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Concept Paper – Supportive Technologies

Version 1.0 – May 30, 2024

The purpose of this paper is to explore the concept of ‘supportive technologies’ and how they may be used as part of the tiered support process within an MTSS Framework.

Background

Multi-tier systems of support, or MTSS, is a concept that was incorporated into the Every Student Succeeds Act (2015). “The term ‘multi-tier system of supports’ means a comprehensive continuum of evidence-based, systemic practices to support a rapid response to students’ needs, with regular observation to facilitate data-based instructional decision making.”

(Authority: 20 U.S.C § 7801(33)). While it varies from state to state, MTSS generally includes the following components:

- **Varying levels of support (tiers).** Students receive varying levels of support in three tiers with each tier providing more intensive and more individualized services.
- **Screening.** Screenings provide universally administered assessments that help determine potential areas of concern.
- **Progress monitoring.** Student performance is routinely monitored to help determine the need to change the intensity or individualization of support.
- **Data-driven decisions.** Decisions regarding the intensity and individualization of support are driven by individual student data and are made by data-based decision rules (National Association of School Psychologists, 2016).

Technology within MTSS

MTSS aims to create “a comprehensive continuum of evidence-based, systemic practices to support a rapid response to students’ needs” (ESSA 2015). Thus far, however, most discussions have focused on developing and implementing tiers of academic and behavioral interventions (Burns et al., 2015) but do not readily consider how technology may optimize learning. A review of 36 states indicated that only a small minority explicitly discuss technology within their MTSS documents and guidance (Peters & Wojcik, 2023). Conceivably, though, three types of technology (CITES, 2021; Wilcauskas, 2022) could be used in an MTSS Framework:

- *Information Technology (IT)*
- *Educational Technology (EdTech)*
- *Assistive Technology (AT)*

Information technologies are often used in the data management and data analysis components of MTSS. Educational technologies are often used within the context of providing academic and behavioral interventions with the goal of providing increasingly intensive instruction to address students’ needs. Finally, assistive technologies are often used to meet the individual needs of students receiving special education services or 504 accommodations.

Assistive technology devices and services are mandated under IDEA regulations (34 C.F.R. §300.105, §300.6, §300.324). However, the potential exists for the assistive or compensatory function of technology to be used outside special education. The compensatory function of technology may be used to support all students by compensating for skill gaps that prevent students from meeting grade-level expectations while interventions are underway.

Why the Compensatory Function of Technology is Needed within MTSS

MTSS strives to provide increasingly intensive and individualized interventions that are designed to address and remediate a range of academic and behavioral needs. However, students may experience learning loss between the time they begin interventions and the time their performance is on track for meeting expectations. To compound this, different students will respond to interventions at different rates and some students may not respond to interventions (see Figure 1). The difference between what a student can do and what they are expected to do to meet standards results in a lack of meaningful engagement or progress in the curriculum. Lack of meaningful engagement may lead to learning loss, self-esteem issues, behavioral issues, increased dropout rates, and overall poor student outcomes. The following illustrations show the gaps students may experience between expectations (top line) and growth trajectories (trend line) even while they receive intensive remediation.

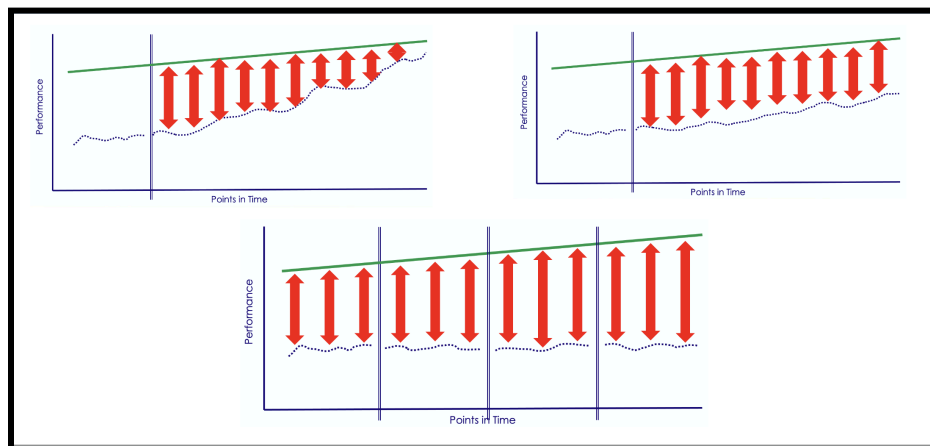


Figure 1. Example performance patterns that track students' responses to one or more interventions and the gap that may exist between what the student is currently able to do and what the student is expected to do.

Specific technology features can provide short-term compensatory support to close the performance gap and provide access to learning opportunities that would not otherwise be possible (Basham, et al 2010). For example, while a student is receiving intensive instruction to increase reading decoding (i.e., letter-sound recognition) skills that are significantly below grade level expectations, the student could access grade-level reading comprehension activities through the use of text-to-speech technologies or audio books. By ensuring access to the curriculum through technologies features, the student may be able to keep up with grade-level expectations for comprehension, reducing the resources required for intensive reading support in the long run.

“Supportive Technologies”

Supportive technologies have been proposed as a descriptive label for incorporating the compensatory function of technology in MTSS (Peters & Wojcik, 2023). Supportive technologies are different in purpose and function from information and educational technologies.

Supportive technologies have the functions of decreasing barriers to the curriculum and compensating for difficulties currently faced by students. These functions are shared with the functions of assistive technologies. However, supportive technologies are available to all students and are not limited to students eligible for IDEA services.

Supportive technologies may be used to meet a wide range of students’ needs and functions including academic needs (e.g., reading, writing, math, executive function), behavioral needs (e.g., self-regulation, attention), and social/emotional needs (mental well being, social skills). Some supportive features are freely available universally through the built-in accessibility features of mainstream computer technology. Universally available features may be selected by the students themselves after being taught their purpose and how to use them. Specialized or add-on features (free or paid) may need to be selected by school professionals to individualize support for some students.

The following graphic illustrates how supportive technology features could be applied to the area of reading across varying levels of individualization and intensity:

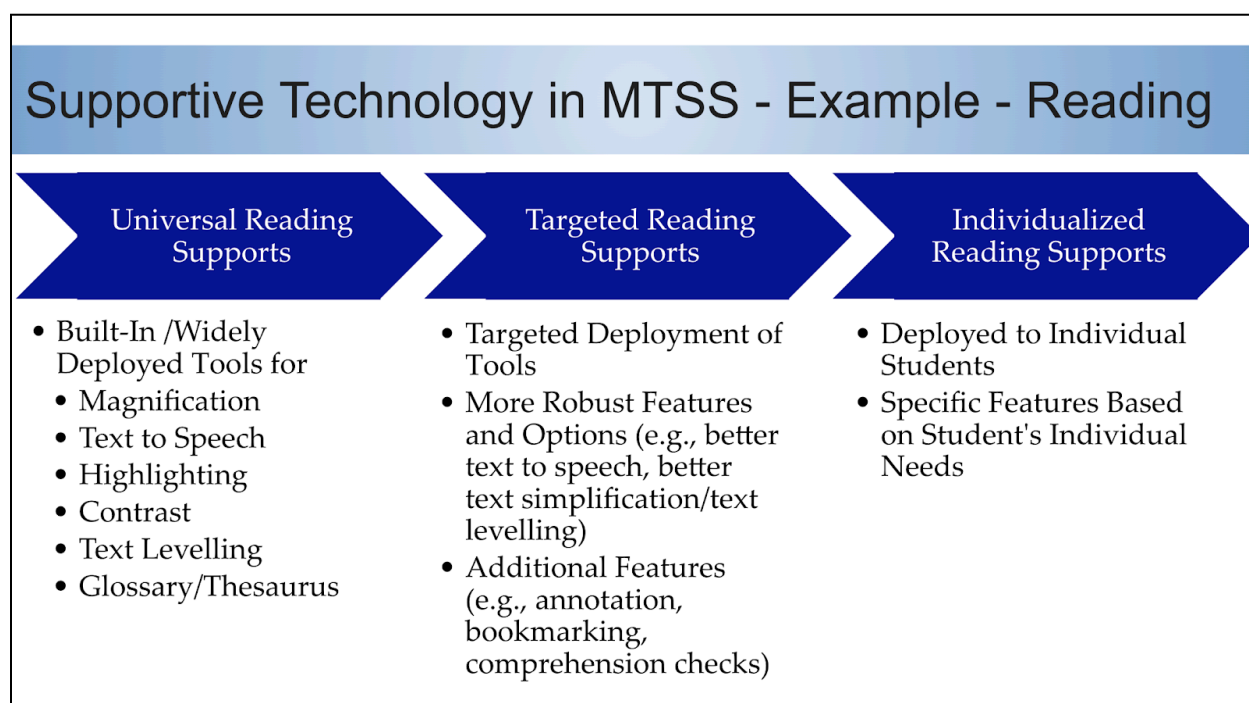


Figure 2. Examples of tiered supportive technologies in the area of reading.

Since increased individualization and intensity define the tiers of support within MTSS, supportive technologies may also align with the three tiers: universal, targeted, and

individualized. Individualization of supportive technologies is defined by the level of specificity with which technology features match the individual needs of a student. The intensity of supportive technologies is defined as the frequency with which they are used or the number of different features used. Deploying supportive technologies with more generalized features as universal supports and employing supportive technologies with more targeted features for specific groups or for individual students allows for a tailored approach of support within the MTSS framework. Furthermore, data-based decision rules need to be developed for increasing or decreasing the intensity and individualization of supportive technology use to meet students' needs.

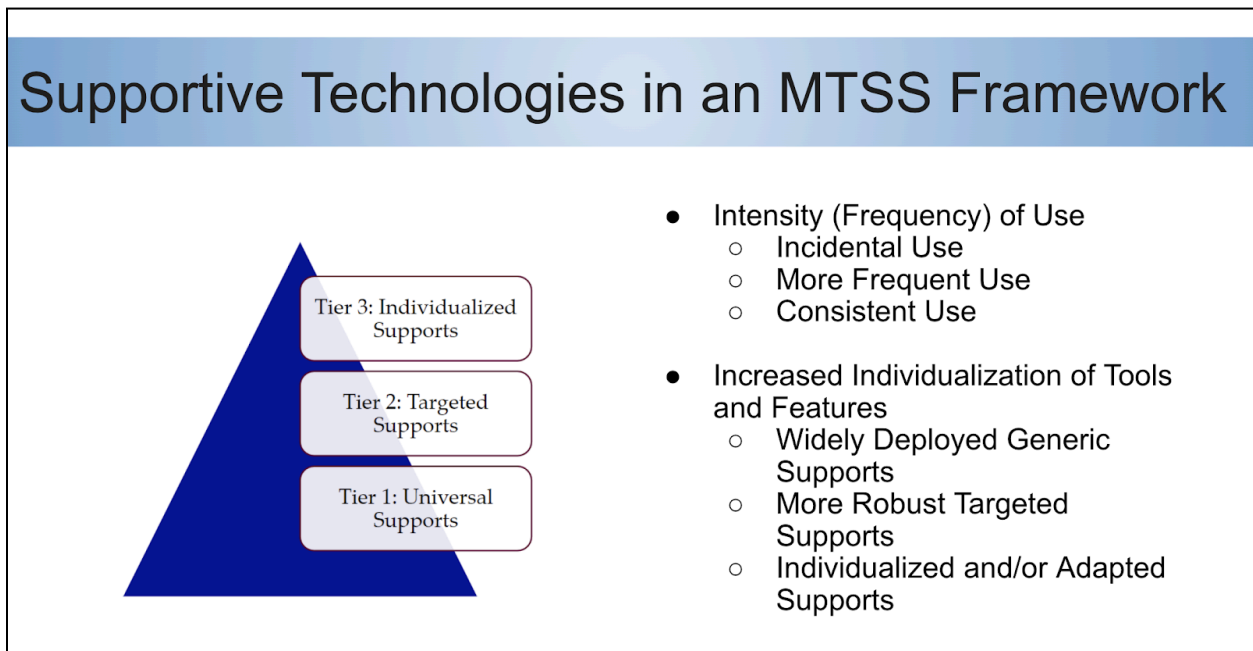


Figure 3. Supportive Technologies integrated into a multi-tiered framework that emphasizes layers of supports that increase in intensity and individualization.

Concurrent Supports: Remediation + Compensation

When implemented strategically, remediation and compensation are complementary approaches that can both be included in a student's multi-tiered system of supports. For some students, supportive technologies may reduce or remove the need for intensive instructional interventions by allowing sufficient access to Tier 1 classroom instruction. In most cases, supportive technologies may allow a student to continue learning new skills in the general classroom while they receive targeted instruction at another time of day. For example, students learning English as an additional language can use audio supported text (audio books and text-to-speech) to listen to high interest books in the classroom. Another time of day, they will work on reading predictable text with their language teacher.

The fear that supportive technology will prevent a student from learning new skills by functioning as a crutch is a myth rooted in negative stereotypes and a significant

misunderstanding of the targeted use of supportive technology. Purposefully selected technology features support specific task demands through a data-driven decision-making process. The result is not overcompensation - reducing the opportunity for learning by removing too many task demands - but *targeted* compensation that can be adjusted as specific skills are acquired or maintained when response to intervention is slow. Both situations are depicted in Figure 1 graphs. Supportive technology may become assistive technology if and when a student is found eligible for special education services and an IEP team determines the supportive technologies are needed for a student to receive a Free Appropriate Public Education (FAPE).

Conclusion

The integration of supportive technology within the Multi-Tiered System of Supports (MTSS) represents a promising avenue to optimize student engagement, overcome learning barriers, and deliver universal, targeted, and intensive technology-based compensatory supports. By leveraging the power of technology, educators can enhance the educational experience and outcomes for all students.

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