

CITES

Family Engagement Literature Review



**Center on
Inclusive Technology
& Education Systems**

cites.cast.org



This content was developed under a grant from the US Department of Education, #H327T180001. However, the contents do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government. Project Officer: Anita Vermeer, M.Ed.



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International license.

Table of Contents

Introduction.....	2
Definitions of Key Terms	2
Theoretical Framework.....	4
Purpose.....	7
Methods.....	7
Results	10
How do district and school leaders engage families in educational and assistive technology infrastructure initiatives?.....	10
How do classroom educators engage families when planning for teaching and learning experiences using assistive and educational technologies?.....	12
How do families describe ways in which district leaders, school leaders, and classroom educators engage them when planning for and implementing technology infrastructure and using assistive and educational technology for teaching and learning?.....	21
Discussion	25
Student Learning Implications	26
Microsystem: Teaching and Assessment.....	27
Mesosystem: Infrastructure Implications	29
Exosystem: Leadership Implications	30
Conclusion.....	31
References	32

Introduction

The Center on Inclusive Technology and Education Systems (CITES) is a project under CAST and funded by the U.S. Department of Education, Office of Special Education Programs. CITES partners with school districts from across the country to find ways for integrating education technology (EdTech), information technology (InfoTech), and assistive technology (AT) to best support students with disabilities (CITES). The (CITES) framework offers a “how-to guide” to help school districts build their capacity to create inclusive technology systems that support a district’s vision of diversity, equity, inclusion, and accessibility. The five components of the CITES framework: leadership, infrastructure, teaching, learning, and assessment, outline practices for developing an inclusive educational technology ecosystem. Family engagement, an essential factor for successful K-12 technology initiatives, is embedded within each component because it is crucial to empower families as partners in teaching and learning. This literature review synthesizes the latest research about family engagement within the inclusive technology ecosystem.

The literature review starts with defining key terms related to family engagement in an inclusive technology ecosystem. The theoretical framework section explains how Bronfenbrenner’s (1994) Ecological Systems Theory is used to establish family engagement and each of the five CITES categories within an inclusive technology ecosystem. The purpose section then presents the research questions. Next, the methods section describes literature database sources, search criteria, and inclusion criteria. The results section presents literature review findings organized by the research questions. Then, the discussion section synthesizes findings and describes gaps in the research base pertaining to family engagement within the inclusive technology ecosystem. Finally, the conclusion summarizes the review’s main points and offers recommendations for next steps.

Definitions of Key Terms

- **Accommodations** are shifts in modality to how a student learns — such as a different assignment format, different assessment response options, and extra

time to complete a learning activity — any of which enables a student to complete or participate in the same learning experiences and assessments as other students.

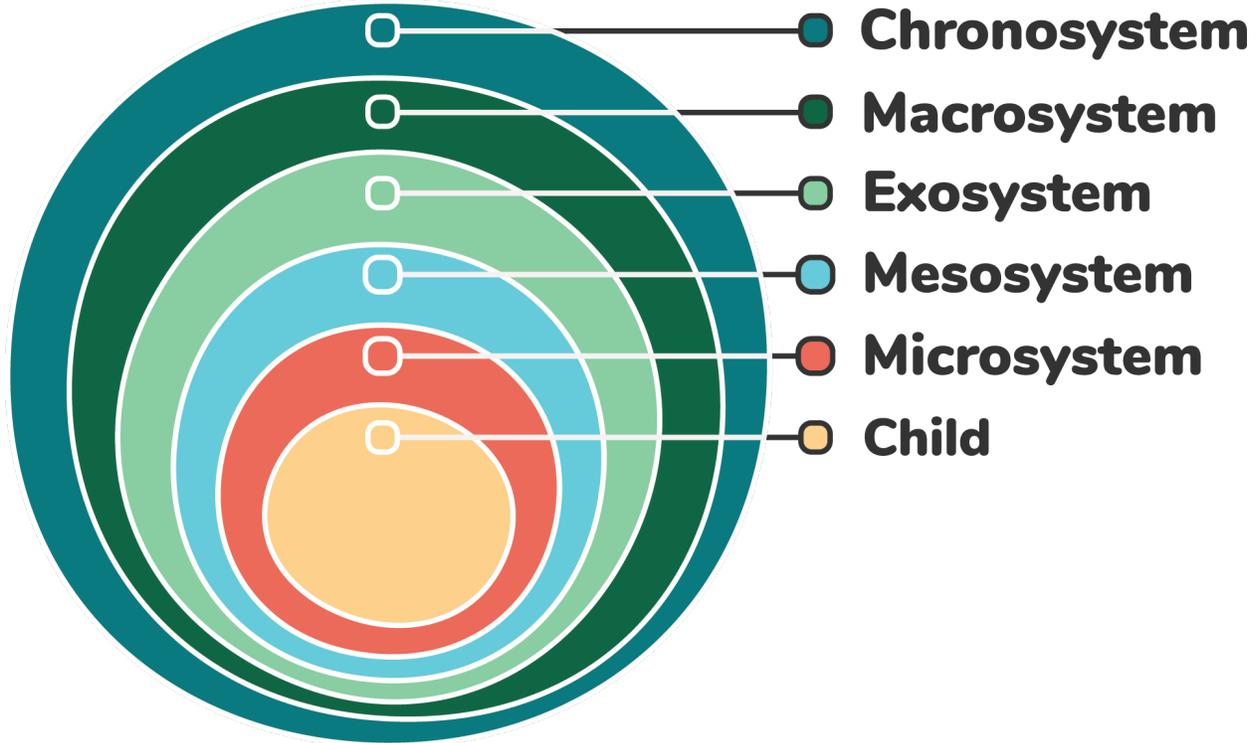
- **Assistive technology**, also called AT, is technology used by an individual with a disability to help increase, improve, or maintain their functional capabilities. The definitions of assistive technology devices and assistive technology services are codified in several federal statutes, including the Individuals with Disabilities Education Act (IDEA) (CAST, 2021).
- CITES framework
 - **Leadership**: creating a culture and conditions for innovation and change
 - **Infrastructure**: enabling access and effective use
 - **Teaching**: teaching with technology
 - **Learning**: engaging & empowering learning through technology
 - **Assessment**: measuring learning & data-based decision-making
- **Classroom educators** are adults who design, deliver, and directly support instruction of students, e.g., teachers, instructional assistants, and other paraprofessionals.
- Diversity, equity, accessibility, and inclusion
 - **Diversity** is how people within an educational community differ and how educational leaders ensure that multiple perspectives are represented.
 - **Equity** is fair treatment of all members and stakeholders of an educational community.
 - **Accessibility** is ensuring that students with disabilities can acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective, equally integrated manner, with substantially equivalent ease of use.
 - **Inclusion** is ensuring that all students and families are valued and can fully participate in all aspects of the education system, including decision-making processes.
- **Family** are important adults in a K-12 student's personal community who care for and support the student's learning outside of the school setting. This may include: parents, siblings, grandparents or other paraprofessionals who care for the student outside of school.

- An **inclusive technology ecosystem** employs effective and equitable leadership practices to design, support, maintain, and continuously improve upon technology infrastructure that supports the teaching, learning, and assessment of all students.
- An **inclusive technology implementation plan** is a document that outlines how a school district will equitably provide technology services to all students enrolled in the school district.
- **Informational technology** (InfoTech) is an overarching category of technology, also called information and communication technology or infrastructure technology, that encompasses the components of computers, networking hardware, and software that provides the backbone to deliver educational technology (CAST, 2021).
- **Instructional technology** or **educational technology** is the use of technologies, such as devices, computers, and software applications, that help facilitate learning. CITES uses EdTech as a comprehensive term for learning technologies (CAST, 2021).

Theoretical Framework

The theoretical framework for this literature review is Bronfenbrenner’s Ecological Systems Theory (Bronfenbrenner, 1994). The theory posits that a child’s development is influenced by multiple layers of social influence from within the child’s environment, which is “conceived as a set of nested structures, each inside the other like a set of Russian dolls” (Bronfenbrenner, 1994, p. 39). Figure 1 illustrates the child is the innermost layer of the ecological system model. The second layer, the microsystem, is made up of people in the child’s immediate face-to-face environment. The mesosystem is the third layer and reflects the relationship between the child and their microsystem. In the fourth layer, the exosystem, consists of connections and processes that indirectly affect the child within their microsystem. At the macrosystem layer are cultural norms, policies, belief systems, and legal influences on the people within the ecosystem. The chronosystem is the outermost layer and contains events and transitions that occur during the child’s life, including sociohistorical events that impact the child.

Figure 1

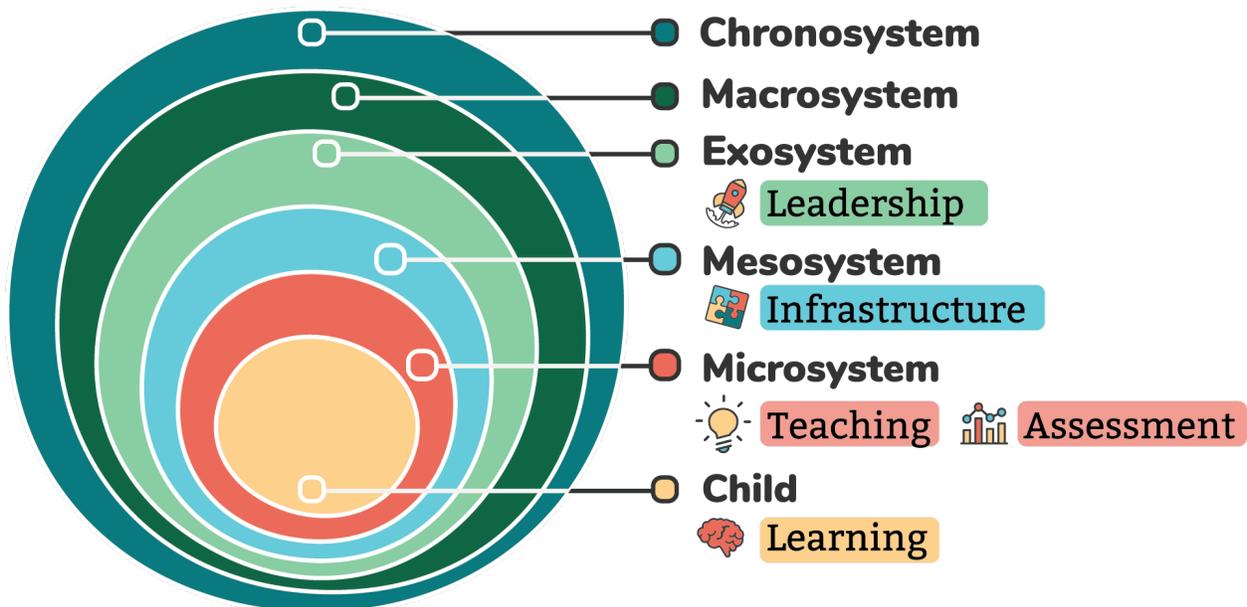


Bronfenbrenner's Ecological Systems Theory was selected as the theoretical framework because it associates the many contextual influences on a child's development. At the core, the child's self-identity includes the child's race, gender, disabilities, health issues, and social, mental, and emotional challenges. The microsystem contains people such as family members, classroom educators, therapists, and peers (Gonzales, 2021, Ruppap et al., 2017). The mesosystem includes both people—e.g., the IEP team (Ruppap et al., 2017) and educational and assistive technology specialists—and information, educational and assistive technologies (Gu et al., 2019). School and district leaders (Gonzales, 2021, Gu et al., 2019, Ruppap et al., 2017), teacher preparation programs (Gu et al., 2019, Ruppap et al., 2017), and family member work commitments (Bronfenbrenner, 1994) are examples of exosystem elements. At the macrosystem layer are cultural norms (Bronfenbrenner, 1994), belief systems (Bronfenbrenner, 1994), educational laws and policies (Ruppap et al., 2017, Gu et al., 2019), and other influences on equitable access to learning technologies (Gu et al., 2019). The chronosystem shows influences over time, such as the education system before desegregation and inclusion (Gonzales, 2021), evolution of inclusive

educational practices (Gonzales, 2021), transitions between school levels (Ruppar et al., 2017), assistive and adaptive technology evolution (Gonzales, 2021), and the shift to remote learning resulting from the COVID-19 pandemic (Bishop, 2021).

Family engagement and the five components of the CITES framework are contextual influences on the development of K-12 students that fit within the ecological systems model. Learning is reflected in the students themselves. Family engagement, teaching, and assessment are part of the microsystem. Infrastructure lies within the mesosystem, and leadership is within the exosystem. The macrosystem, comprised of cultural norms, belief systems, educational laws, and policies, has potential for both positive and negative influences on equitable access to learning technologies. The chronosystem layer reflects an opportunity to: (a) learn from the past about what has and has not worked well, (b) make informed decisions about what's happening in the present, and (c) continuously improve upon the inclusive technology ecosystem over time. Embedded within the ecological systems model, these components visualize the inclusive technology ecosystem as shown in Figure 2.

Figure 2



Purpose

The purpose of this review is to explore the current literature base related to family engagement within the inclusive technology ecosystem. The three research questions for this literature review are as follows:

- How do district and school leaders engage families in educational and assistive technology infrastructure initiatives?
- How do classroom educators engage families when planning for teaching and learning experiences using assistive and educational technologies?
- How do families describe ways in which district leaders, school leaders, and classroom educators engage them when planning for and implementing technology infrastructure and using assistive and educational technology for teaching and learning?

Methods

Articles used for this review were located using the ProQuest Education, PsychInfo, and ERIC databases. The online databases were selected due to their relevance to the topic. Boolean searches were conducted using the following keywords:

- Abstract (family or parent or caregiver or guardian or “learning coach”) AND
- Full Text (K-12 or “elementary school” or “high school” or “middle school” or “charter school” or “school district”) AND
- Full Text (“information technology” or “assistive technology” or “educational technology” or “instructional technology” or edtech) AND
- Full Text (disability or accessibility or accommodations or modifications or inclusion or diversity or equity).

Additional search criteria included: (a) published peer-reviewed articles in full-text, (b) published between 2010 and 2021, and (c) articles available in English.

Studies were excluded after screening for the following reasons:

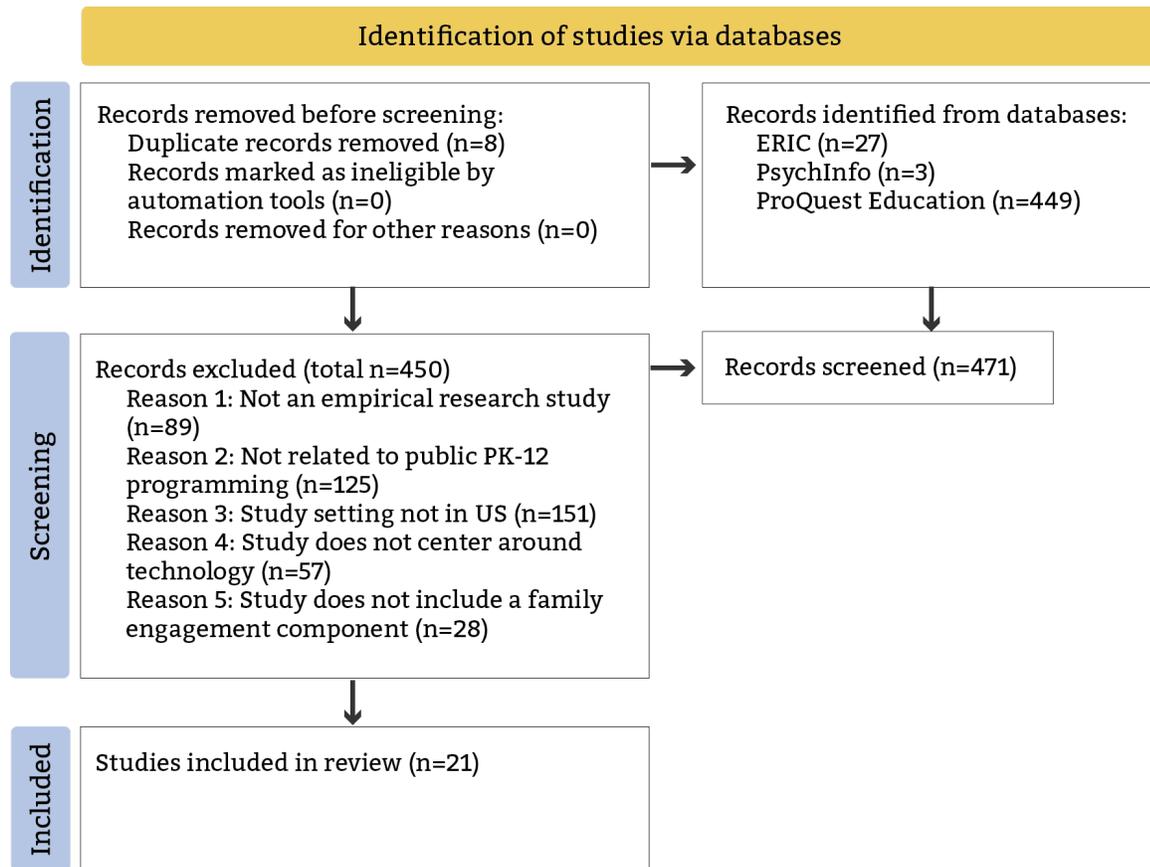
1. Not an empirical research study (i.e., review article, theoretical article, or perspective, opinion, or commentary)
2. Not related to public PK-12 programming
3. Study setting not in U.S.
4. Study does not center around technology
5. Study does not include a family engagement component

The PRISMA diagram in Figure 3 illustrates search results refinement. The flow diagram depicts the flow of information across distinct phases of a systemic review. The diagram starts with the identification of 479 studies via the searched databases and ends with the identified 21 studies included in the review. Of the 479 identified studies; 27 from ERIC, 3 from Psychinfo, and 449 from ProQuest Education; eight records were removed before screening due to duplicate records. Next, 450 additional records were removed due to the following reasons:

1. 89 records were not an empirical research study
2. 125 records were not related to PK-12 public school programming
3. 151 records were not conducted in the U.S.
4. 57 records were not focused on technology implementation
5. 28 records did not include a family engagement component

The remaining 21 studies were included in the study. Details of specific screening strategies are outlined in the next paragraph.

Figure 3: PRISMA 2020 flow diagram for new systematic reviews



After the initial search was conducted, duplicates were removed. Article abstracts were then screened against the exclusion criteria to identify eligible articles. Not all article abstracts contained sufficient information to assess all inclusion criteria, so the researcher skimmed the article’s full text to locate information missing in the abstract. For example, some articles did not contain sufficient details to determine if the study setting was a public school or district in the U.S. Full texts of included articles were analyzed and coded based on the study’s research questions. Next, article data were assembled into an annotated bibliography (Appendix A) to allow for easier synthesis of findings. Finally, the researcher summarized findings from articles related to each research question to write the results and subsequent discussion.

Results

This section presents a summary of each included article and synthesized literature review findings organized according to the three research questions.

How do district and school leaders engage families in educational and assistive technology infrastructure initiatives?

Four studies reported on how district and school leaders engage families in educational technology initiatives. The first study by Clancy and Gardner (2017) discusses the use of ePortfolios for sharing special education student vocational and academic accomplishments. The second study by Laho (2019) reports on a school district's Learning Management System (LMS) implementation. In the third study, Kiger and Herro (2015) report on family engagement to establish a Bring Your Own Device (BYOD) program in one midwestern state's school district. Finally, Mac Iver et al. (2021) share family engagement affordances of one public school district's parent communication portal implementation.

Engaging Families in Educational Technology Initiatives

First, Division Head Clancy and Technology Specialist Gardner (2017) used interviews and observations to evaluate the use of ePortfolios to highlight vocational goals, functional curricula, student strengths, and interests in three special education high school classrooms. Parents learned about the ePortfolio from their student's teacher through parent-teacher conferences. The school's Technology Specialist established and administered access to the ePortfolio program's parent portal. Nearly 75% of parents interacted with at least one project in their student's digital portfolio. Researchers concluded that in addition to being a useful and authentic assessment tool, ePortfolios allow parents and organizations to see students' current levels of functioning in the classroom and community.

In the second study, instructional technology expert Laho (2019) surveyed 901 families of students enrolled in a rural public school system in Michigan and all of the district's 83 teachers about tools used for communication between the school and home and how integration of a Learning Management System impacts school-home communication practices. Findings indicate that parents and teachers prefer email and phone for two-way conversations. Parents and teachers found the LMS most effective for providing parents with resources to engage in their student's learning, such as academic progress and newsletters. Researchers recommended that school districts implementing an LMS should have clear goals and offer adequate staff and parent training. Additionally, school districts should clearly communicate available communication resources and their intended purpose, e.g., the purpose and intended communication use of the student information system and the LMS.

Next, Oconomowoc Area School District Director of Research Kiger and Clemson University Associate Professor Herro (2015) reported on one midwestern state school district's establishment of a Bring Your Own Device program. As part of the district's annual online continuous improvement survey, the district added seven questions to inform the development of a new BYOD program. Of the 482 respondents, 90% of families reported they had high speed internet and 56% reported they would allow their student to bring a device to school. Despite reported academic benefits of the BYOD program, family members expressed appropriate use and device security concerns. Family members also recommended that the district supply devices for students who were unable to bring one to school. The study recommended including families on advisory boards, using volunteers from families to assist with BYOD implementation in classrooms, and planning fundraisers to purchase devices for students who did not have one to bring to school.

Finally, educational research professionals Mac Iver et al. (2021) analyzed their field notes from a four-year university partnership project with a public school district in the western United States to implement a parent communication portal. Key findings from their analysis revealed challenges and recommendations for school and district leaders for greater parent portal adoption among families. Challenges included lack of knowledge about what the portal offered, confusion about how to get help, complicated instructions for accessing the portal, and family members' use of a

different email address than the one on file in the district’s registration system. Hosting an event dedicated to the parent portal was unsuccessful, so researchers recommend integrating parent-education about the portal into larger events, such as book fairs or “Back to School Night.” Researchers recommended setting up a demonstration computer and hands-on opportunities at these events to allow parents to log on for the first time and troubleshoot any issues. Researchers also recommended a targeted meeting for known families who have not accessed the portal with personal invitations by school or district leaders.

Collectively, these studies examining aspects of family engagement in district and school level educational technology initiatives illustrate that family input is valuable throughout all phases of technology initiatives. Like the Oconomowoc Area School’s BYOD initiative (Kiger & Herro, 2015), district and school leaders can engage families during the planning phase by expanding existing family surveys to obtain input from families on educational and assistive technology acquisitions and implementations. During initiative implementation, districts and schools can include families by offering demonstrations and training opportunities (Laho, 2019, Mac Iver et al., 2021) and by discussing how the technology is being used at parent-teacher conferences (Clancy and Gardner, 2017). For more intimate two-way communications, parents prefer email and phone conversations (Laho, 2019). Ongoing, districts and schools can include families by sharing announcements about technology initiatives through parent portals (Mac Iver et al., 2021) and including families on advisory boards (Kiger & Herro, 2015).

How do classroom educators engage families when planning for teaching and learning experiences using assistive and educational technologies?

Twelve studies reported on family engagement by classroom educators surrounding assistive and educational technology. The first two studies by Blackstone et al. (2021) and Stinson (2013) discuss communication between service providers and families. Next, Bishop (2021), Borup et al. (2019a), and Vasquez and Slocum (2012) report on

family engagement in virtual learning environments. Third, McCarthy et al. (2018) describe two studies wherein teachers leveraged narrative-based educational media to include families in student learning at home. Fourth, Harper et al. (2016) and Michaelson et al. (2015) share how educators engage families when implementing assistive technology devices. Finally, Cosier et al. (2013), Lopach et al. (2018), Natale and Lubniewski (2018), and Valerie and Foss-Swanson (2012) reported on technologies used for daily classroom educator-family communication.

Communication Between Service Providers and Families

In the first study, communication disorder experts Blackstone et al. (2021) surveyed 209 school-based service providers from 35 states and 63 parents from 22 states about support services and use of augmentative and alternative communication (AAC) for students with Cortical Vision Impairment (CVI). Providers reported including parents as essential team members. However, parents responded that they sometimes felt excluded and needed more guidance to support their students at home and in the community. Researchers recommended the following resources to assist families and providers of students with CVI: "easy-to-access articles about CVI and AAC, just-in-time instructional videos that demonstrate strategies, materials and methods, and modules that schools can use for in-service or parents' trainings and professors can use in their classrooms" (p. 622).

In the second study, teacher of the deaf Stinson (2013) offers a narrative analysis of service coordination for a male preschool student receiving special education services for multiple disabilities in a public-school preschool program. The deaf and hard-of-hearing student's teacher coordinates his other special education services and reports on her coordination experiences and family engagement. All of the student's service providers and his teacher enter notes in a notebook that travels to and from home as a central point of communication between his service providers and his family. In addition to the notebook, the teacher of the deaf and hard-of-hearing videotapes her sessions with the student and shares them with the student's mom via email. The mother reviews the videos and shares them with other family members and her son.

Her son enjoys watching himself on the videos, which help him further improve his communication skills. The student's mother and teacher of the deaf and hard-of-hearing regularly engage in two-way communication via phone conversations, email, and notes in his communication notebook.

There are three key outcomes of these two studies about communication between families and service providers. First, as essential team members, family members should be provided with regular updates and opportunities for iterative communication with school-based service providers via phone conversations, email, and notes in a communication notebook (Stinson, 2013). Second, it is helpful to include a description of what the student is working on with visual examples in communications between providers and families (Stinson, 2013). Finally, families may benefit from training and resources from school-based service providers so they can work with students at home to generalize skills learned in school (Blackstone et al., 2021).

Classroom Educator Family Engagement in Virtual Learning Environments

The first article about family engagement by classroom educators in virtual learning environments is by Bishop (2021), a Professor of Education at the University of Vermont, who surveyed 332 middle-school grade teachers about how their teaching practices improved because of remote teaching during the COVID-19 pandemic. Six themes emerged from survey results: “1) knowing their learners individually, 2) teaching to individual student needs, 3) adopting student-directed strategies, 4) assessing student learning, 5) partnering with families, and 6) using technology” (Bishop, 2021, p. 6). Teachers reported increased family communication and collaboration through regular check-ins on family well-being and sending home resources. Teachers also took on the role of teacher-educator, and mentored family members in their new-found teaching role.

Next, K-12 online learning experts Borup et al. (2019a) surveyed and interviewed 12 online asynchronous high school course teachers about parent engagement in online courses. Researchers reported that parents requested a "parent night" style orientation to introduce them to the asynchronous online course program, but the Michigan school

districts of enrolled students opted for teacher-provided parent orientation packets because of the dispersed student population. Teachers and on-site school facilitators of students noted that engaged parents positively impact their student's learning because the student had someone to listen to and had someone who cared. Some parents were difficult to contact because of incorrect or inaccurate information provided from the school district to the Virtual School administration. Some parents were unable to assist their students because the course and its' pacing guide were in separate online locations requiring parents to rely on their student's login for access. Recommendations for practice included a parent-friendly dashboard to view student progress and grades and connecting the virtual school grading system with the student's school district grading system.

Lastly, special education professionals Vasquez and Slocum (2012) used a single-case multiple baseline cross participants study design to determine the extent to which online synchronous supplemental reading instruction increased the oral reading fluency (ORF) of four fourth-grade students with a learning disability at risk of reading failure. Visual analysis of study data showed an increase in ORF ranging from 9.2 words per minute (WPM) to 46.4 WPM. There was also a small to moderate increase in overall reading skills as measured by the Woodcock-Johnson III Tests of Achievement (WJ-III) reading battery. Social validity questionnaire results showed that parents, teachers, tutors, and students all reported 100% agreement that online tutoring is a good reading instruction delivery mechanism. The online tutoring system allowed tutors to display and explain progress and build a trusting relationship with their students. All participants reported 100% agreement that student reading skills improved and noticed changes at home or the classroom. Finally, parents reported they would recommend online tutoring to others.

These three studies about family engagement by classroom educators in virtual learning environments illuminate several important considerations for ensuring a close relationship with families despite physical distance. First, it is important to ensure that parents have a way to view their student's learning progress and be informed about what the student is learning so they can assist their student as needed (Borup et al., 2019a). Second, positive relationships between students and online educators are important for building student confidence and helping students persist in virtual

learning environments (Bishop, 2021, Vasquez and Slocum, 2012). Third, most family members are not teachers intimately familiar with online education tools, so families benefit from periodic check-ins with educators and opportunities to learn about how to support their student's learning at home (Bishop, 2021, Borup et al., 2019a). Finally, districts and school leaders need to provide the technology infrastructure to facilitate family engagement between classroom educators and families, and online learning systems should integrate with district or school student data systems to allow for one parent-friendly view of student progress and classroom educator feedback (Borup et al., 2019a).

Family Engagement through Curriculum

Educational technology researchers McCarthy et al. (2018) present the results of two studies on the effectiveness of narrative-based educational media for math learning. In the first study, classroom educators gave parents of preschoolers three Curious George DVDs with mathematical themes that students were learning at school in a variety of Curious George themed learning stations. In the second study, teachers gave families Odd Squad DVDs and a supplemental materials binder with the following in English and Spanish: descriptions of Odd Squad online games and helpful tips on playing each game, detailed descriptions and screen shots of all Odd Squad episodes, detailed at-home activity guides to accompany each episode. Parents found materials in the parent binder helpful in teaching meaningful mathematics concepts to their students and noted improvements in specific math skills, such as skip counting.

Feedback from parent focus groups revealed that parents had positive experiences with their students during at-home learning activities. In interviews, teachers commented that they enjoyed the family involvement component of the intervention and including families increased student interest in the narrative and math concepts. Teachers commented that by including families, students became more involved in the Odd Squad narrative and the mathematics content (McCarthy et al., 2018). Several parents commented that they played the games with their students and shared joint interest.

Including Families as part of Assistive Technology Implementation

Teacher education faculty members Harper et al. (2016) evaluated the impact of the Livescribe pen on a fourth-grade female student's academic independence. The Livescribe writing tool features included voice recording, syncing recorded audio with visual representation, and connecting literacy-based tasks with tactile stimuli such as printing, drawing, and turning pages. The student's teachers recorded themselves reading text materials used for class assignments and homework onto the pen. The student, who was diagnosed with dyslexia and struggled with reading and writing activities in all subject areas, followed along with learning materials as she listened to the teacher reading passages for her assignments. She also listened back to her own written work using the pen to check her writing accuracy. Using the pen enabled the student to complete work independently in significantly less time and increased the student's academic performance and self-confidence. Despite significant student gains, it required time from the teacher to record assignments daily. Implementing the Livescribe pen required collaboration between the student's family, teachers, and support providers as they tried out new methods and strategies to accommodate the student's academic barriers.

In the second assistive technology study by visual impairment education professionals Michaelson et al. (2015), researchers evaluated the SMART Braille device for students at the Florida School for the Deaf and Blind (FSDB). Participants included seven students and the school's parent-resource, who is the parent of a child attending the school who serves as a resource and teacher communication mediator for other parents. The SMART Braille affords greater student independence than traditional brailers because it displays and speaks letters and words as a student brailles them. The video screen affords inclusive learning experiences by displaying brailled text in Roman letters as the student writes. Evaluation results concluded that the device is much more motivating and easier to use for students than the Classic Perkins Braille because it makes use of multiple learning modalities. Editing documents is much easier with the SMART Braille. Students are also able to use the device more independently because of the audio feedback. Teachers posited that the SMART Braille would

enable and motivate students to become more proficient readers. Students using the SMART Braille also stated that it enables them to participate in joint learning experiences with their sighted friends. The school's assistant principal noted that the device enables families to see their student's progress and actively learn with their student. The parent-resource stated that she liked the SMART Braille because it enabled parents to understand what their child is brailleing and to learn the braille code.

The articles by Harper et al. (2016) and Michaelson et al. (2015) offer insight into ways that classroom educators can involve families when implementing assistive technologies for students with disabilities. First, classroom educators, including assistive technology specialists, can include families in planning how the student will use the device and best ways to teach the student how to use the device (Harper et al., 2016). Next, classroom educators can train family members how to use the assistive technology device so that families can support at-home learning experiences and extend in-school learning experiences to authentic tasks in the student's home environment. (Michaelson et al., 2015). Finally, classroom educators can leverage a parent-resource to assist with and mediate educator-family communications (Michaelson et al., 2015).

Leveraging Technology for Daily Communication with Families

In this first study about daily classroom educator-family communication, special education services specialists Cosier et al. (2013) explored special education teachers' use of text messaging for collaboration with service providers, other educators, paraprofessionals, and parents. Through semi-structured interviews with five special education teachers, researchers learned that teachers regularly text message parents to discuss work modifications, student behavior, and learning progress. Teachers also reported using text messaging between themselves, a student's general education teacher, and parents to share images and videos of students engaging in learning activities. Additionally, teachers texted parents to provide them with additional work ideas to complete at home. Parents reciprocated communication via text message to

share skills and content knowledge that students were demonstrating at home. Finally, teachers and parents communicated about students' social emotional well-being, so they were both prepared during home-school and school-home transition times. Despite the efficiency and convenience of using text messages for parent communication and learning collaborations, some teachers expressed concerns about "getting caught" by school administration for using Smartphones in the classroom.

Second, educational psychology professionals Lopach et al. (2018) evaluated the effectiveness of an Electronic Home Note Program (EHNP) for improving on-task behavior, math performance, and home-school collaboration. Participants were four upper elementary school males who exhibited low on-task behavior and below average math performance. The EHNP included a Google Form for teachers to complete daily to rate the student's on-task behavior, two other teacher-selected behavior scales, and a comments section. Upon submit, the EHNP emailed the information to parents. Researchers taught parents how to review their student's EHN and provide positive feedback to their child based on teacher feedback. The EHNP also included a game-based reward system where students were given a 50% chance of earning a token reward if they received a 70% on-task behavior rating or higher on random "Reward Days." Researchers collected on-task behavior data while students were completing a math worksheet each day independent of the teacher using observations during baseline, intervention, and follow-up intervals. Results showed increased math achievement and a 100% improvement in on-task behavior across all participants. Parent acknowledgement of reviewing EHN results with their student had a mean of 84% as indicated by daily email responses.

In the third study, elementary literacy professionals Valerie and Foss-Swanson (2012) conducted a qualitative inquiry into the use of family message journals (FMJ) in an urban first-grade classroom. Using descriptive analysis, researchers uncovered the following: The teacher used morning meeting time to discuss family responses and the last 20 minutes of the school day for a student writing opportunity. Family message journals motivate students to write by providing an opportunity to share information with family members and an opportunity to share their family member's response with their class. Family message journals engage all students in multiple writing opportunities by affording an opportunity for ongoing written conversation with their

family members. Family message journals foster home-school partnerships by providing a mechanism for ongoing communication and motivating families to engage in other school and class activities. Additionally, family message journals are helpful talking points for discussing student progress. Finally, the article discussed assistive technology (AT) as a potential family message journal format and recommended engaging the district's AT specialist for guidance on how best to do so.

These three studies about leveraging technology for daily communication with families highlight the value of the classroom educator-family relationship. For students with behavioral issues, texting and family journals enable daily check-ins and an opportunity for educators and students to share daily wins and challenges with family members (Cosier et al., 2013, Lopach et al., 2018, Valerie & Foss-Swanson, 2012). Family members can in turn discuss daily behavior with their students at home and respond. Daily conversation topics can also include academic progress and a discussion of the day's learning activities. When educators open the door for two-way communication with families, families share skills and content knowledge that students are demonstrating at home (Cosier et al., 2013). Classroom educators can then leverage family member responses to select educational materials and technologies to help students with disabilities make progress toward learning goals. Finally, daily communication through technology motivates families to engage in other school and class activities because they feel part of the learning community (Valerie & Foss-Swanson, 2012).

How do families describe ways in which district leaders, school leaders, and classroom educators engage them when planning for and implementing technology infrastructure and using assistive and educational technology for teaching and learning?

Seven reported studies focused on the perceptions of family members, particularly on family engagement through technology. The first study by Borup et al. (2019b) reports on parent perceptions of their role in their online charter school student's learning. The next two studies by Craig et al. (2015) and Eutsler and Antoneko (2018) discuss family engagement surrounding the use of technologies for learning at home. The third study by Natale and Lubniewski (2018) reports on family member thoughts on communication with teachers using technology. Finally, De Mars (2010) and Shiffman (2019) share underrepresented family perceptions of engagement through technology.

Family Engagement in Online Learning

In this narrative analysis, K-12 online learning experts Borup et al. (2019b) conducted semi-structured interviews with three parents to explore how parents of students enrolled in an online charter school describe their role in supporting their student's learning. Findings indicated that parents are their student's primary source of encouragement and support to engage in online coursework and that the nature of parental support is unique for each student based on the student's behavior and learning preferences. Recommendations for practice for online schools included: a need for school psychologist support of students who disobeyed school policies and their parents, customized orientations for students coming from a homeschool environment, and brick and mortar schools (Borup et al., 2019b).

Family Perceptions of Technology for At-Home Learning

Using a randomized-control design, psychologists Craig et al. (2015) evaluated elementary students' social-emotional and behavioral improvements from using Zoo U, a virtual game-based social skills training program. The 23 students in the treatment group completed five 2-week social-emotional skill units and demonstrated statistically significant improvements in social initiation, impulse control, emotion regulation, and assertion skills. Students who played Zoo U reported improvised social self-perceptions, social literacies, and social satisfaction. Overall, the Zoo U social skills virtual game presents an opportunity to offer social skills training at scale. If used at both home and school, Zoo U offers an opportunity to compare social skills outcomes across both home and school environments.

Educational technology researchers Eutsler and Antoneko (2018) surveyed 120 parents of elementary students and interviewed 13 parents from two elementary schools about their student's use of portable technology for reading at home. Parents reported that school had the largest influence on their decision to allow their student to use portable technology for reading development. Specifically, the school administration included families in school-wide technology initiatives and teachers assigned home assignments for students to complete specific technology activities or recommended specific learning applications for use at home. One parent mentioned purchasing a portable technology device and encouraging her child to use technology for reading development because the school district started using computers to administer standardized assessments.

These two studies about the affordances of technology to extend learning at home have several takeaways. First, technology offers a way to consistently deliver the same instruction in both the school and home environment. This allows classroom educators and parents to be equally informed about student abilities and offers a common ground for ongoing communications (Craig et al., 2015). Second, findings by Craig et al. (2015) illuminate the value of technology for educating the whole child. A student's social-emotional well-being sets the stage for their academic success. Using the same

technology for social-emotional education at home and school affords consistency for the student across both environments and a common language between parents and educators. Third, the Eutsler and Antoneko (2018) results reported that schools influence family decisions to acquire and use technology for learning at home. This suggests the need for district and school leaders to clearly communicate why and how technology should be used to support student learning outside of school. Finally, technology is a mechanism for students to share what they are learning with their family and enables the student to become the family engagement vessel.

Communication with Teachers Using Technology

Natale and Lubniewski (2018) surveyed families of students attending a K-3 elementary school in New Jersey. The 28 families who responded to the survey indicated that their primary forms of communication with teachers was through email. Technology-based communication frequency ranged from never to once per marking period. 64% of families indicated that communication with their student's teacher was two-way. The two most common communication topics were classroom updates and their student's behavior. Families of students with disabilities requested more frequent email communications. Overall recommendations for teachers included: a) it's important to remember to respond, even an acknowledgement of receipt, to emails from family members, b) reread emails before sending them to ensure a friendly tone, and c) communicate with families through their preferred communication method.

Underrepresented Family Perceptions of Engagement through Technology

De Mars (2010), a Spirit Lake Tribe Education and Vocational Rehabilitation program member, surveyed 467 individuals living in or near Native American reservations in the Great Plains to examine the prevalence of access to the internet and use of electronic communication among Native Americans. Findings revealed that a greater percentage of families with persons with disabilities living on Native American reservations, about 50%, in the Great Plains have internet access at home and use email than expected. Despite internet access, families do not frequently use electronic communication for

Individualized Education Plan or Individual Family Service Plan information. Great Plains Native American families primarily use their family and community members as resources. Thus, community forums and other Web2.0 technologies are likely to be valuable communication methods between schools and families of students with disabilities.

In this study, adult education researcher Shiffman (2019) examined district and school family engagement efforts with parents of students whose primary language was not English. Types of communications discussed included: face to face (school-wide events and parent-teacher meetings), phone, written (newsletters and forms), email, and school websites. Districts reported ensuring that there was at least one staff member at each school that spoke Spanish who was available for translation as needed. While some districts employed staff members whose primary job was engagement with non-English speaking families, using the school's ESL or foreign language teacher was most common. Non-English-speaking families noted a preference for communications to be sent in both English and Spanish so that they could look up words in the English version that they did not understand in a dictionary; some information does not translate well, and electronic translation tools used by some districts resulted in poorly translated documents. An additional concern noted was that non-English speaking families often had limited reading proficiency in their native language, so sending home translated documents was ineffective.

In these final two articles, De Mars (2010) and Shiffman (2019) shed light on the critical need for underrepresented family voices in conversation around technology in schools. De Mars (2010) and Shiffman (2019) reported that about 50% of the underrepresented populations in their studies had home internet and were motivated to use technology for school communication. Both studies identified a preference for more personal forms of communication, such as face to face and phone conversations, by underrepresented families. Key to this finding is that despite only 50% of families having internet access at home, most families reported having and regularly using a Smartphone as their primary form of communication (Shiffman, 2019). Therefore, districts, schools, and classroom educators should consider the mobile accessibility of their family engagement resources. School website navigation and important information location on the website are essential considerations (Shiffman, 2019).

Another important finding from Shiffman (2019) is that districts, schools, and classroom educators need to strategically consider when to use translation services and what translation tools to use. Families were more confident to engage in school communications when they were first welcomed or introduced personally via phone or orientation meeting in their native language. Attending events where most families spoke English was intimidating and non-English speaking families often shied away from asking questions because they lacked confidence in their ability to communicate. Parent-teacher meetings frequently made use of an intermediary for translation and while school-provided intermediaries were appreciated, some parents lacked trust in the intermediary feeling like they did not necessarily have the parents' best interest in mind. Parents felt most comfortable with a family member translating or communicating on their own to the best of their ability. Finally, the article recommended that IEP and other important conferences be scheduled for longer timeframes when an attendee is non-English speaking.

Lastly, both articles highlighted the importance of considering a student's entire ecological system and the dynamic nature of students' relationships when engaging with families. De Mars (2010) noted that Native American families consider their tribal community as extended family and an important resource. Shiffman (2019) described student families consisting of members from multiple generations with varying English language proficiency and literacy levels. This dynamic family nature should be an important consideration in district, school, and classroom educator educational and assistive technology decisions.

Discussion

This section discusses implications and recommendations based on literature review findings within the inclusive technology ecosystem. It starts with a discussion of family engagement implications for student learning. The review then moves on to discuss implications for teaching and assessment within the microsystem. Next, infrastructure implications within the mesosphere are discussed. The discussion section ends with a discussion of family engagement leadership implications. Appendix B contains a graphic that summarizes findings within each of the five CITES framework categories.

Student Learning Implications

Family engagement by classroom educators is imperative to students generalizing classroom learning to real-world applications. When educators leverage technology to periodically check-in with families and teach families how to support their student's learning at home (Bishop, 2021, Borup et al., 2019a), families often reciprocate and share with educators the skills and content knowledge that students are demonstrating at home (Cosier et al., 2013). Similarly, in virtual public schools, families are their student's primary source of encouragement and support, so classroom educators need to communicate with families about the student's learning progress and unique learning preferences to better equip families to support their student's learning (Borup et al., 2019b). In both classroom and virtual learning environments, texting and electronic family journals enable daily check-ins and an opportunity for educators and students to share daily wins and challenges with family members (Cosier et al., 2013, Mac Iver et al., 2021, Valerie & Foss-Swanson, 2012).

Another opportunity to include families in the learning experiences is to offer at-home learning activities, e.g., online learning games related to the curriculum to increase student interest in the content (McCarthy et al., 2018). When inviting families to engage in at-home learning with technology, educators should clearly communicate why and how technology should be used to support student learning outside of school (Eutsler & Antoneko, 2018) and explain how online learning games can enhance both academic (McCarthy et al., 2018) and social emotional learning (Craig et al., 2015). Lastly, for students that use assistive technology, it is important for educators to train family members how to use assistive technology devices so that families can support at-home learning experiences and extend in-school learning experiences to authentic tasks in the student's home environment (Michaelson et al., 2015).

Literature review articles provided valuable insight into some ways that classroom educators leverage technology to engage families in the learning experience outside of school. However, additional research is needed to better understand how classroom educators ensure that families have the resources and knowledge required to (a) support their student's technology use to make independent choices about and during outside of school learning opportunities, e.g., homework and projects, (b) support their

student's technology use to fully participate in outside of school learning opportunities, e.g., homework and projects, and (c) empower their student(s) to communicate what and how they prefer to learn. This information is essential to provide students with disabilities with a consistent and comprehensive learning experience both in and outside of school.

Microsystem: Teaching and Assessment

Teaching Implications

Classroom educators can leverage communication technologies to facilitate family engagement. Before families can engage using technology, they need to know what technologies to use and when and how to use those technologies. Whereas parents prefer email and phone for two-way communication, an LMS is most effective for providing parents with resources to engage in their student's learning, such as academic progress and newsletters (Laho, 2019). Additionally, regular communication by educators through technology motivates families to engage in other school and class activities because they feel part of the learning community (Valerie & Foss-Swanson, 2012). Responding to family communications in a timely manner, even if only to acknowledge receipt of the message is also important for sustained family engagement (Natale & Lubniewski, 2018). Regular communication via phone conversations, email, and notes in a communication notebook with families of students with disabilities is especially important to provide information about what the student is working on and visual examples (Stinson, 2013).

Like communication technologies, classroom educators can use educational technologies to foster family engagement. Before using educational technologies, classroom educators should discuss at parent-teacher conferences how the technology is being used by students in the classroom and how parents can use the technology at home (Clancy & Gardner, 2017). It is especially important to clearly communicate why and how technology should be used to support student learning outside of school (Eutsler & Antoneko, 2018) and provide resources for families to engage with their student in online learning games at home for both academic (McCarthy et al., 2018) and social emotional learning (Craig et al., 2015).

Similarly, service providers should include families in assistive technology planning (Harper et al., 2016) and offer training and resources so families can work with students at home to generalize skills learned in school with assistive technologies (Blackstone et al., 2021). When scheduling meetings to discuss educational or assistive technologies, such as IEP meetings to determine which technologies to use, classroom educators should allot extra time when an attendee is non-English speaking to ensure complete understanding (Shiffman, 2019).

The articles identified for this literature review described how classroom educators use communication and educational technology to engage families in one- and two-way conversations about what is happening in the classroom. However, research about how classroom educators leverage family members' knowledge of student strengths and learning preferences to integrate accessible educational materials and technologies to enable students with disabilities to make progress toward learning goals is needed. Families have an intimate knowledge of students with disabilities that classroom educators sometimes lack because of the amount of time and variety of environments in which they support the student. This knowledge is important to help students with disabilities succeed to their fullest potential at school.

Assessment Implications

The literature only presented one finding related to assessment implications for family engagement around educational technology. Clancy & Gardner (2017) posited that in addition to being a useful authentic assessment tool, ePortfolios are useful to showcase special education student academic and community accomplishments. Thus, ePortfolios serve as an ideal tool for family engagement. They can be used as a baseline for academic, social, and vocational goal-setting discussions with families. ePortfolios can also show student growth and demonstrate student wins, which many families of students with disabilities often struggle to find amid all the challenges they face raising a special needs child.

Since the literature review identified only one article about assessment implications for family engagement, significantly more research is warranted in this area. One key research need is an understanding of how district leaders, school leaders, and teachers

engage families in meaningful two-way conversations about (a) classroom assessment accessibility and available accommodations, and (b) large-scale assessment accessibility and available accommodations. This understanding could provide students with disabilities with a more equitable assessment experience. Another research opportunity is examining how district leaders and classroom educators elicit and apply family feedback on assessment data to drive equitable and inclusive: (a) instructional decisions, (b) transition decisions, (c) programmatic decisions, and (d) systemic decisions. An understanding of how families inform these decisions is needed to ensure that decisions based upon assessment data are being applied in ways to optimize learning outcomes for students with disabilities.

Mesosystem: Infrastructure Implications

A district's technology infrastructure enables access and effective use of the district's educational and assistive technology resources. An important infrastructure consideration noted in the literature is integration of the district or school's student data system with online learning systems, such as Google Classroom, to allow for a single parent-friendly view of student progress and classroom educator feedback (Borup et al., 2019a). Another important infrastructure implication for family engagement is mobile accessibility of educational and information technology resources (Shiffman, 2019) to allow access for families whose only technology device is a Smartphone. Finally, district and school website navigation and easy to locate technology information on district and school websites are essential considerations to encourage families to make use of technology resources (Shiffman, 2019).

Despite these insightful findings, more research on how to create an inclusive technology infrastructure is warranted to improve learning outcomes for all students. A better understanding of how district and school leaders engage in meaningful two-way communication with families about student assistive technology and accessibility needs is needed to establish best practices for districts and make the most effective use of available communication channels. Additionally, it is important to explore how district and school leaders, using simplified non-technical language, engage in meaningful two-way communication with families about accessibility resources and technology procurement, availability, and use so that students and families can be

equipped with the tools and technologies they need for an equitable and inclusive learning experience.

Exosystem: Leadership Implications

District and school leaders should include families as partners in technology initiatives. Leaders can elicit family input during planning through surveys (Kiger & Herro, 2015), communicate frequently with parents through email and the district's parent portal (Mac Iver et al., 2021), and continuously improve on technology initiatives by including families on advisory boards (Kiger & Herro, 2015). Showing families how to access and effectively use district and school technologies is an essential element for technology adoption. Districts and schools should consider offering demonstrations and hands-on technology learning opportunities at typically well-attended events, such as back-to-school night or an athletic event (Mac Iver et al., 2021). Technology-focused events may intimidate families who are not technology proficient, so embedding information about technology within larger student-focused events is more likely to reach a broader family audience. Districts and schools also need to account for the dynamic family nature in planning for, making decisions about, and training families on educational and assistive technologies (De Mars, 2010, Shiffman, 2019). For example, some students live in a multi-generation household where their older siblings or grandparents are their primary academic support and other students are supported by after-school community resources.

Next, leaders can ensure effective communication with families by smartly leveraging engagement resources. For example, welcoming non-English speaking families in their native language and providing translation services as desired by non-English speaking families (Shiffman, 2019). To alleviate family concerns of translator bias and to help families feel actively involved in complex discussions about their student, leaders should consider using another parent as an unbiased resource to partner with the family (Michaelson et al., 2015). Finally, when hosting events, such as orientations, student work exhibitions, or arts performances, districts and schools need to ensure that events are planned around the background knowledge and information needs of the intended family audience. For example, a school may invite new students coming from homeschool or another district to one orientation and students coming from

another school within the district to a different orientation (Mac Iver et al., 2021), because the two audiences have different background knowledge about the district's use of technology and available technology resources.

Although existing research sheds some light on leadership implications for family engagement, there are still several gaps in the literature. A deeper understanding of how district leaders can equitably involve families as valued partners when establishing a vision, planning, measuring progress toward, and continually improving upon an inclusive technology infrastructure is needed. Without this understanding, district and school leadership will continue to struggle to equitably meet the technology needs of all students.

Conclusion

This literature review discussed research findings related to family engagement within the inclusive technology ecosystem. It discussed how family engagement influences student learning through educational and assistive technology. Next, the review discussed family engagement as part of teaching and assessment using information, educational and assistive technologies within the microsystem. It then moved on to family engagement findings related to the infrastructure within the mesosystem. The literature review described family engagement as a critical element to leadership within the exosystem. Finally, it described gaps and future research recommendations for learning, teaching, assessment, infrastructure, and leadership that have potential to inform educational laws and policies in the macrosystem and enable continuous improvement of learning and assessment at all levels, in all places, and for students of all backgrounds in the chronosystem.

References

- Bishop, P. A. (2021). Middle-grades teacher practices during the COVID-19 pandemic. *RMLE Online*, 44(7), 1–18. <https://doi.org/10.1080/19404476.2021.1959832>
- Blackstone, S. W., Luo, F., Canchola, J., Wilkinson, K. M., & Roman-Lantzy, C. (2021). Children with Cortical Visual Impairment and complex communication needs: Identifying gaps between needs and current practice. *Language, speech, and hearing services in schools*, 52(2), 612–629. https://doi.org/10.1044/2020_LSHSS-20-00088
- Borup, J., Chambers, C. B., & Stimson, R. (2019a). Online teacher and on-site facilitator perceptions of parental engagement at a supplemental virtual high school. *The International Review of Research in Open and Distributed Learning*, 20(2). <https://doi.org/10.19173/irrodl.v20i2.4237>
- Borup, J., Walters, S., & Call-Cummings, M. (2019b). Examining the complexities of parental engagement at an online charter high school: A narrative analysis approach. *The International Review of Research in Open and Distributed Learning*, 20(1). <https://doi.org/10.19173/irrodl.v20i1.3605>
- Bronfenbrenner, U. (1994). Ecological models of human development. In Husen T. & Postlethwaite, T. N. (Eds.), *International Encyclopedia of Education* (2nd ed., Vol. 3, pp. 3-44). Elsevier.
- CAST. (2021). *CITES Framework Field Guide for Leadership*. Retrieved September 24, 2021, from <https://cites.cast.org/binaries/content/assets/cites/leadership/finalcites-fieldguide-leadership-a11y.pdf>.
- Clancy, M., & Gardner, J. (2017). Using digital portfolios to develop non-traditional domains in special education settings. *International Journal of EPortfolio*, 7(1), 93–100.
- Cosier, M., Gomez, A., McKee, A., Maghzi, K. S. (2013). Smart phones permitted: How teachers use text messaging to collaborate. *Education and Information Technologies*, 20(2), 347–358. <https://doi.org/10.1007/s10639-013-9288-2>

Craig, A. B., Brown, E. R., Upright, J., & DeRosier, M. E. (2015). Enhancing children's social emotional functioning through virtual game-based delivery of social skills training. *Journal of Child and Family Studies*, 25(3), 959–968.

<https://doi.org/10.1007/s10826-015-0274-8>

De Mars, A. (2010). Internet usage by Native Americans with disabilities living on American Indian reservations in the Great Plains. *Rural Special Education Quarterly*, 29(2), 34–40. <https://doi.org/10.1177/875687051002900208>

Eutsler, L. & Antonenko, P. (2018). Predictors of portable technology adoption intentions to support elementary children reading. *Education and Information Technologies*. 23. <https://doi.org/10.1007/s10639-018-9700-z>

Gonzales, M. (2021). *Systems thinking for supporting students with special needs and disabilities: A handbook for classroom teachers*. Springer Nature Singapore Pte Ltd.

Gu, X., Crook, C., & Spector, M. (2019). Facilitating innovation with technology: Key actors in educational ecosystems. *British Journal of Educational Technology*, 50(3), 1118–1124. <https://doi.org/10.1111/bjet.12786>

Harper, K. A., Kurtzworth-Keen, K., & Marable, M. A. (2016). Assistive technology for students with learning disabilities: A glimpse of the Livescribe pen and its impact on homework completion. *Education and Information Technologies*, 22(5), 2471–2483. <https://doi.org/10.1007/s10639-016-9555-0>

Kiger, D., & Herro, D. (2015). Bring your own device: Parental guidance (PG) suggested. *TechTrends*, 59(5), 51–61. <https://doi.org/10.1007/s11528-015-0891-5>

Laho, N.S. (2019). Enhancing school-home communication through learning management system adoption: Parent and teacher perceptions and practices. *School Community Journal*, 29, 117-142.

Lopach, L., Jenson, W., Davis, J., Knorr, J., & O'Neill, R. (2018). The Electronic Home Note Program: An effective intervention package to improve parent program participation, on-task behavior, and academic performance. *Contemporary School Psychology*, 22(4), 488–502. <https://doi.org/10.1007/s40688-018-0197-7>

Mac Iver, M.A., Sheldon, S., & Clark, E. (2021) Widening the portal: How schools can help more families access and use the parent portal to support student success, *Middle School Journal*, 52:1, 14-22, <https://doi.org/10.1080/00940771.2020.1840269>

McCarthy, E., Tiu, M., Li, L. (2018). Learning math with Curious George and The Odd Squad: Transmedia in the classroom. *Technology, Knowledge and Learning*, 23(2), 223–246. <https://doi.org/10.1007/s10758-018-9361-4>

Michaelson, K. J., Matz, L., & Morgan, D. (2015). Using a new electronic braille to improve Braille learning at the Florida School for the deaf and blind. *Journal of Visual Impairment & Blindness*, 109(3), 226–231. <https://doi.org/10.1177/0145482x1510900308>

Natale, K., & Lubniewski, K. (2018). Use of communication and technology among educational professionals and families. *International Electronic Journal of Elementary Education*, 10(3), 377–384. <https://doi.org/10.26822/iejee.2018336196>

Page, M.J., McKenzie, J.E., Bossuyt, P.M. et al. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic Review*. 10, 89. <https://doi.org/10.1186/s13643-021-01626-4>.

Ruppar, A. L., Allcock, H., & Gonsier-Gerdin, J. (2016). Ecological factors affecting access to general education content and contexts for students with significant disabilities. *Remedial and Special Education*, 38(1), 53–63. <https://doi.org/10.1177/0741932516646856>

Shiffman, C.D. (2019). Learning to communicate across language and culture: Demographic change, schools, and parents in adult ESL classes. *School Community Journal*, 29, 9-38.

Stinson, H. (2013). Essential in ensuring access to services: A teacher of the deaf. *Odyssey: New Directions in Deaf Education*. 14, 48-51.

Valerie, L. M., & Foss-Swanson, S. (2012). Using family message journals to improve student writing and strengthen the school–home partnership. *TEACHING Exceptional Children*, 44(3), 40–48. <https://doi.org/10.1177/004005991204400305>

Vasquez, E., & Slocum, T. A. (2012). Evaluation of synchronous online tutoring for students at risk of reading failure. *Exceptional Children*, 78(2), 221–235.

<https://doi.org/10.1177/001440291207800205>