

Introduction

Engaging regular education students and students with disabilities remains a concern as schools reopen with virtual learning models. Engagement—defined by the National Association of Independent Schools as “meaningful student involvement throughout the learning environment”—combines the three interconnected components outlined below.¹

Components of Student Engagement

COMPONENT	DEFINITION
Behavioral Engagement	Actively participating in learning, including self-regulatory behaviors
Affective Engagement	Wanting to learn, sense of belonging within learning community
Cognitive Engagement	Understanding the importance of and valuing learning, metacognitive strategizing

Source: Insight Policy Research²

Given the crucial role engagement plays in student learning, Hanover Research (Hanover) has prepared this research brief to support its member districts by providing strategies for engaging reluctant learners, particularly students with disabilities and students with emotional and behavioral disorders (EBD). The research brief’s first section presents strategies for motivating and engaging students across grade levels and abilities, whereas the second section details targeted strategies for engaging students with disabilities and students with EBD.

Recommendations

Hanover recommends that member districts:

- **Provide professional development** focused on universal design for learning-aligned student engagement strategies teachers can use to support all students during virtual learning;
- **Adapt Positive Behavioral Interventions and Supports** to the virtual learning environment, such as by using a behavior teaching matrix and student-specific affirmations and prompts, to engage students with EBD;
- **Monitor student engagement** by using learning management and student information systems to collect data capturing the frequency, nature, and intensity of student participation in virtual learning; and,

Key Findings

- **Teachers should use student engagement practices that focus on autonomy, competence, relatedness, and relevance.** Autonomy means enabling students to choose how they demonstrate content or skill mastery and fostering a sense of responsibility for their learning. Competency involves assigning activities and tasks that challenge students while remaining achievable. Relatedness and relevance entail helping students feel connected not only to their teachers and their peers, but also to the content being taught.
- **When engaging adolescents, teachers should leverage students’ relationships with their teachers, parents, and peers.** According to the Adolescent Community of Engagement framework, student engagement increases in tandem with teacher, parent, and peer engagement. Thus, these stakeholders contribute to, and share responsibility for, students’ behavioral, affective, and cognitive engagement.
- **Strategies based on the universal design for learning support teachers in engaging all learners, including students with disabilities, while continuing to meet individual needs.** Such strategies help teachers recruit students’ interest, sustain their effort and persistence, and support their self-regulation. Teachers can reference various checkpoints to guide and monitor progress in each of these areas. For example, with respect to recruiting students’ interest, teachers should: optimize individual choice and autonomy; prioritize relevance, value, and authenticity; and minimize threats and distractions.
- **When engaging students with EBD, teachers should supplement the above strategies with Positive Behavioral Interventions and Supports, opportunities to respond, and interactive activities.** Recognizing these students’ behavioral challenges, such approaches can assist efforts to maintain aspects of the traditional classroom in a virtual setting. For example, in a virtual setting, teachers and parents can continue to use signals and activities to which students with EBD are known to positively respond in person.

Engaging Reluctant Learners

Efforts to engage students should build from four main elements: **autonomy, competence, relatedness, and relevance**.³ These elements and their definitions appear in the following figure.

Four Elements of Student Engagement

ELEMENT	DEFINITION
Autonomy	Having a degree of control over what needs to happen and how it can be done
Competence	Feeling that they have the ability to be successful in doing it
Relatedness	Helping them feel more connected to others and cared about by people whom they respect by doing the activity
Relevance	Seeing the work as interesting and valuable to them and useful to their present lives and/or hopes and dreams for the future

Source: Education Week⁴

When engaging reluctant learners, regardless of ability or subgroup, teachers must help them develop a sense of autonomy over their education. According to the American Psychological Association:⁵

"When students understand their role as agent (the one in charge) over their own feeling, thinking and learning behaviors, they are more likely to take responsibility for their learning."

Autonomy requires teachers to provide students with choices while ensuring they understand how those choices relate to learning goals and standards.⁶ For example, choice boards contain a list or matrix of online or offline activities that can be used to practice certain skills and concepts.⁷ By including activities that vary in difficulty, choice boards also allow for differentiated instruction and student autonomy.⁸ These tools offer flexibility because the structure of the choice board remains the same while the following characteristics change:⁹

- Activities;
- Target grade level;
- Setting (e.g., individual, whole class); and
- Length of time.

Advancement Courses, a virtual professional development provider, notes that teachers can create choice boards using a tic-tac-toe structure and the following steps.¹⁰

How to Create a Choice Board

STEP 1

- Identify the instructional focus and learning outcomes of a unit of study. What do you want students to know and be able to do by the end of the unit?

STEP 2

- Determine student readiness, interests, learning styles, and needs using assessment data, student surveys, and learner profiles.

STEP 3

- Design nine different tasks that meet your students' various interests, needs, and learning styles determined in Step 2. Arrange each task so it has its own grid on the Tic-Tac-Toe board.

STEP 4

- Select one required task for all students. This task should be placed at the center of the board.

STEP 5

- Ask your students to complete three tasks, one of which must be the one in the middle. Students should complete their tasks in a vertical, horizontal, or diagonal Tic-Tac-Toe row.

Source: Advancement Courses¹¹

Students also must feel competent and connected to their coursework and others to remain engaged in virtual settings. Teachers can support feelings of competency by ensuring assignments and instructions are clear. For example, teachers can simplify directions "to increase the likelihood that [their] students will be able to be successful completing the task."¹²

To foster connectedness, teachers should promote positive relationships with and between students. According to the TIES Center, which stands for increasing time, instructional effectiveness, engagement, and state and district support for inclusive practices:¹³

"It is important to remember that engagement begins with supporting a sense of community for all students, regardless of the location for teaching and learning."

The following figure presents virtual learning strategies for building and maintaining connections.

Strategies to Support Student Relatedness

STUDENT-TEACHER CONNECTIONS	PEER CONNECTIONS
<ul style="list-style-type: none"> Post regular announcements Reply early and often Vary communication tools Use feedback to build relationships Make physical connections under social distancing (e.g., teacher parades, chalk messages) 	<ul style="list-style-type: none"> Use prompts to spark discussion Facilitate student talk during synchronous learning Design group assignments Promote student-led tech support Carve out time to share

Source: EdSurge¹⁴

To support relevance, teachers should ask students about their interests and consider how these topics fit into the curriculum. For example, teachers of English language learners can incorporate those students' interests into vocabulary lessons, reading passages, and conversations.¹⁵

However, in virtual settings, students may "game the system," or avoid learning by using virtual help or feedback mechanisms to sidestep thinking about course material.¹⁶ Gaming the system, which can impact short- and long-term learning and college attendance, can occur because students:¹⁷














- Dislike the software's subject matter;
- Lack self-drive;
- Feel frustrated;
- Dislike computers;
- Believe that ability is innate; or
- Believe that the tutor is not helpful for learning.

According to a 2014 review of four studies on gaming the system, the following strategies may reduce this tendency and increase learning:¹⁸

- Adding *supplementary exercises* to force students to slow down and solve problems in different ways; and
- Combining *meta-cognitive feedback messages* that suggest slowing down or reading more carefully and *visualizations* to show how much the student tries to game the system.

Teachers can use multiple measures to monitor student engagement in virtual learning (e.g., the average hours spent on a virtual platform, the number of videos viewed per week). The following figure contains a variety of indicators used to monitor student engagement in virtual settings.¹⁹

Measures of Virtual Student Engagement

 Time on online platform (in hours)	 Time watching videos (in hours)	 Number of videos accessed
 Number of login sessions per week	 Mean length of session (hours)	 Mean time between sessions (hours)
 Quiz submission timeliness	 Proportion of session time spent watching videos	 Average platform time per week
 Number of revisited video lectures	 Number of discussion forum visits	 Number of forum contributions
 Percentage of time spent on quizzes		

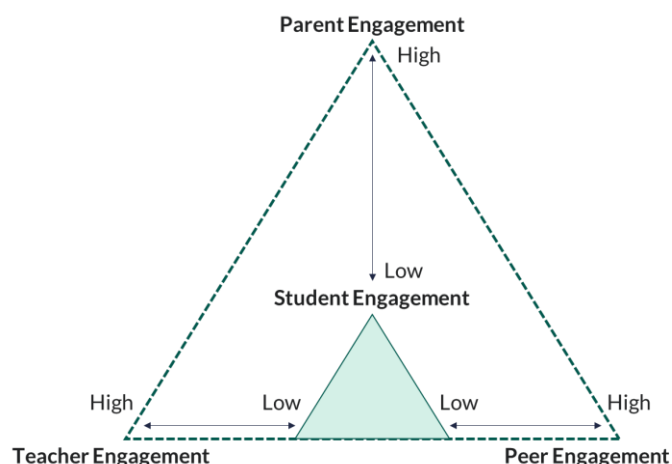
Source: Insight Policy Research²⁰

Additional research, strategies, and case studies on student attendance and engagement during virtual learning are available through Insight Policy Research in [this report](#).²¹

Engaging Adolescents

To support adolescent student engagement in virtual learning, teachers should consider the **Adolescent Community of Engagement (ACE)** framework. This framework, reproduced below, connects four types of engagement: student, teacher, parent, and peer.²²

Adolescent Community of Engagement Framework



Source: Journal of Technology and Teacher Education²³

The ACE framework stems from the hypothesis that student engagement increases as teacher, parent, and peer engagement increase. As illustrated in the preceding figure, student engagement increases from the area of the shaded triangle to the area within the dotted line. This engagement includes behavioral, affective, and cognitive engagement.²⁴ The following figure outlines how teachers, parents, and peers help increase student engagement to fill the outer triangle.

Adolescent Community of Engagement Elements	
COMMUNITY MEMBER	PRACTICES
Teachers	<ul style="list-style-type: none"> Facilitate interaction (i.e., nurturing student relationships and safe environments, monitoring and motivating student engagement, facilitating discourse) Organize and design course materials and timelines Instruct students
Parents	<ul style="list-style-type: none"> Facilitate interaction (i.e., nurturing, monitoring and motivating, volunteering) Organizing students' environments Instructing students
Peers	<ul style="list-style-type: none"> Instruct and collaborate Motivate

Source: *Journal of Technology and Teacher Education*²⁵

Engaging Reluctant Learners with Disabilities

The following two subsections contain information and strategies for engaging students with disabilities and students with EBD.

Engaging Students with Disabilities

Teachers should use multiple strategies to engage students with disabilities, as students differ in what motivates them.²⁶ Such strategies should align with the universal design for learning (UDL), a framework for educating all students based on how people learn.²⁷ The three main UDL practices for student engagement include:²⁸

- Recruiting interest;
- Sustaining effort and persistence; and
- Supporting self-regulation.

Recruiting Interest

To make learning materials accessible, teachers must recruit student interest. However, what captures interest varies by student and stage of development. Because there is no one-size-fits-all approach, teachers should follow the three

checkpoints identified by the Center for Applied Special Technology (CAST), as shown in the following figure.²⁹

Checkpoints for Recruiting Interest

Optimize individual choice and autonomy

- Empower learners to take charge of their own learning.

Optimize relevance, value, and authenticity

- Connect learning to experiences that are meaningful and valuable.

Minimize threats and distractions

- Foster a safe space to learn and take risks.





Source: CAST³⁰


Similar to engaging reluctant learners, in general, **engaging students using UDL emphasizes promoting student autonomy and choice, while recognizing that students prefer different options.** Teachers should allow students to set academic and behavioral goals or create activities and assignments that incorporate students' voices in decision-making and learning opportunities.³¹ For example, teachers can provide students with choices regarding the:³²

- Level of perceived challenge;
- Type of rewards or recognition available;
- Context or content used for practicing and assessing skills;
- Tools used for information gathering or production;
- Color, design, or graphics of layouts, etc.; and
- Sequence or timing for completion of subcomponents of tasks.

To optimize relevance, value, and authenticity, teachers should connect material to students' goals and interests. However, not all students will connect with material in the same way. To make learning experiences relevant and authentic for *all* learners, CAST recommends the strategies shown in the figure below.³³

Strategies for Optimizing Relevance and Authenticity

	Vary activities and sources of information so that they can be: <ul style="list-style-type: none"> Personalized and contextualized to learners' lives Culturally relevant and responsive Socially relevant Age and ability appropriate Appropriate for different racial, cultural, ethnic, and gender groups
	Design activities so that learning outcomes are authentic, communicate to real audiences, and reflect a purpose that is clear to the participants
	Provide tasks that allow for active participation, exploration, and experimentation
	Invite personal response, evaluation, and self-reflection to content and activities








Include activities that foster the use of imagination to solve novel and relevant problems, or make sense of complex ideas in creative ways

Source: CAST³⁴

Teachers should foster a safe environment in which students can focus solely on learning by minimizing threats and distractions. Potential threats or distractions may be physical, verbal, visual, etc. CAST recommends the strategies illustrated in the following figure to minimize threats for all students.³⁵ Although originally designed for in-person learning environments, these strategies can be adapted by teachers for use in virtual settings.

Strategies for Minimizing Threats and Distractions

	Create an accepting and supportive classroom climate
	Vary the level of novelty or risk <ul style="list-style-type: none"> Charts, calendars, schedules, visible timers, cues, etc. that can increase the predictability of daily activities and transitions Creation of class routines Alerts and previews that can help learners anticipate and prepare for changes in activities, schedules, and novel events Options that can, in contrast to the above, maximize the unexpected, surprising, or novel in highly routinized activities
	Vary the level of sensory stimulation <ul style="list-style-type: none"> Variation in the presence of background noise or visual stimulation, noise buffers, number of features, or items presented at a time Variation in pace of work, length of work sessions, availability of breaks or time-outs, or timing or sequence of activities
	Vary the social demands required for learning or performance, the perceived level of support and protection and the requirements for public display and evaluation
	Involve all participants in whole class discussions

Source: CAST³⁶

Sustaining Effort and Persistence

In addition to capturing students’ attention, teachers must maintain that attention and effort as students build knowledge and develop skills. CAST presents four checkpoints for sustaining effort, as presented in the following figure.³⁷

Checkpoints for Sustaining Effort and Persistence

- Heighten salience of goals and objectives
- Set a vision for the goal and why it matters.
- Vary demands and resources to optimize challenge
- Rise to high expectations using flexible tools and supports.
- Foster collaboration and community
- Cultivate a community of learners.
- Increase mastery-oriented feedback
- Guide learning by emphasizing the role of effort and process.






Source: CAST³⁸

Reminding students of the goal of an assignment or activity can lead to greater persistence and engagement. In addition to working with students to clarify learning goals, teachers and parents should work together to support students’ progress in virtual settings.³⁹ For example, the TIES Center recommends having students explain a specific learning goal in their own words to:⁴⁰

- Ensure they know the purpose of their actions; and
- Identify any misconceptions or potential challenges in progress.

CAST offers similar guidance, suggesting the following strategies for use in clarifying goals and engaging students.⁴¹

Strategies for Clarifying Goals

	Display the goal in multiple ways
	Encourage division of long-term goals into short-term objectives
	Demonstrate the use of hand-held or computer-based scheduling tools
	Use prompts or scaffolds for visualizing desired outcome
	Engage learners in assessment discussions of what constitutes excellence and generate relevant examples that connect to their cultural background and interests

Source: CAST⁴²

To keep students engaged, teachers should ensure that projects and assignments are challenging but accessible. Teachers can maintain student effort by presenting a variety of tasks and resources and allowing students to choose the level of difficulty.⁴³ According to the Oklahoma Department of Education, students with disabilities learning in virtual settings must have appropriately challenging tasks because:⁴⁴

"If students are unable to complete assignments or access the necessary support independently, they are less likely to engage in work completion behaviors."

Collaborative and communicative classroom environments also encourage sustained student effort and engagement. Communication should involve both peer interactions and teacher feedback, as summarized by the strategies outlined in the following figure.⁴⁵ Although these strategies do not pertain specifically to virtual settings, teachers should consider how to apply them during virtual learning.

Strategies for Sustaining Effort through Interactions

PEER COLLABORATION	TEACHER FEEDBACK
<ul style="list-style-type: none"> Create cooperative learning groups with clear goals, roles, and responsibilities Create school-wide programs of positive behavior support with differentiated objectives and supports Provide prompts that guide learners in when and how to ask peers and/or teachers for help Encourage and support opportunities for peer interactions and supports (e.g., peer-tutors) Construct communities of learners engaged in common interests or activities Create expectations for group work (e.g., rubrics, norms) 	<ul style="list-style-type: none"> Provide feedback that encourages perseverance, focuses on development of efficacy and self-awareness, and encourages the use of specific supports and strategies in the face of challenge Provide feedback that emphasizes effort, improvement, and achieving a standard rather than on relative performance Provide feedback that is frequent, timely, and specific Provide feedback that is substantive and informative rather than comparative or competitive Provide feedback that models how to incorporate evaluation, including identifying patterns of errors and wrong answers, into positive strategies for future success

Source: CAST⁴⁶

The Collaboration for Effective Educator Development, Accountability, and Reform (CEEDAR) Center emphasizes the need to plan and strategize before facilitating any synchronous group activities. For example, the following figure summarizes the CEEDAR Center's recommendations for making virtual meetings more engaging.⁴⁷

Strategies for Leading Engaging Virtual Meetings

STRATEGY	DETAILS
Set norms	Create virtual classroom norms, which may relate to cameras, muting volume or being in a quiet place, and not multi-tasking.
Plan	Plan to use engagement strategies during synchronous meetings in advance, such as scheduled breaks, platform features (e.g., polls, chat windows), check-in or check-out questions, or engagement tools that quantify students' time on the meeting screen.
Factor Class Size into Meetings	Use small-group breakout sessions for large classes often but ensure that students have clear expectations for how long they will spend in groups and how long they have to share reflections after reconvening.
Support Camera Use	Promote student use of cameras and audio during discussions and maintain control by asking students to raise their hand to the screen to answer questions or use a thumbs up-thumbs down system.

Source: CEEDAR Center⁴⁸

To provide effective feedback, a high-leverage practice for supporting and engaging students with disabilities, teachers should ensure that comments are clear and specific by using the strategies for synchronous and asynchronous virtual settings outlined in the figure below.⁴⁹

Strategies for Providing Effective Feedback

SYNCHRONOUS FEEDBACK	ASYNCHRONOUS FEEDBACK
<ul style="list-style-type: none"> Provide quick and quiet individual feedback during student performance Schedule private student conferencing Review and reteach common misunderstandings at the beginning of the next lesson Assign a check for understanding task as an "exit ticket" for students to sign off 	<ul style="list-style-type: none"> Review what students submit for an assignment and send video and audio file with verbal or visual feedback Add corrections to a student's work product. This type of feedback format could also be created into editable PDF files so the teacher types the feedback into each box. This approach would allow a text-to-speech software reader to read the feedback to the student Send back progress monitoring in a visual format, such as a graph Use a rubric with a gradient score that tells essential components for each level score

Source: TIES Center⁵⁰

Supporting Self-Regulation

Teachers can develop students' ability to self-regulate by helping them learn to manage their emotions and reactions. Once students can manage their responses, they may engage in learning more effectively. According to CAST, the following checkpoints should guide teachers' efforts to support student self-regulation.⁵¹

Checkpoints for Supporting Self-Regulation

Promote expectations and beliefs that optimize motivation

- Set personal goals that inspire confidence and ownership of learning.

Facilitate personal coping skills and strategies

- Develop and manage healthy emotional responses and interactions.




Develop self-assessment and reflection

- Increase awareness around progress toward goals and how to learn from mistakes.

Source: CAST⁵²

A recent report by the U.S. Department of Education's Office of Special Education Programs emphasizes evidence-based practices to support special education students with self-regulation in virtual settings. These practices, shown in the following figure, promote the use of visual tools and communication to encourage organization and focus.⁵³

Strategies for Supporting Self-Regulation

	Provide prompts, reminders, guides, rubrics, and checklists that focus on: <ul style="list-style-type: none"> ▪ Self-regulatory skills like reducing the frequency of outbursts due to frustration ▪ Increasing the length of on-task behaviors when distractions are likely
	Provide adult and/or peer coaches that can model appropriate online behaviors: <ul style="list-style-type: none"> ▪ Hold synchronous small-group sessions focused on modeling and invite peers to join ▪ Hold peers accountable through e-mails, calls, or chat box
	Provide differentiated models, scaffolds, and feedback for the following skills: <ul style="list-style-type: none"> ▪ Managing frustration ▪ Seeking external emotional support ▪ Developing internal controls and coping skills ▪ Appropriately handling subject- or content-specific phobias and judgments of "natural" aptitude (e.g., "How can I improve on the areas I am struggling in?" rather than "I am not good at math") ▪ Using real-life situations or simulations to demonstrate coping skills

Source: U.S. Department of Education, Office of Special Education Programs⁵⁴

For a self-monitoring implementation guide, checklist, and planning support, please view the following resource from the Louisiana State University School of Education.⁵⁵

[Self-Monitoring Implementation Guide and Treatment Integrity Checklist](#)











Engaging Students with Emotional and Behavioral Disorders

Strategies to promote engagement among students with EBD seem to align with other behavioral supports and mechanisms for student participation, including:⁵⁶

- Positive Behavioral Interventions and Supports (PBIS);
- Opportunities to respond (OTR); and
- Interactive activities.

PBIS in virtual settings can provide students with EBD with structure and routine. Therefore, in addition to identifying key student-specific PBIS practices and applying them in virtual settings, teachers also should ensure parents use these practices with their children. Such practices may relate to physical learning environments, address triggers in an academic setting, and include examples of potential challenges and positive outcomes. As seen in the following figure, the TIES Center shares examples of information and practices teachers and school teams can use to provide effective ongoing behavioral supports to students.⁵⁷

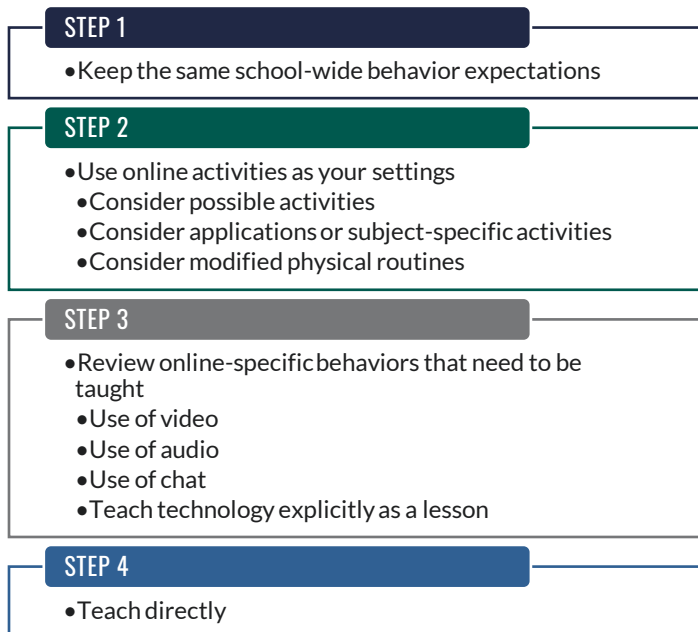
Student-Specific Information for Supporting PBIS

	Affirmations given to identify what is going well with an activity, behavior, or choice a student is making
	Words, phrases, gestures, or body language used to tell students you want to see more or less of something as it pertains to behavior, persistence, patience, and engagement
	When to speak or prompt, gesture, wait, or pause, and what scenarios lead to one over the other
	Gestures used, how long to pause and wait
	Visuals that symbolize expectations or routines
	Warnings or words used to encourage a group or individual to think about what they are doing and make good choices in the moment
	Things that a particular student enjoys or dislikes
	Songs for when it is time to clean up, move on, or transition from one activity to another
	Brain-break and body movement activities, when to use them, and how to tell by a student's posture or engagement that a student might need more
	Songs or sayings that assist in remembering content or teach social-emotional learning and behaviors

Source: TIES Center⁵⁸

Additionally, teachers should support student engagement through PBIS by creating a behavior teaching matrix specifically for at-home virtual learning. A virtual learning behavior teaching matrix, such as [this one](#), provides targeted behaviors for students to use during various learning situations and in a visual way.⁵⁹ The following figure presents the process and considerations for creating a behavior teaching matrix, according to the Center on PBIS.

Process for Creating a PBIS Behavior Teaching Matrix



Source: Center on PBIS⁶⁰

For additional examples of teaching matrices for virtual learning and strategies for supporting students through PBIS in virtual settings, please view the following guide from Michigan's Multi-Tiered System of Supports Technical Assistance Center.⁶¹

[Classroom PBIS for Online Learning](#)

Teachers also can engage students with EBD by increasing OTR. According to a 2019 study published in the *International Electronic Journal of Elementary Education*, OTR increase student engagement and accurate responses while decreasing disruptive behavior.⁶² Although this study analyzes the effects on three elementary school students with academic and behavioral challenges *in person*, the results highlight the potential of OTR to benefit young students with emotional and behavioral barriers in multiple ways.

A recent newsletter by the Council for Children with Behavioral Disorders also highlights the benefits of OTR,

noting how the approach aligns with current virtual learning methods and technological resources. For example, many virtual learning platforms include formative assessments and activities that allow for OTR (e.g., polls, open-ended questions). The following figure presents virtual resources to support student engagement through OTR compiled by the Council for Children with Behavioral Disorders.⁶³

Virtual Resources to Promote Opportunities to Respond and Engagement

RESOURCE	DESCRIPTION
Nearpod	Design student-paced or live sessions with formative assessments, dynamic media, and reports
Book Creator	Create digital books by combining text, audio, images, and videos
Flipgrid	Develop and share the recording of ideas and answers via video to teacher-created questions
Flippity	Access customizable flashcards, quizzes, name picker, mix and match, and more
Immersive Reader	Format text to be read out loud, broken into syllables, increased spaces between lines/letters, and translated to another language Built into Word, OneNote, Outlook, Office Lens, Microsoft Teams, Forms, Flipgrid, Minecraft Education Edition, and the Edge browser
Kahoot!	Create learning games and quizzes
Knowt	Use machine learning to convert notes into review quizzes automatically
Wakelet	Organize, curate, and share content from the web into a story page or portfolio
Zeetings	Create interactive lessons and presentations

Source: Council for Children with Behavioral Disorders⁶⁴

Lastly, interactive activities related to Science, Technology, Engineering, the Arts, and Mathematics (STEAM) can effectively engage students with EBD based on their hands-on nature, content focus, and feasibility at home.⁶⁵ Examples of such interactive activities include:⁶⁶

- **Do-It-Yourself Moon Sand:** Have students create their own media report of a moon landing (e.g., audio, video, newspaper report, political drawing);
- **Do-It-Yourself Cardboard Tube Construction Company:** Have students create blueprints for creating their engineering designs; and
- **Do-It-Yourself Liquid Fireworks:** Have students creatively describe and interpret the results of the oil, water, and food coloring.

Caveat

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.

Endnotes

¹ [1] Martin, J. and A. Torres. "I. What Is Student Engagement and Why Is It Important." National Association of Independent Schools, 2016. <https://www.nais.org/Articles/Documents/Member/2016%20HSSSE%20Chapter-1.pdf> [2] Chambers, D., J. Scala, and D. English. "Promising Practices Brief: Improving Student Engagement and Attendance During COVID-19 School Closures." Insight Policy Research, July 2020. p. 6. https://insightpolicyresearch.com/wp-content/uploads/2020/08/NSAES_COVID19_Whitepaper_Final_508.pdf

² Figure reproduced nearly verbatim from: Chambers, Scala, and English, Op. cit., p. 6.

³ Ferlazzo, L. "Four Ways to Help Students Feel Intrinsically Motivated to Do Distance Learning." Education Week, April 13, 2020. http://blogs.edweek.org/teachers/classroom_qa_with_larry_ferlazzo/2020/04/four_ways_to_help_students_feel_intrinsically_motivated_to_do_distance_learning.html?cmp=SOC-SHR-FB

⁴ Figure text adapted from: Ibid.

⁵ Block quote reproduced verbatim from: McCombs, B. "Developing Responsible and Autonomous Learners: A Key to Motivating Students." American Psychological Association, 2010. <https://www.apa.org/education/k12/learners>

⁶ Ibid.

⁷ Ferlazzo, Op. cit.

⁸ Yeargin, A. and M. Warren. "Choice Boards." K20 Center, The University of Oklahoma, September 10, 2020. <https://learn.k20center.ou.edu/strategy/73>

⁹ Bulleted text adapted from: Ibid.

¹⁰ [1] "Using Choice Boards to Increase Student Ownership." Advancement Courses, January 29, 2016. <https://blog.advancementcourses.com/articles/choice-boards/> [2] "Online Professional Development That Counts." Advancement Courses. <https://www.advancementcourses.com/about/>

¹¹ Figure text reproduced verbatim from: "Using Choice Boards to Increase Student Ownership," Op. cit.

¹² Ferlazzo, Op. cit.

¹³ [1] Preceding information obtained from: "Overview." TIES Center. <https://tiescenter.org/about/overview> [2] Block quote reproduced verbatim from: Vandercook, T. et al. "Distance Learning Engagement: An Overview Framework -- Update!" TIES Center. <https://publications.ici.umn.edu/ties/building-engagement-with-distance-learning/an-overview-framework>

¹⁴ Figure text reproduced verbatim with modifications from: Rice, K. and K. Kipp. "How Can Educators Tap Into Research to Increase Engagement During Remote Learning?" EdSurge, May 6, 2020. <https://www.edsurge.com/news/2020-05-06-how-can-educators-tap-into-research-to-increase-engagement-during-remote-learning>

¹⁵ Ferlazzo, Op. cit.

¹⁶ DeFalco, J.A., R.S. Baker, and S.K. D'Mello. "Addressing Behavioral Disengagement in Online Learning." In *Design Recommendations for Intelligent Tutoring Systems - Volume 2: Adaptive Instructional Management*, U.S. Army Research Laboratory, 2014. p. 49. Downloaded from: https://www.researchgate.net/publication/268077448_Addresssing_Behavioral_Disengagement_in_Online_Learning

¹⁷ [1] Preceding information obtained from: Ibid. [2] Bulleted text adapted from: Baker, R. et al. "Why Students Engage in 'Gaming the System' Behavior in Interactive Learning Environments." *Journal of Interactive Learning Research*, 19:2, 2008. p. 219. <http://pact.cs.cmu.edu/koedinger/pubs/Baker,%20R.,%20Walonoski,%20J.A.,%20Heffernan,%20N.T.,%20Roll,%20I.%20Corbett,%20A.,%20Koedinger,%20K.R..pdf>

¹⁸ Bulleted text adapted from: DeFalco, Baker, and D'Mello, Op. cit., pp. 50–52.

¹⁹ Chambers, Scala, and English, Op. cit., p. 7.

²⁰ Figure text reproduced verbatim from: Ibid.

²¹ Chambers, Scala, and English, Op. cit.

²² Borup, J. et al. "The Adolescent Community of Engagement Framework: A Lens for Research in K-12 Online Learning Environments." *Journal of Technology and Teacher Education*, 22:1. p. 8. Downloaded from: https://www.researchgate.net/publication/258246131_The_Adolescent_Community_of_Engagement_Framework_A_Lens_for_Research_in_K-12_Online_Learning_Environments

²³ Figure reproduced verbatim from: Ibid., p. 7.

²⁴ Ibid.

- ²⁵ Figure adapted, with some text reproduced verbatim, from: Ibid., pp. 9–19.
- ²⁶ “Evidence-Based and Promising Practices to Support Continuity of Learning for Students With Disabilities: Practices and Resources to Support Teachers.” U.S. Department of Education, Office of Special Education Programs, April 2020. p. 7. <https://osepideasthatwork.org/sites/default/files/SWDLearning-Teachers-508.pdf>
- ²⁷ “About Universal Design for Learning.” CAST. <http://www.cast.org/impact/universal-design-for-learning-udl>
- ²⁸ Bulleted text reproduced nearly verbatim from: “Evidence-Based and Promising Practices to Support Continuity of Learning for Students With Disabilities: Practices and Resources to Support Teachers,” Op. cit., p. 7.
- ²⁹ “Recruiting Interest.” CAST. <http://udlguidelines.cast.org/engagement/recruiting-interest>
- ³⁰ Figure text reproduced verbatim from: Ibid.
- ³¹ “Optimize Individual Choice and Autonomy.” CAST. <http://udlguidelines.cast.org/engagement/recruiting-interest/choice-autonomy>
- ³² Bulleted text adapted from: Ibid.
- ³³ “Optimize Relevance, Value, and Authenticity.” CAST. <http://udlguidelines.cast.org/engagement/recruiting-interest/relevance-value-authenticity>
- ³⁴ Figure text reproduced nearly verbatim from: Ibid.
- ³⁵ “Minimize Threats and Distractions.” CAST. <http://udlguidelines.cast.org/engagement/recruiting-interest/threats-distractions>
- ³⁶ Figure text reproduced verbatim from: Ibid.
- ³⁷ “Sustaining Effort & Persistence.” CAST. <http://udlguidelines.cast.org/engagement/effort-persistence>
- ³⁸ Figure text reproduced verbatim from: Ibid.
- ³⁹ Posey, A. and D. Taub. “Getting ‘Unstuck’ Tips to Help Your Child If They Get Stuck with Their Remote Learning (DL #6).” TIES Center, 2020. <https://publications.ici.umn.edu/ties/building-engagement-with-distance-learning/getting-unstuck-tips-to-help-your-child-if-they-get-stuck-with-their-remote-learning>
- ⁴⁰ Bulleted text adapted from: Ibid.
- ⁴¹ “Heighten Salience of Goals and Objectives.” CAST. <http://udlguidelines.cast.org/engagement/effort-persistence/goals-objectives>
- ⁴² Figure text reproduce verbatim from: Ibid.
- ⁴³ “Vary Demands and Resources to Optimize Challenge.” CAST. <http://udlguidelines.cast.org/engagement/effort-persistence/demands-resources-challenge>
- ⁴⁴ Block quote reproduced verbatim from: “Distance Learning Guidance for Special Education.” Oklahoma State Department of Education, March 26, 2020. <https://sde.ok.gov/sites/default/files/DistanceLearningGuidanceforSpecialEducation.pdf>
- ⁴⁵ [1] “Foster Collaboration and Community.” CAST. <http://udlguidelines.cast.org/engagement/effort-persistence/collaboration-community> [2] “Increase Mastery-Oriented Feedback.” CAST. <http://udlguidelines.cast.org/engagement/effort-persistence/mastery-oriented-feedback>
- ⁴⁶ Figure text reproduced nearly verbatim from: [1] “Foster Collaboration and Community,” Op. cit. [2] “Increase Mastery-Oriented Feedback,” Op. cit.
- ⁴⁷ “Virtual Toolkit.” CEEDAR Center. <https://ceedar.education.ufl.edu/virtual-toolkit/>
- ⁴⁸ Figure adapted from: Ibid.
- ⁴⁹ [1] McLeskey, J. et al. “High-Leverage Practices in Special Education.” Council for Exceptional Children & CEEDAR Center, January 2017. p. 2. <https://highleveragepractices.org/wp-content/uploads/2017/06/SEBshort.pdf> [2] Reyes, E. and S. Wakeman. “Increasing Opportunities to Respond and Provide Feedback to Students with Significant Cognitive Disabilities in Inclusive Online Environments (DL #16).” TIES Center, 2020. <https://publications.ici.umn.edu/ties/building-engagement-with-distance-learning/increasing-opportunities-to-respond-and-provide-feedback-to-students-with-significant-cognitive-disabilities-in-inclusive-online-environments>
- ⁵⁰ Figure text reproduced verbatim with modifications from: Reyes and Wakeman, Op. cit.
- ⁵¹ “Sustaining Effort & Persistence,” Op. cit.
- ⁵² Figure text reproduced verbatim from: “Self Regulation.” CAST. <http://udlguidelines.cast.org/engagement/self-regulation>
- ⁵³ “Evidence-Based and Promising Practices to Support Continuity of Learning for Students With Disabilities: Practices and Resources to Support Teachers,” Op. cit., p. 10.
- ⁵⁴ Figure text reproduced nearly verbatim from: Ibid.
- ⁵⁵ Link obtained from: “Self Monitoring.” Louisiana State University School of Education, https://www.lsu.edu/chse/education/research_and_outreach/self-monitor.php. https://www.lsu.edu/chse/education/research_and_outreach/self-monitor.php
- ⁵⁶ Bulleted text adapted from sources cited throughout the remainder of this subsection.
- ⁵⁷ Sommerness, J. “A Collaborative Start to Behavioral Supports (DL #2).” TIES Center, 2020. <https://publications.ici.umn.edu/ties/building-engagement-with-distance-learning/collaborative-start-to-behavioral-supports>
- ⁵⁸ Figure reproduced verbatim with modifications from: Ibid.
- ⁵⁹ “Creating a PBIS Behavior Teaching Matrix for Remote Instruction.” Center on PBIS, March 2020. https://assets-global.website-files.com/5d3725188825e071f1670246/5e7e5a79378fc458723ddf4f_Creating%20a%20PBIS%20Behavior%20Teaching%20Matrix%20for%20Remote%20Instruction.pdf
- ⁶⁰ Figure text reproduced verbatim with modification from: Ibid., pp. 3–4.
- ⁶¹ Link obtained from: “Classroom PBIS for Online Learning.” Michigan’s Multi-Tiered Systems of Supports Technical Assistance Center, March 2020. https://mimtsstac.org/sites/default/files/Documents/Covid/Educators/Classroom_PBIS_Online_Learning.pdf

⁶² Hansen, B.D. et al. "Varying Opportunities to Respond to Improve Behavior of Elementary Students with Developmental Disabilities." *International Electronic Journal of Elementary Education*, 11:4, March 23, 2019. <https://www.iejee.com/index.php/IEJEE/article/view/772/396>

⁶³ Cummings, M., A. Arango, and C. Criado. "Using Technology to Create Engaging Remote Instruction During COVID-19." *Behavior Today: Council for Children with Behavioral Disorders Newsletter*, July 2020. pp. 22-24. https://higherlogicdownload.s3.amazonaws.com/SPED/bc40048c-cf24-4380-a493-273ff305ca3c/UploadedImages/Newsletter/PDFs/Behavior_Today_36_4.pdf

⁶⁴ Figure text reproduced verbatim from: Ibid., p. 24.

⁶⁵ Taylor, J. "Building Your DIY STEAM Home: Cool and Simple Home Science Activities for Students with EBD." *Behavior Today: Council for Children with Behavioral Disorders Newsletter*, May 2020. pp. 19-21. https://higherlogicdownload.s3.amazonaws.com/SPED/bc40048c-cf24-4380-a493-273ff305ca3c/UploadedImages/Newsletter/PDFs/Behavior_Today_36_3.pdf

⁶⁶ Bulleted text reproduced verbatim with modifications from: Ibid., p. 21.