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Overview

During Covid 19, the need to move to remote online teaching necessitated that educators become proficient in using digital technology to support student learning. This required a steep learning curve for many teachers to ensure that their skills were sufficient to meet the needs of teaching in this new environment and also that they were receiving the necessary support to maximize the integration of technology into their instruction.

Purpose of the Research

This study examined the resiliency of teachers in the USA and South Africa during the Covid 19 pandemic to uncover the differences in educator experiences (physical, virtual, and psychological facts and events) across countries. To provide a lens for examining technology integration the Socio-Ecological Technology Integration (SETI) framework was developed within the paper. This white paper describes the SETI framework.

Method

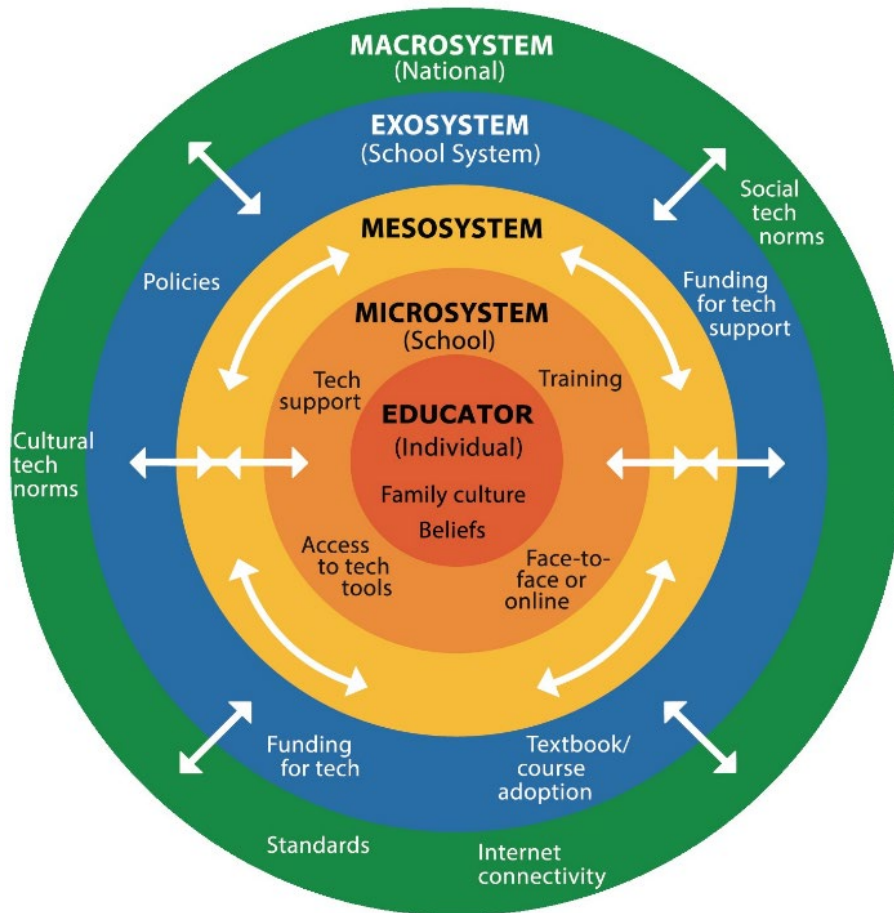
Data from a teacher resilience survey was used to investigate the factors influencing teacher resilience and interview data results were used to provide insight into specific teacher experiences. A grounded coding methodology was used to analyze the content. The Crompton (2017) social-ecological technology integration framework was used as a starting point to begin the analysis of the data and development of the SETI framework.

Findings and Discussion

The Crompton framework (2017) highlighted the integration of technology mediated by various contextualized systems by focusing on environmental factors such as the physical environment and technologies available. In the analysis of the teacher resilience data, it became apparent that this

framework was insufficient and that the entire social and ecological system needed to be considered to understand the effective integration of technology. During the pandemic, teachers no longer could effectively function in isolation. The entire social and ecological system of schools needed to be considered to ensure that technology was effectively being integrated into teaching and learning. This resulted in the development of the Social Ecological Technology Integration (SETI) framework, see Figure 1.

Figure 1. Social Ecological Technology Integration Framework (SETI)



Within this study, adaptations were made to Crompton's (2017). During COVID-19, it became evident that families were an important part of the socio and ecological culture, so family was added to the inner circle of the Educator. Family referred to the family culture, customs, organization, as well as the navigation of family shared workspace, and home responsibilities.

In the resulting SETI framework, the concentric circles around the educator represent the different systems needed for an educator to integrate technology effectively. Past frameworks focus on primarily the educator and their responsibility to work with the technology to ensure that effective integration. The SETI framework highlights that it is the responsibility of the whole educational system and the surrounding

ecological influences. The framework involves circles that represent the immediate environment to nationwide and the different factors that the educator needs.

At the center of the framework, the educator uses his/her beliefs and family culture to make decisions on technology integration. The microsystem is the immediate school setting surrounding the educator. This includes access to technology, students, training, and tech support. The exosystem is the school district/state. The exosystem includes funding for technology support and training, as well as policies. The outer ring is the macrosystem. This shows how the integration of technologies is mediated by the national environment, such as the religious, social, and cultural norms of that nation, as well as standards and internet connectivity. The mesosystem highlights the inter-connected nature between and across the structures of the system. Taken together all parts of the system work to ensure that technology is being effectively integrated.

Conclusions

This study was conducted to better understand teacher resilience while teaching remotely online during the COVID-19 pandemic. During this work, the SETI framework was developed to be used to examine teacher technology integration across social and ecological spaces. This framework helps to explain that technology integration takes a system approach to highlight the various socio ecological aspects that are required for the effective integration of technology into teaching and learning.

References

Crompton, H. (2017). Moving toward a mobile learning landscape: Presenting a mlearning integration framework. *Interactive Technology and Smart Education*, 18(2), 97–109.