

Closing The Gap

Solutions

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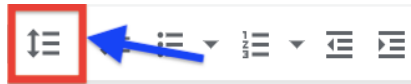
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Creating Accessible Digital Content: Everyone Deserves Equitable Access

INTRODUCTION

The World Wide Web is a powerful educational tool, harnessed by educators, administrators, schools, and districts around the world. Students and their families are directed to information on school and district websites, to digital assignments shared in Learning Management Systems (LMS), to websites for research, and so on. While the web was created by Tim Berners-Lee in 1989-90 to empower everyone as noted when he said, "The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect," too many individuals, especially those with disabilities, encounter regular gaps in their ability to equitably access the information they desire and the instruction required by educators. These gaps include issues such as text that cannot be manipulated or read aloud by a text or screen reader, missing or inaccurate captions in a video, a lack in contrast of text on a mobile device in the bright sun, or inconsistent keyboard access to a website for a user that cannot navigate a mouse.

Considering that 20% of the population in the United States has a disability, content creators including educators must do a better job of providing equitable access to digital content. This improvement will allow them to not only increase the reach of their content, but to also ensure a place where all students and content consumers belong. The potential of the web to empower all individuals should never be lost due to lack of access.

THE LAW

Creating accessible content benefits everyone. Plus, students with print disabilities have the right to equitable and timely access to the same instructional materials as their typical peers according to the Individuals with Disabilities Education Act (IDEA) (20 U.S.C. § 1412 (2004)). This means that retrofitting content to be accessible after it has already been shared with all students and stakeholders will create a time barrier to your content for students in need of accessible design.

Students with disabilities are also protected from discrimination and are guaranteed equal opportunities to participate in the services, programs, and activities offered by public entities including public schools. Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973 provides these protections, which includes access to digital content and communications using assistive technologies. Defined by the IDEA, assistive technology (AT) is "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability" (20 U.S.C. § 1401 (2004)). Some examples of AT are mouth sticks, head wands, screen readers (JAWS, NVDA, VoiceOver), speech recognition software, refreshable braille displays, and eye or head tracking devices.



JENA FAHLBUSH: Since 2015 Jena Fahlbush has served as a Specialist for the PATINS Project, a state education agency supporting Indiana's public schools in creating and sustaining an equitable learning environment for every student. She currently serves the project as a specialist in low incidence disabilities, intensive interventions for autism, web and Microsoft accessibility, accessible content authoring, and elementary academics. She holds a Bachelor's in Elementary Education and a Master's in Exceptional Student Education. With over 9 years of classroom experience, she is particularly passionate about how accessible digital design allows all students and individuals to belong in a digital space more universally.

WEB CONTENT ACCESSIBILITY GUIDELINES

The [Web Content Accessibility Guidelines \(WCAG\) 2.1](#) were developed by the World Wide Web Consortium (W3C) to provide a global standard for making Web content as widely accessible as possible to all individuals. The WCAG are broken down into four areas: perceivable, operable, understandable, and robust. Within each of the four areas there are success criteria to be achieved. Successful achievement of each criterion is measured in three levels of conformance from lowest to highest: Level A, Level AA, and Level AAA, with Level AA being the target level for most website content (WebAIM, 2021).

Though the United States has not formally adopted the WCAG in its legislation, it has been referenced as the de facto standard during litigation of claims of discrimination resulting in lack of access to web content under the ADA and Section 504 of the Rehabilitation Act. Using WCAG 2.1 Level AA as guidance when building your web and digital content will help ensure that your students and stakeholders have a general level of access required to receive the instruction and information provided.

DEFINITIONS

- Menu ribbon - A program's command bar typically presented at the top of the program in one or two rows in which the

program's tools and features are organized.

- Semantic coding - A type of html code or markup that builds structural meaning into an item beyond visual presentation. This markup can be accessed by assistive technologies.

HEADINGS, LISTS & SPACING

Headings

Headings are integral to the organization and flow of printed and digital information. Creating an outline of the page, headings help readers make sense of the content visually by breaking it into sections and subsections; however, not all content is received by consumers visually. In the case of digital content, headings must be semantically coded in the document using the program's styles button in the menu ribbon as shown in Figure 1. Simply bolding, italicizing, highlighting, or enlarging text does not provide the necessary semantic code for universal access. Rather, when headings are properly styled, they organize the document both visually (through adjustable boldness, color change, and/or increased font size) and semantically for access by assistive technologies such as screen readers and braille displays.

When creating headings, remember that all digital content should typically be given one singular heading one, which is usually the document title. Headings two through four (sometimes

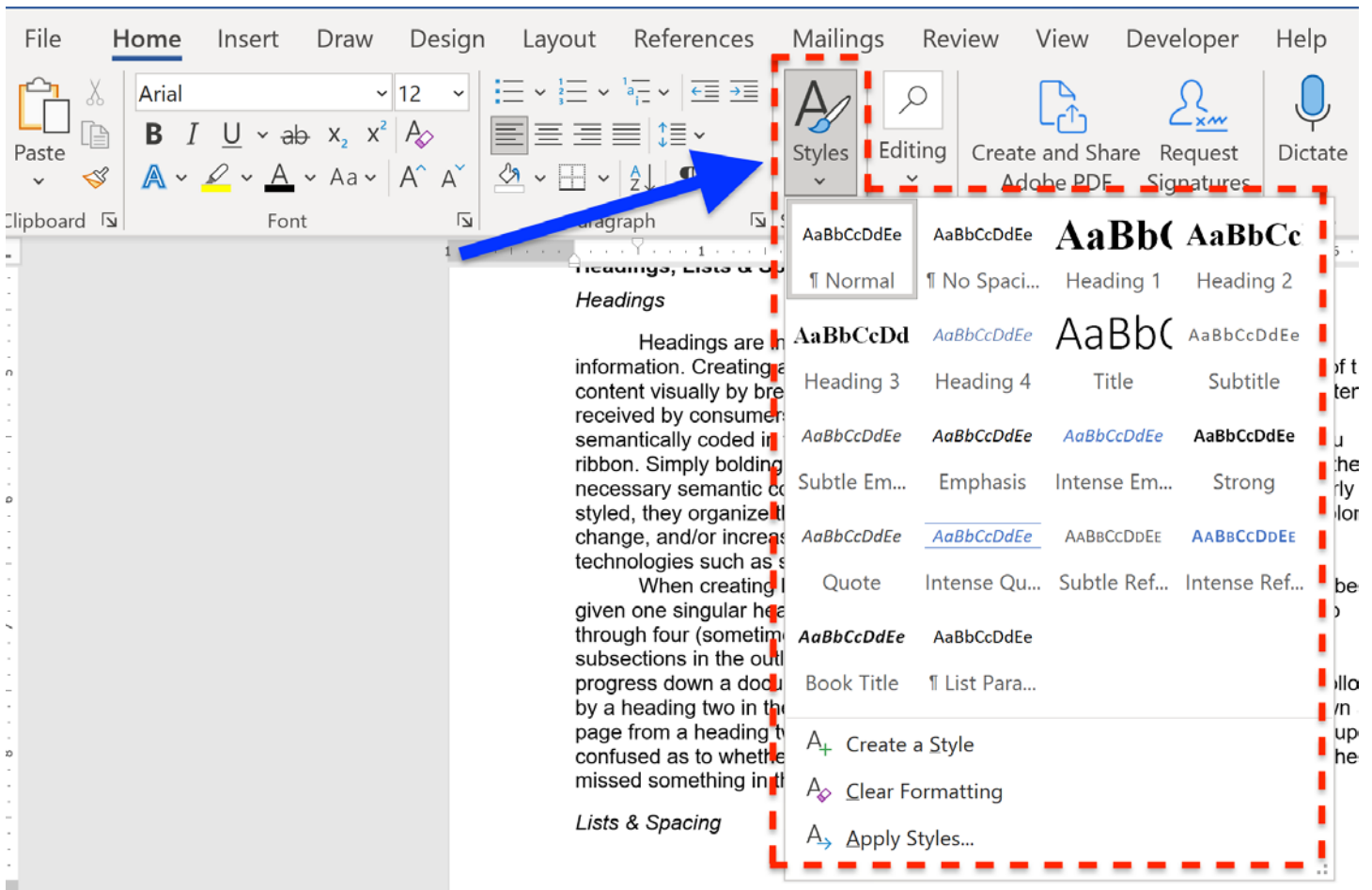


Figure 1: Styles tool opened in Microsoft Word indicated with blue arrow and red dashed outline.

up to heading six) can follow for logical sections and subsections in the outline. It is imperative to avoid skipping heading levels as you progress down a document, though it is not uncommon for a heading four to be followed by a heading two in the structure. Skipping a heading level when progressing down a page from a heading two to a heading four can leave users of the semantic markup confused as to whether important information was mistakenly left out or whether they missed something in the content.

Lists & Spacing

Lists are a large part of many individuals' daily lives. They provide a quick guide of to-dos, items needed from the grocery store, and so on. Like headings, when digital lists are created, they must be properly formatted using tools in the program's menu ribbon to support easy visual access in addition to semantically coded access for assistive technologies. The default list styles can continue to be formatted based on preference once the style has been assigned using the bulleted or numbered list tool indicated in Figure 2. Edits to the indentation of the list items can be semantically added using the increase and decrease indent tool buttons shown in Figure 3. When lists are manually created using the tab button, space bar, and/or numbers or characters such as a dash, a user of a screen reader is not alerted to any present lists on the page nor are they able to navigate to the list and between list items as someone would using their sight.

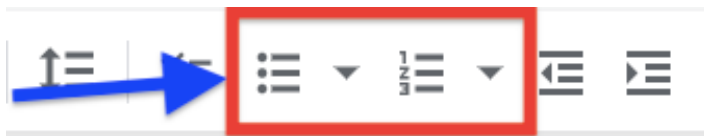


Figure 2: Bulleted and numbered list tools in Google Docs indicated with red rectangle and blue arrow.



Figure 3: Decrease and increase indent tools in Google Docs indicated with red rectangle and blue arrow.

Additionally, it can be tempting to use the Enter/Return key to add white space or line breaks between list items. While this does add to the visual accessibility for many users, it often creates confusion for users of screen readers by alerting the software to announce new paragraphs or lines that exist with no text. This can cause a disruption in the list information. Paragraphs and/or other page elements spaced out manually with the Enter/Return key can cause this same confusion and disruption for users of assistive technologies.

There are multiple ways to properly add white space or line breaks in your content for digital consumption. One option is to click into the text where you would like to insert a line break and use the Line Spacing button in the program's menu ribbon as shown in Figure 4. This button will allow you to insert a default or custom space after the line. Similarly, all items in a list can be highlighted before selecting the Line Spacing button to insert a properly formatted space between list items.

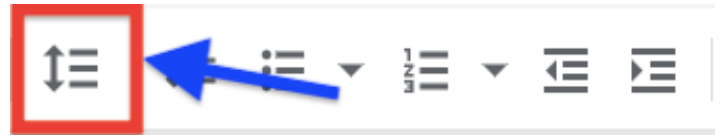


Figure 4: Red square and blue arrow indicating Line Spacing tool in Google Docs.

COLOR & CONTRAST

Color and contrast are two design elements that impact visual ease of access to your content. While it can be intriguing to experiment with font and background colors to create visually engaging materials, many color combinations lack sufficient contrast and only create a struggle for your students and stakeholders to receive and comprehend the information. Instead, stick to black text on a white background. This combination ensures color contrast that conforms to the contrast ratios in the WCAG, while also allowing for your content to be as widely received and understood as possible.

Should you decide to venture into other font and background color combinations, there are multiple no-cost tools that can be used to ensure the minimum contrast standard is met. One of which is the Color Contrast Checker from WebAIM. This tool checks the contrast ratio of font and background combinations using a color picker or the RGB hexadecimal values of each of the colors. After selecting the colors, the tool will indicate whether the combination conforms to the contrast ratio at Level AA and Level AAA per WCAG. If it does not conform to at least level AA, a new combination should be explored, tested, and used when it passes the test.

Another aspect of accessible color design is that color cannot be the only indicator of meaning or action, because not all viewers can discriminate between colors, like an individual that is colorblind. Rather, it is necessary to add at least two visual indicators of meaning or action. For example, a color-coded line graph should include differently styled lines like dotted or dashed or appear with a repeated shape. A colored-coded pie chart or bar graph should also include a repeated pattern within each color, as shown in Figure 5.1 of the section on charts, graphs, and tables.

ALTERNATIVE TEXT

Images of all types are important elements added to your content that can visually provide information, engage readers, and even tell a story. Yet the intended meaning of these images is lost

when visual access is interrupted or when it is not an option. To ensure that the images you choose to include are accessible to all individuals regardless of visual access, a text alternative or alt text must be added. Alt text is a brief text equivalent of the information conveyed in an image or graphic added to the description field of the alt text menu. This text is semantically coded into the image so that it is accessible to assistive technologies and will appear in place of the image if it fails to load online. Otherwise, alt text cannot be visually accessed without the use of specific tools like accessibility checkers.

Sometimes, images are only added to content for decorative purposes like on an invitation. When images are purely decorative, avoid giving them alt text. Instead, mark the image as decorative. Many content programs like Microsoft Word offer the ability to mark images as decorative in the alt text menu. When this is not an option, like in Google Docs, decorative images should be given the following text in the description field of the alt text menu: alt=" " (opening quotation followed by a blank space before closing quotation). Accessing the alt text menu can usually be done by right-clicking on the image and selecting add or edit alt text.

Other times, your content may include detailed images such as a chart or diagram. In this case, it is necessary to add a detailed description. Because alt text typically should not exceed 100 characters, a two-part description is required. Learn more about two-part descriptions from the [Web Accessibility Initiative \(W3C\)](#).

FONT & STYLES

When considering the fonts and styles used for the visual presentation of your content, keeping it simple will support the wid-

est range of access to your content. Simple means using sans-serif fonts, which are fonts that lack the decorative strokes or serifs at the end of the letters. Arial is an example of a sans-serif font, while Times New Roman is a serif font.

Keeping text left-aligned also adds to the simplicity of your content, since many of your readers read left to right. Reserve centered text for heading ones or titles only when necessary. Avoid justified text altogether as this style adds inconsistent spacing between words, creating difficulty in decoding and comprehension for many readers, especially those with dyslexia, low vision, and other cognitive disabilities.

It is also best practice to avoid all capital letters for emphasis. Some screen readers read all capitals letter-by-letter causing potential confusion. Plus, this style can be interpreted as shouting by the reader. To both visually and semantically emphasize a point, style it with the proper heading level. If a heading level does not apply to the content, consider editing it so that a matching heading level could be applied. If you find yourself still needing to emphasize a specific point, you could type the word "note" at the beginning of the line.

CHARTS, GRAPHS, & TABLES

Charts, graphs, and tables are common ways to visually organize sets of data and other information. To ensure the information conveyed using these tools is accessible beyond visual access, they must be [formatted properly](#).

Beginning with charts and graphs, it is essential to recognize that these graphics are intended to convey information visually. The information presented in the graphics often stems from an or-

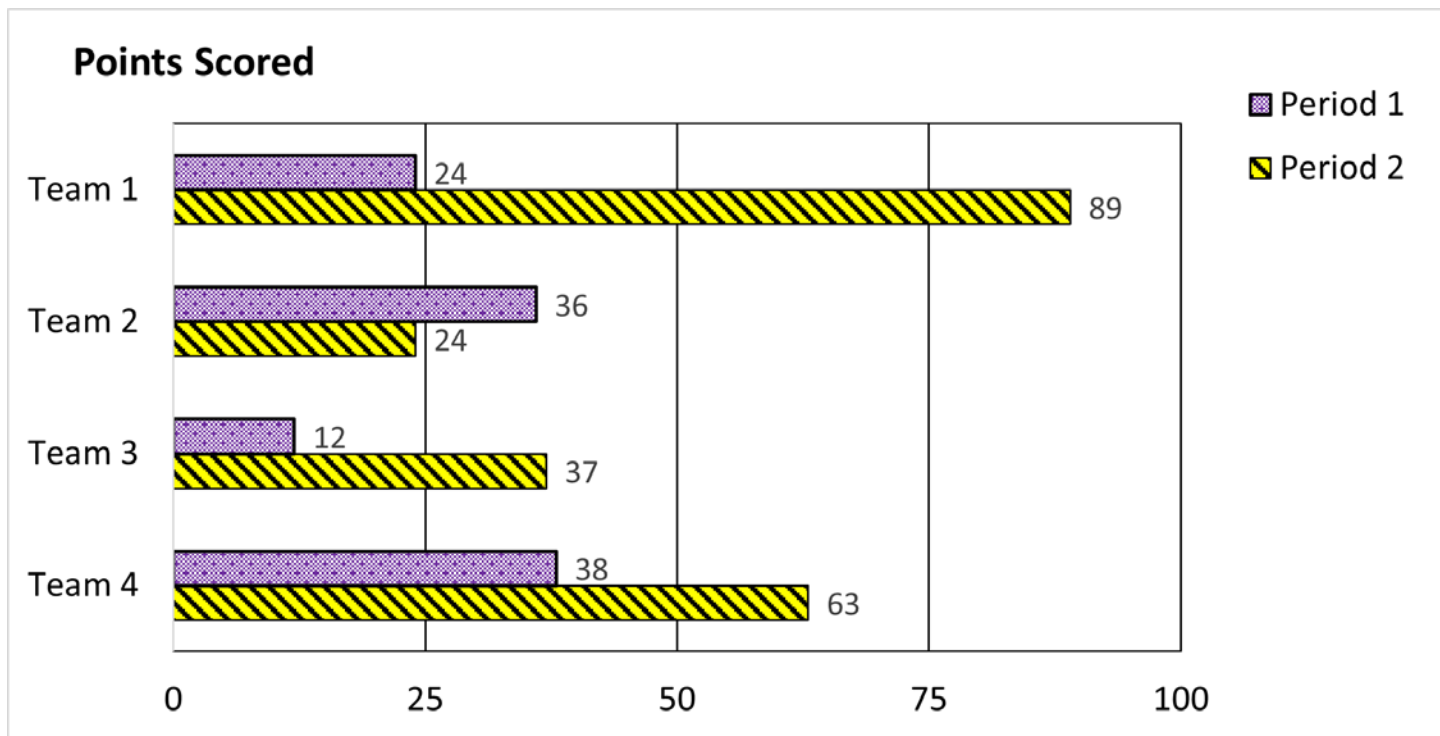


Figure 5.1: Horizontal bar graph of points scored between 0 and 100 by Teams 1-4 in Periods 1 & 2.

ganized data set in a table. To improve the universal accessibility of a chart or graph, insert the associated data table adjacent to the graphic. Then give the graphic alt text that briefly summarizes the information presented and notes the location of the table with the corresponding data. The alt text for the bar graph in Figure 5.1 would read: “Figure 5.1. Horizontal bar graph of points scored. Data values presented in the following table labeled as Figure 5.2.” No alt text is needed for the table. Providing captions for both the graphic and the table is recommended as it improves the overall level of universal accessibility. See the captions for Figures 5.1 and 5.2.

| Team | Period 1 | Period 2 |
|--------|----------|----------|
| Team 1 | 24 | 89 |
| Team 2 | 36 | 24 |
| Team 3 | 12 | 37 |
| Team 4 | 38 | 63 |

Figure 5.2: Table of points scored between 0 and 100 by Teams 1-4 in Periods 1 and 2 corresponding to the bars in Figure 5.1

When tables are present in your content, whether as a support to chart or graph or as an independent visual, it is important to remember that they must be given headers. Headers are traditionally found across the top row and/or down the first column of the table. Header rows should be repeated in the table if the table breaks from one page to the next. Some programs like Microsoft Word provide access to a table’s properties, allowing for proper headings to be semantically coded into the table, while other programs like Google Docs do not without paid access to an Add-on like Grackle for the G Suite. It is important to ensure that the program you are using to create digital content allows for the addition of accessible table headers.

Furthermore, it is best practice to avoid using tables for layout purposes unless the table can be marked for layout only in the table properties. Merging table cells often causes another table error during an accessibility check because it can cause confusion in the logical structure of a table for users without visual access who may be accessing the content with an assistive technology device. Learn more about accessible graphics from the [Diagram Center](#).

CAPTIONS & TRANSCRIPTS

Videos are an engaging way to reach students, and when the captions are turned on, you are supporting most students’ attention, vocabulary, comprehension, language acquisition, and more (Evmenova, 2008). Video captions capture all the spoken words

and sounds in a video. There are two types of captions, open and closed. Open captions are burned into the video and cannot be turned on or off; they are always on. Closed captions are more common and can not only be turned on and off, but oftentimes can be formatted by size and color.

All videos incorporated into your content should include accurate captions. While automatic captions have become more widely available, they do not yet provide the level of accuracy required for WCAG conformance. To create accurate captions for videos that you own, you can take advantage of some features provided in YouTube. To start, upload your video to YouTube and allow it to automatically caption your video. Depending upon the length of your video, this can take a considerable amount of time. Once the automatic captions have loaded, you can edit them for accuracy in YouTube before publishing.

If you find a video online that you would like to use, but that lacks accurate captions, [Amara](#) offers a free platform for captioning videos that you do not own. Consider creating a captioning club or asking for parent/caregiver volunteers to crowdsource captions to videos that you and others in your school find online and want to incorporate once the captions are accurate.

Remember to turn on the captions for videos played in the classroom, too. Captions are texts that offer your students more time to spend reading, which is one predictor of reading achievement for all individuals.

Video transcripts are text versions of the captions. YouTube usually creates a transcript for uploaded videos. Transcripts improve accessibility because the text can be translated into other languages, formatted by size, color, etc. and printed. They can be digitally accessed by refreshable braille displays and screen readers. Transcripts are also searchable for quick navigation, and they improve search engine optimization for increasing hits on the video.

HYPERLINKS

Hyperlinks provide quick access to additional resources and information in your digital content. They are found on all commonly used websites in and out of education. When accurately formatted, not only do they provide this quick access to additional supports, but they also provide keyboard access and site or page navigation for users of assistive technologies like screen readers.

When inserting links, avoid copying and pasting long URLs directly from the address bar in your browser. These URLs often lack information that would tell a student or user where they are going when clicking on the link. Typically, they also include a long string of nonsensical characters that are read aloud by assistive technologies from start to finish, wasting time and lacking clarity.

Instead, hyperlinks should be added to descriptive text within the content that accurately alerts a user to where they will be directed. Hyperlinking text that reads, “click here,” “learn more,” or “read more,” for example, is not descriptive enough as these words do not describe what happens when the user “clicks here” or what



they may be directed to read or learn more about. They are particularly ambiguous in an elements list of links created for navigation by screen readers as shown in Figure 6.

KEYBOARD NAVIGATION

All digital documents and websites should be navigable by keyboard only. Though this is not something that you will specifically be formatting into your content through any dedicated tools in the menu ribbon, you will be creating a navigable keyboard structure through the addition of proper headings, lists, hyperlinks, tables, and other elements. To experiment with keyboard navigation, visit webaim.org and use the tab key to move element to element and tab plus shift to move in reverse order. Hit Enter/Return or Spacebar to select and open an item.

MATHEMATICAL & SCIENTIFIC CONTENT

Inserting accessible mathematical and scientific content requires the use of Mathematical Markup Language or MathML. Many programs such as Google Docs and Microsoft Word, PowerPoint, and OneNote offer the ability to insert accessible notations using an equation tool so that they are visually accurate and readable by assistive technologies. Limited by the options in the equation tool, it is sometimes necessary to add images of math equations. In cases like these, the proper alt text must be added

to make the equation more universally accessible.

SLIDE ACCESSIBILITY

Rules for slide accessibility mirror that of each of the elements previously described. You will also want to stick to using the slide layouts provided in the template of your choice. These layouts are created accessibly, but when textboxes, WordArt, or other elements are added to a slide, you are inadvertently tampering with the integrity of this accessibility. If you need a different slide layout, create it manually in the slide template program.

Each slide in your deck should have a unique slide title. If a slide's information must continue onto additional slides, edit the end of the title to include 1 of 2 and 2 of 2, for example. Unique slide titles provide descriptive access for users that are not accessing the content visually.

Like building a logical semantic structure and reading order of a document through headings, it is necessary to build this same structure and reading order into your slides. This is another reason to use only the slide layouts provided in the template. These layouts have been semantically coded so that the reading order makes sense to those without visual access.

When additional elements beyond those found in the layout are added, the reading order can be tested by clicking in a blank area to the left or right of the slide, and then using the tab key

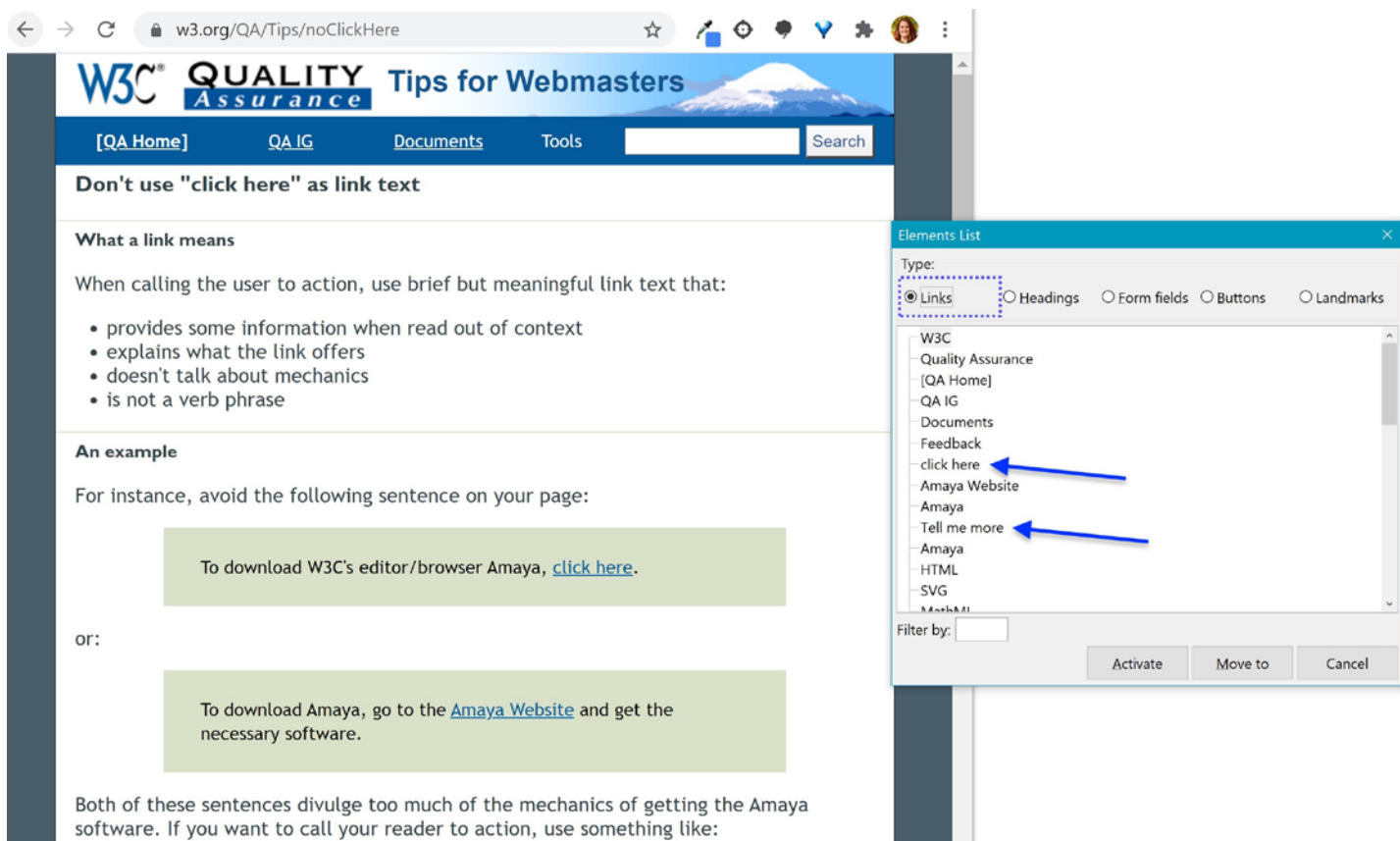


Figure 6: Webpage open in browser on left with screen reader Elements List open on the right indicating ambiguous links, click here and tell me more with blue arrows.

to find out what is read first to last. The title should be read first unless there is a slide number present. After the title, ensure there is a logical order from left to right and top to bottom. The paid version of Grackle for Google Slides and the built-in accessibility checker in Microsoft PowerPoint provide access to a side panel that will allow you to view and adjust the reading order of each slide.

ACCESSIBLE PDFS

From personal experience, PDFs are the hardest thing to retroactively edit for accessibility. Please take that into consideration as you share PDFs with students, families, and other stakeholders. One reason for this lack of accessibility is that many PDFs are created from photo-copied text, which is generally produced as an image. This means that the text cannot be manipulated in any way, making it inaccessible to text and screen readers, for example.

To check a PDF for accessibility, try to click and highlight some of the words or use Command plus F or Control plus F to find a word in the PDF. If neither of these operations allows you to interact with the words, the PDF has been shared as an image.

Uploading a PDF with accessible text to a website or LMS can be done in multiple ways. For instance, some copier settings will allow you to choose to scan the document for text using a feature called optical character recognition (OCR) before sending you an editable version. There are also free mobile apps, such as Office Lens and Adobe Scan, that scan a picture of a document with OCR and then allow you to share it in an editable format to the location you choose.

Uploading PDFs that have been scanned with OCR is only the first step to PDF accessibility. Not only do PDFs need to include headers and other structural elements like that of a document, but each of these items also must be tagged correctly, which can prove to be very time-consuming and challenging. This is when having access to the source document proves beneficial, because remediating a document for accessibility in Word or Google Docs is much easier. If the document is again going to be exported to PDF, ensure that it is being exported with all the accessible elements (called tags) into PDF. Then run the accessibility checker in Adobe Acrobat DC Pro to ensure these tags have followed the document. Human intervention will be necessary to ensure the PDF is as accessible as possible even after the accessibility checker has been run.

ACCESSIBILITY CHECKERS

Many programs including most of the Microsoft 365 apps offer built-in or add-on accessibility checkers to help locate and remediate accessibility errors in your content. Websites can also be checked for accessibility via [evaluation tools](#) like the [WAVE Tool](#) from WebAIM. While these checkers are a great place to start, all digital content requires human intervention when it comes to ensuring accessibility.

Equally important to human intervention is to check the accessibility of mobile versions of your content. According to a study by Pearson in 2015 of 2,274 elementary, middle, and high school students, 58% of them use a smartphone and/or tablet to complete their schoolwork. This statistic demonstrates the importance of mobile accessibility, yet content that is created to be accessible on a desktop or laptop may lack accessibility in the mobile version.

Mobile versions can be checked for appearance and responsiveness both on mobile devices and by minimizing the website or content's window size to the smallest option on a desktop or laptop computer. If elements become inaccessible in the mobile version, like a table that does not respond to the adjusted window or screen size and cells get cut off, they must be properly reformatted and structured to conform to the WCAG.

FINAL THOUGHTS

The journey to equitable digital access for all consumers, including students and their caregivers, communities, and families will inevitably lead educators and content creators down a winding road. Each curve in the road leads to new accessible design elements that must be navigated and steadily executed in a timely manner. Though the journey to digital equity is lengthy because the tools and technologies that guide us are ever-changing, our students and content consumers are worth every minute that is dedicated to equitable access. For more information on digital accessibility, visit the [W3C Web Accessibility Initiative](#).

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Closing The Gap

Here for You, Throughout Your Career



A YOUNG SPEECH PATHOLOGIST AND CLOSING THE GAP

I remember, it was sometime in the mid-1980's, and I needed help.

I was working in a school district as a speech pathologist, helping individuals aged 3 to 21 with a variety of mental and physical challenges, and I was struggling to find resources to help with some of the situations I was running into.

As I stressed about how I was going to find the answers I needed, I started going through all the mail we received at the school from different education-related companies. That's when I first saw the Closing the Gap catalog.

As I started looking through the catalog, I saw information about a variety of products and services for assistive technology. I quickly realized that there was an important difference between the Closing the Gap catalog and all the other catalogs, pamphlets, and sales letters we received at the school.

All those other mailings were trying to sell us something, but Closing the Gap's catalog was more informational. Their goal was clearly to educate people about all the assistive technology resources available and be as helpful as possible. I appreciated that difference.

I also saw that they were hosting an annual conference and providing workshops around the country, but our school bud-



GINA BALDWIN has been a licensed Speech Pathologist for more than 35 years. Helping people connect with the world through speech is her true passion. Throughout her career, Gina has had the opportunity to work with many clients in a variety of environments. It has been her pleasure to assist them in returning to their daily routines as quickly as possible. Gina is also the founder of [App2Speak.com](https://www.app2speak.com), a company that provides an intuitive, photo-based, and reasonably priced application for people who need an AAC app to communicate.

get was so tight, we never had the money to send someone to any of those workshops.

But there was a phone number in the catalog (you have to remember, this was right around the time of the birth of the Internet and email), so I plucked up my courage and made a call. In a matter of seconds, I was talking to someone at Closing the Gap—and not just someone, it turns out I was talking to Dolores Hagen, one of the founders.

All these years later, I can't recall exactly what I asked about or exactly what Dolores told me during that first call. What I do remember, though, was how friendly she was and how helpful, explaining to me about the resources available and guiding me to the right resources to help with the kids I was working with at the time.

After that, if I needed direction, I knew that I could pick up the phone and call and talk to either Dolores or her husband, Budd. I'm not exaggerating at all when I say that having Closing the Gap there was a real lifeline for me as a young Speech Pathologist.

In the early 90's, I went into working with adults, so I was no longer in a situation where I needed to tap into most of the resources shared by Closing the Gap, so I lost touch with the company. Nevertheless, from time to time I would still hear about

something they were doing. And, whenever I heard their name, I always thought back fondly to the help they gave me as a young Speech Pathologist.

A NEW DIRECTION

Fast forward to 2014. By this time, I had been working for years with many adults who had trouble communicating. These were people who had language but had had a stroke or had been involved in some traumatic incident that caused their speech to be unintelligible or prevented them from speaking at all.

Many of these people would become extremely frustrated when they tried to communicate with others, and some completely gave up. This is because the technology just didn't exist at the time to help them communicate efficiently.

I made many different picture word boards for these people over the years, but the frustrating part of it was that the boards were static, so if the person was in a wheelchair, they always had to have someone standing over them, looking at the board while they pointed.

So, at that time, I knew two things: one, that the photos and words worked for people, and two, that we needed to get away from the static boards. I researched to see if there were any photo-based apps out there, but back in 2014, there was nothing.





Well, that’s not exactly true. There were some high-tech programs out there that used symbols, cartoon figures, or icons as symbolic representations of concepts, but these were designed primarily for vocabulary building, language learning, and literacy.

The adults I worked with would look at these programs and go, “What’s this?” They didn’t really get it.

Plus, they didn’t need that kind of program, anyway. They didn’t need a symbolic representation for a thing or an idea. They already had their language, and they already knew the words for things. They just needed some way to say it.

That’s when I decided to create my own product that would help the adults I worked with communicate. I knew that photos worked, I knew that I needed a way to provide a more individualized process, and I knew that I needed a product that could speak for my clients so someone wouldn’t have to be positioned where they could see the board or screen.

So, I approached an independent software developer with my idea and asked if he could do the coding. He said, “Yes,” and that was the beginning of the product that’s now called APP2Speak, a photo-based augmentative and alternative communication speech app for the iPad, tablets, and smartphones. APP2Speak

provides 80 preset real-life photos with words to help people who have difficulty communicating to express their wants and needs. I’m very proud of it.

CLOSING THE GAP ENTERS THE PICTURE AGAIN

But APP2Speak has not been an overnight success. As I said, I had the initial idea in 2014, but for the first three or four years, we were doing mainly development and not a lot of marketing.

When I finally was ready to start taking the marketing of APP2Speak up a level, I started connecting with people in the assistive technology field, and it seemed like everyone I talked to brought up Closing the Gap. And every time someone mentioned Closing the Gap, I remembered how helpful they had been to me in my early career, and I started thinking that I should probably take a look at the company again.

As it turns out, they beat me to the punch.

Sometime in 2018, we started doing more marketing and started to exhibit at conferences, and Marc Hagen, one of Budd and Dolores Hagen’s sons who now runs the business with his sister, Megan Turek, reached out to me and wanted to know if they could do a Front Page Report on APP2Speak for their website. Of course, I was thrilled and said “yes” immediately.

APP2Speak has now been featured twice in Front Page Reports on the site, and in 2019, I attended my first Closing the Gap annual conference as an exhibitor, followed by exhibiting virtually in 2020.

I've also advertised on the Closing the Gap website and have gotten referrals from those ads.

LOOKING AHEAD

If someone were to ask me what I would predict about my future interactions with Closing the Gap, I would say that I can only see it growing and getting better. It's such a valuable relationship for my business because Closing the Gap gives me a platform from which I can reach out to their membership and their conference attendees.

One of the most valuable aspects of Closing the Gap is the wide range of professionals and individuals who visit the website to learn about available resources. Many of these people may need an app like APP2Speak or know someone who does.

In addition to possible customers and referrals that I could get from my connection with Closing the Gap, there's also great value in networking with other professionals in the assistive technology field. A lot of the companies who market themselves through Closing the Gap have overlapping or similar audiences and we can help each other out by referring prospects to each other.

A FINAL WORD

I would be remiss if I didn't close this reminiscence by stating once again how helpful Closing the Gap has been to me. They helped me out way back in the 80's when Dolores took that first phone call from me, and Marc and his staff are still helping me out today with my marketing and my exhibiting at their conference.

They just seem to go out of their way to help. Do they do it for everyone? I don't know, but probably. I know they're nice to everybody. I've never heard anybody say anything negative about them.

I guess if I had to summarize my experiences with Closing the Gap, I'd have to say that, no matter whether you're a parent of a child with special needs, a classroom teacher, a clinician, or a businessperson offering products and services in the assistive technology field, Closing the Gap will be one of your most valuable resources throughout your career. They certainly have been for me. ■



“CORE-ICULUM” ...

INTEGRATING CORE VOCABULARY INTO CLASSROOM INSTRUCTION



ANGELA ALBRIGO, has worked in the field of special education for the past 36 years as a practicing Speech-Language Pathologist and assistive technology consultant. She has worked for North DuPage Special Education Cooperative for the past 25 years providing assistive technology support for 8 school districts. Angela has a special interest in supporting children with complex needs. She is a Google Level 1 educator and recently completed her Instructional Technology endorsement



JANINE SABAL, has worked in the field of Special Education for 33 years. She has been a Speech-Language Pathologist, Inclusion Facilitator, and Speech Supervisor for North DuPage Special Education Cooperative. Janine has worked with students from ages 3-22 years of age. In addition, Janine has some experience in Home Health and with Early Intervention. She has a special interest in augmentative communication and feeding. Currently, in addition to her Speech Supervisory responsibilities, Janine is part of the Elementary Academic Life Skills team.



KELLY PETERSEN, works as a Speech-Language Pathologist for North DuPage Special Education Cooperative servicing students within their Early Childhood Special Education program. Previously, she has also serviced their Social Support Program at the elementary and middle school level & their Language And Social Support Opportunities Program at the elementary level. Kelly has 17 years of experience, working in rehabilitation facilities and skilled nursing facilities prior to working in the academic setting.



ERIN FERGUSON has been working as a Speech-Language Pathologist for North DuPage Special Education Cooperative for the past four years. Erin provides services for student's in NDSEC's Academic Life Skills and Social Support Programs at the junior high, high school and transition level programs. Erin also services a self-contained Early Childhood Special Education Classroom. Previously, to joining NDSEC, Erin worked as an instructor in a Life Skills Enrichment day program for adults with disabilities.

IN THE BEGINNING

Our journey began five years ago when our Speech-Language Pathologist Janine Sabal and Assistive Technology Specialist Angela Albrigo attended the Jill Senner and Matt Baud presentation on Partner Augmented Input (PAI). Following the workshop, their goal was to come back to their academic life skills programs (ALSPs) and train staff on how to support students using voice output communication devices with Partner Augmented Input.

The emphasis was to try and expose our students (and staff) to the vocabulary on their communication devices with the expectation that they would begin to use more vocabulary/language throughout their school day.

We focused on our PAI deployment for approximately two years. At the end of the second year, we reflected that although staff understood what the project was aiming for, little progress was made towards teams becoming consistent in using PAI within their classrooms.

As a result, we developed a proposal to expand our implementation of PAI and began our development of our Core Initiative. The basis of our "Initiative" was to expand core vocabulary and PAI beyond those students who were using communication devices and extend these strategies into other areas of the school day and academic instruction.

ADMINISTRATIVE SUPPORT

Before expanding our "Core Initiative" we knew it was vital to get our administration's support. A detailed proposal was developed defining "our" new definition of core vocabulary/language, plans for training, and material development and an implementation process for our staff and classrooms. Once our proposal was given the okay by our Executive Director and Assistant Director, we knew we needed more man power to introduce our Core Initiative into more classrooms. Once our proposal was given the okay by our Executive Director and Assistant Director, we knew we needed more man power to introduce our Core Initiative into more classrooms. We expanded our team to include two additional speech pathologists, Kelly Petersen and Erin Ferguson. At the same time, we requested time to work on our Initiative during the summer. Fortunately, our administration supported our plan and provided us with additional compensated work time.

DEVELOPMENT OF OUR CORE WORD LIST

Our team knew that in order to get "buy in" from our teachers we needed to connect "our" core vocabulary list to academic instruction. We wanted our teachers to understand that "our" core word list was not just for those students who required the support of a communication device, but that all the students in our ALSP programs would benefit from exposure to these words. We began gathering vocabulary lists from a variety of sources such as Edmark, Dolch word lists, Dynamic learning Maps (DLM vocabulary for academic and social communication success),

Unique high frequency words, an integral part of our curriculum for our ALSP classrooms, in addition to a core vocabulary list of words from Banajee, DeCarlo and Strickland. Based on these sources, we created a list of words that corresponded with activities and instruction throughout the school day.

EARLY QUESTIONS

We began our summer work sessions by discussing and answering the following questions:

- Which words will we use?
- How frequently would we introduce our words, monthly, bimonthly, or weekly?
- How many words would we introduce?
- Which combinations of words would we introduce?
- How would we introduce these words?
- Which symbol set will we use?
- Which classrooms would we include in our initiative?

GUIDING PRINCIPLES

As we worked through these questions our team developed a few guiding principles that we wanted to remain true to throughout our process. At the start, we believed that our list of core vocabulary words would have a positive impact on our students' success in academics, communication and behavior.



Second, we wanted our teams to "expose" all of our students to our core vocabulary. The goal was not to have students master these words by reciting them back, but to become aware of them during their instruction and routine classroom activities.

ANSWERS TO OUR QUESTIONS

As a result, we answered the previous questions as follows:

1. Target a total of 70 words per school year
2. Introduce our words on a weekly basis
3. Introduce two words per week
4. Words were selected from Edmark, Dolch words, core words list from Banajee, DeCarlo and Strickland, Unique high frequency words and DLM vocabulary word list.



- Six classrooms were selected for our deployment: an early childhood program, a primary ALSP (grades K-2) classroom, an intermediate ALSP (grades 3-5) classroom, two middle school ALSP classrooms and a Language Support and Social Opportunities (LASSO) program (grades k-2).

“Core Initiative.”

TRAINING

Initially, we trained two of our strongest classroom teams on the Partner Augmented Input method during Early Release Days. Our focus was on students currently using augmentative communication systems. Our implementation process had three parts. First the staff members working directly with the student, observed the Speech-Language Pathologist (SLP) or Assistive Technology Consultant (AT) as they modeled vocabulary while working with the student. Second, the SLP or AT coached classroom staff while they worked with the student. Third, the classroom staff were observed as they provided modeling on the student’s communication device or core vocabulary board and provided feedback in a positive manner.

When we decided that we really needed to get more staff on board, we provided a half day workshop. Attendance was required for all NDSEC SLPs and open to our member district SLPs. As an added incentive, the workshop was approved for Continuing Education credit. We used the workshop to establish a common knowledge base, consistency of programing, and provide the launch pad for the expansion of our developing Core Vocab-

We chose 70 words so that our teams would have adequate vocabulary to model when providing instruction to students. Our symbol set is from the Symbol Stix library. This library was chosen because it is part of the N2Y family creators of Unique and News 2 You, which are integral to instruction in our ALSP classrooms. In addition, many of our students who use communication systems, use vocabulary page sets composed of Symbol Stix symbols.

View image 1 Our NDSEC Core Board

As we began to work through our process we decided that we did not want to put any additional work on our targeted classroom teachers. For this reason, we worked throughout the summer creating all the materials our teams would need, to begin the implementation of our



| | | | | | | | | | |
|----------|-----------------|----------|------------|----------|----------|----------|------------|-----------|-----------|
| I | what ? | who ? | where ? | how ? | why ? | now ? | later ? | good ? | bad ? |
| me | is are am | have | come | feel | give | again | ready | same | different |
| my/mine | can | eat | drink | all done | get | go | more | big | little |
| it | do | help | make | need | open | put | that | up | down |
| you/your | not/don't | like | play | read | stop | see/look | walk | on | off |
| he | she | here | want | take | tell | turn | watch | in | out |

Image 1: Our NDSEC Core Board



ulary team and program.

At this point we moved to the Classroom Instruction approach. This takes the responsibility away from the SLP and makes it a classroom/team goal. We have continued to train the classroom teams on a yearly basis. These yearly training sessions are done at the start of the school year, before we begin with the core vocabulary calendar, the first week in September. The training sessions are conducted by one of our core vocabulary team members. We have developed a Google Slide presentation, that we edit each year as our program continues to evolve, to guide this training. These classroom level trainings allow for specific information to be shared regarding how to implement core vocabulary with individual students and to answer any specific questions. Weekly e-mail reminders are sent out to keep the classroom staff moving forward with implementation of core vocabulary. Links are included for some activities and new additions are highlighted.

OUR KEY TRAINING PRINCIPLES ARE:

1. Core vocabulary is a concept relating to typical language development. Our typical generative language system is based upon core vocabulary words.
2. Children learn language through modeling by multiple communication partners. Students need to see others using pictures to communicate, before we can expect them

Breaking Core News!

Weekly Core Words:



[Weekly Activity Sheet](#) (includes Raz Reading links)

Additional Sentence Starters:

We had ____ to eat. (for Thanksgiving)
I hope to get _____. (for Christmas)

[Eat/Get Marquee and Writing Activities](#)

Daily Worksheets:

[EAT](#) [GET](#)

Make It Digital: These are great for Remote Learning or use with a White Board!

[Get Digital Worksheet](#)

[Eat Digital Worksheet](#)

VIDEOS TOO:

| Core Word | Videos |
|-----------|--|
| eat | I Like to Eat Apples & Bananas |
| eat | Eat Your Peas |
| get | We Get Dressed |

“Weekly Email Blast” that was sent out to teachers and SLPs to prepare for the coming week

to use pictures to communicate.

3. All of our students, verbal and nonverbal, benefit from the use of visuals. They will all benefit from exposure to core vocabulary. Our classrooms already use, and see the clear benefits of visuals, like “First - Then” and picture schedules.
4. Consistency and repetition are vital for student success.

These principles are also evidence based. This includes Senot and Light’s review of modeling-based intervention in 2016. They found, “Consistently positive, and large, main effects for pragmatic, semantic, and morphological development for young children who are beginning communicators resulted from aided augmentative and alternative communication (AAC) modeling-based intervention”.

If a child’s communication device is only modeled during therapy, it will be a very slow process. Children need to hear thousands of words per day to develop their language, listening, vocabulary, memory, and speaking skills.

DEVELOPMENT OF MATERIALS

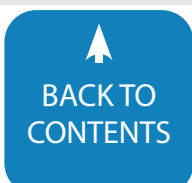
When initially developing materials, we focused on hard copies for each classroom that we were targeting. Each classroom received the following materials:

- Word of the Week Marquee, an 8.5 x11 display card for our 3x3 core symbols
- Individual 3x3 laminated symbols to be displayed on the marquee
- Light up word box
- Large classroom core board with removable symbols
 - With PVC stand
- Individual laminated core boards
- Word wall core words (no pictures)
- Weekly Activity sheets in a laminated pocket

Our weekly activity sheets were developed as an easy reference guide for classroom staff or anyone entering the classroom to see how to use the core words of the week. It also contained activities for easy implementation. The weekly activity sheets contained the following areas:



Classroom Marquee and Word Box were used to display the weekly core words



CORE WORDS OF THE WEEK



READING

Raz+ Readers

Daily Opportunities for Communication

| | |
|-----------------------|--|
| Arrival | Look who's here!, Who is that? Who has on ___ today? |
| Morning Group | Turn it on, Your turn, My turn Who feels...?, Who is...? |
| Snack/lunch | Who wants...?, Who has...?, Who made your lunch? Who can help...? Turn around. Turn towards... Turn it on. |
| Rec/Leisure | Who's turn is it? My turn, Your turn |
| Music/Movement | Turn it on, Turn it up, Turn it off Who wants a turn?... Who wants to choose? |
| Math | Who knows the answer? Who needs help? Turn the page |

| | |
|---|---|
| Fall Level C, fiction | Taking Turns Level C, fiction |
| Who...Who...Who? Level C, fiction | Who Needs Rain? Level F, fiction |
| Fall Forward, Spring Back Level P, fiction | Who Likes Lemonade? Level Q, fiction |

Supplemental Stories

| | |
|---|--|
| Who sank the Boat , by Pamela Allen | When Frank Was Four , by Alison Lester |
| Blue Chameleon , by Emily Gravett | The Very Hungry Caterpillar , by Eric Carle |
| Who's In The Shed? , By Benda Parkes | |

WRITING

Sentence Starters:

| |
|--------------------------------------|
| Who do you live with? I live with... |
| I can turn... |
| Turn the ___ on/off. |
| Who can.../Who likes...? |

VIDEOS

| Core Word | Video |
|-----------|--|
| Who | Who took the Cookie? |
| Turn | Turn Around |
| Turn | Jump, Squat, Turn Around, GoNoodle |
| Turn | Turn Zumba- GoNoodle |

- Daily opportunities for core words (arrival, morning group, snack/lunch, math, etc.)
 - Example phrases or sentences that staff could model during each activity.
- Sentence starters
 - To use with predictable writing charts or answer question prompts.
- Listing of Raz+ books with active links for easy access
- Supplemental reading list.
- Videos targeting core vocabulary, with active links for easy access.

During the implementation of our Core program, we realized we needed more no-prep activities for teachers to use with their students. Initially, we purchased 30 core worksheets from Teach Love Autism on TeachersPayTeachers. We then created 30 additional worksheets to target all of the words on our core board.



Large Core Board On Stand for classroom use by the teachers and students. Teacher were able to pull off large symbols to show to students

Weekly Core Word Handout was used to provide staff with stories, videos and activities that emphasized the weekly core words



Individual laminated core board that students

These worksheets focused on learning the core words through a variety of methods; writing, identifying, matching or cutting and pasting symbols of the words.

When thrust into remote learning during the pandemic, we realized that we needed to digitize our materials to share via remote instruction. We adapted our Daily Core Worksheets into



Go Digital!

- Digital Marquee
 - Sentences starters
 - Picture describing
 - Sentence scrambles
 - Adding punctuation to sentences



We will go _____.

• Click to add text



Use the word, "stop" to make a sentence about the picture.

Reorder the words to make a sentence



ride going a They for are

Find the core word in this sentence.

Rules tell us when it is time to go.

Add punctuation to this sentence.

when you go home ask your parents
what your house rule are

SymbolStix
PRIME

Digital Marquee and Sentence Starter. This was used during remote instruction for core vocabulary lessons

a digital format using Google Slides. Our digital worksheets allowed teachers or students to work on core word identification tasks by manipulating symbols or shapes on a shared screen. We created additional digital materials using Google Slides. Using these materials, the teacher or student could manipulate letters to spell or type core words and practice reading them.

Finally, we adapted and expanded on our Digital Marquee using Google Slides. In addition to providing our teachers with a tool to continue to display our weekly core words, we expanded the marquee to provide additional online activities to be used during remote instruction. Our digital marquees contained the following slides:

- Core Words of the Week display
- Sentence Starters (copied from weekly activity sheet)
- Picture scenes- describe the scene using the core word
- Sentence scrambles- rearrange the words into a sentence
- Punctuation and grammar- fix the sentences

SPELLING AND SENTENCE WRITING COMPONENT

We were continually looking for ways to expand use of core vocabulary throughout our classrooms' instruction. We had already created several worksheets focusing on the identification of the core words, digitized our materials for remote instruction, and expanded our activities targeting expressive language development. The next logical step was to expand our core vocabulary into spelling and writing instruction. Spelling sheets

that corresponded to the weekly core words were created. Each sheet required the student to spell out the core word, complete a cloze sentence with the core word and then construct their own sentence using the core word. In addition, handouts were developed for the students to assist them in checking their sentences for punctuation, spacing, capitalization, and creating a complete idea. We decided to pilot our spelling activity in our middle school ALSP classroom.

Throughout the course of the spring semester the classroom team, which included the classroom teacher, speech pathologist and assistive technology consultant, met to discuss implementation and revision of the process. Application for our spelling lessons transformed into the following procedure:

- Monday: After the core words for the week were introduced, one word was selected for spelling. Students would complete the spelling worksheet and create a sentence using the sentence editing worksheet. As an extension activity students would present their sentence to the classroom. To continue the sentence writing instruction the teacher would write sentences on a write board in front of the classroom with errors. Students were called up to the board to make corrections.
- Tuesday: The teacher would use the digital Marquee and Sentence Starter for the selected core word to work on sentence formulation activities. Students would practice the spelling of the core word and again write sentences to pres-



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ent to the class.

- Wednesday: The second core word would be selected for spelling. Students would complete the spelling and sentence worksheet and follow Monday's instruction routine.
- Thursday: The Digital Marquee and Sentence Starter was used for the second core word.
- Friday: This was a free choice day. Students were allowed to select the core word they wanted to use in a sentence. Students had the opportunity to present their sentences to the class and work on grammar and spelling as a group.

As the process developed over the semester the classroom team realized that the students struggled with other components of sentence writing. Areas of weakness included distinguishing between a question and a sentence, when it was appropriate to capitalize a word and creating sentences that did not begin with the word "I". These elements of sentence writing were integrated into the spelling/writing lesson as the year progressed.

One of the challenges in integrating spelling into our middle school classroom was differentiating our materials and methods. We had students with varying levels of communicative, physical, and cognitive abilities in this class. In an effort to make sure all students were able to participate in our spelling and writing instruction we needed to make sure we had an accessible means for them to participate. Our spelling sheets were modified so students would be able to match letters to spell words, low and high tech communication supports were used for student to construct and verbally present their sentence to the class, stu-

dents used symbols from the enlarged core word board to formulate sentences in addition to relying on the symbols to help with spelling words other than core words.

IMPLEMENTATION AND DIFFERENTIATION AT VARIOUS GRADE LEVELS

When implementing our Core project we realized the need for differentiated materials and activities across ages and programs. We provided differentiated materials through our Weekly Activities sheet. We added varying levels of Raz+ and supplemental books. We also added various videos from preschool songs, GoNoodle and YouTube videos to target different age levels. Our purchased worksheets from Teach Love Autism on TeachersPayTeachers, had varying levels for students to work on core symbol or word recognition depending on the student's ability. The following activities were implemented in our classrooms through the SLP or the classroom teachers.

EARLY CHILDHOOD

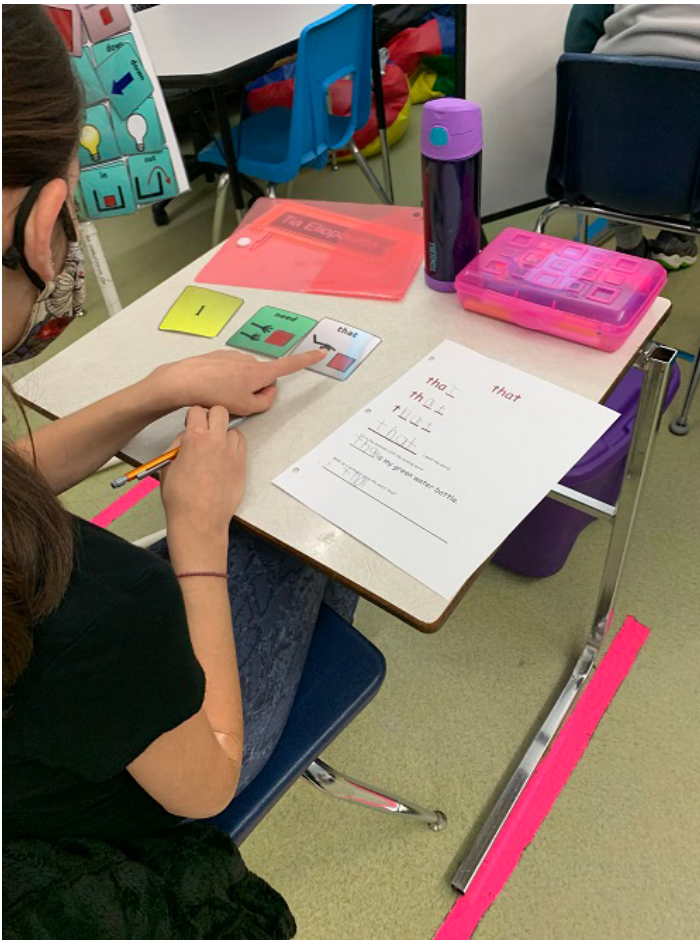
In the early childhood classroom, the SLP conducts a 15 minute classroom group instruction at the beginning of the week



Spelling and Writing with large core board- Students use the words form the large core board to construct sentences using



Modified Core spelling activity- Students who were not able to use a traditional worksheet with a pencil were able to practice spelling core words by matching the letters



Modified Core spelling activity- Students who were not able to use a traditional worksheet with a pencil were able to practice spelling core words by matching the letters



Large core board instruction in Early Childhood- Teacher and students are using the core words as they read a story



Preschool Student Using large core board- the student is tapping on core words while singing a song

to showcase some of the resources listed on the weekly activity sheet provided to the teachers. The classroom group instruction is an excellent way to model language to the students and staff using the core words of the week. Often, the book of the week is included in the group lesson in an effort to tie together core vocabulary to the established curriculum. In doing so, the teacher and paraprofessionals are more likely to model language on the core vocabulary boards during shared reading experiences.

In some cases, a simplified version of our core vocabulary board was used when students have had little to no exposure to alternative and augmentative communication. Working with the classroom teacher, vocabulary from our original core vocabulary board was selected in order to gain buy-in from the student. In some cases, only 12 to 20 icons are selected. Once the student becomes familiar with the icon set, the icons are added to a simplified version of our core vocabulary board to reinforce the motor plan for the full core vocabulary board.

ELEMENTARY

We have used a number of different models of implementation at the Elementary level, differentiating based on student abilities. This differentiation means that some students have focused on a limited number of core tactile symbols and related objects; other students have used core vocabulary symbols in a limited array; some have used a full set of core vocabulary symbols; and others used printed core word cards. The core words of the week are posted and introduced by the classroom teacher during calendar time on Monday. On a weekly basis, the speech-language pathologist ensures that the classroom staff all know how to locate the targeted vocabulary on student's communication devices and the core board. Classroom teachers have formed a word wall of printed core words. Many students have responded well to the introduction of the core words through use of song videos, photographs, and digital sentence starters. The SLP has integrated into reading groups using books found on the Reading A-Z website. These books contain the weekly core vocabulary and worksheets were completed using these words. In addition, weekly language groups often incorporate use of the weekly core vocabulary words. For example, a story sequencing and retelling group based on the book, "Alexander and the Terrible, Horrible, No Good, Very Bad Day" by Judith Viorst was used when "bad" was a core word of the week. Use of on-line spinners, and Google Slides has allowed for easier blending when working with both remote and in-person students. We have recently started learning about different types of words. The core vocabulary words are then put into pronouns, verbs/action, adjectives/descriptive, question, and preposition groups. The goal at this level is often to find ways to incorporate the core vocabulary into sentence building and writing.

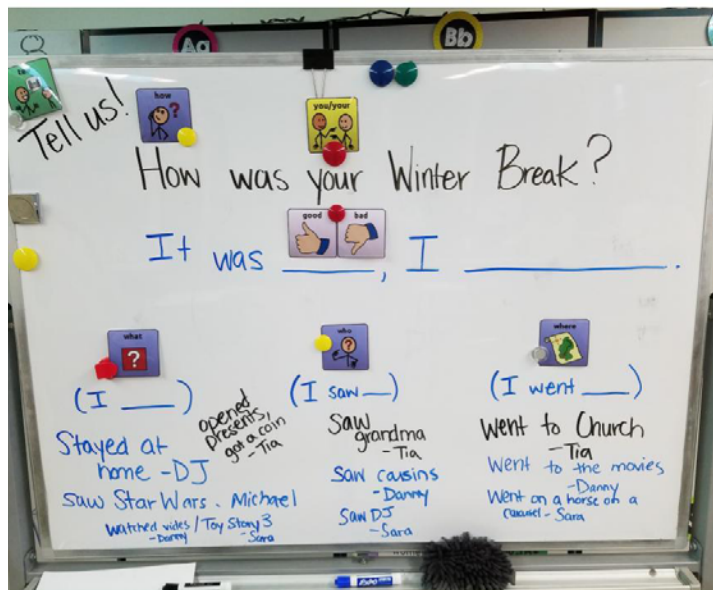
MIDDLE SCHOOL

Middle school implementation of our core instruction targeted the following activities on a daily basis

- Question of the Day: a question of the day was presented on the classroom board using one of the core words. Students then participated in a social communication group where they would greet a peer, ask the question of the day and make a comment or form a follow up question.
- Spelling Worksheets and Activities
- Digital Marquee GoogleSlide activities
- Core Worksheets from Teach Love Autism and the worksheets we created



Student using a lap core vocabulary board



Question of the day with core symbols- Students would answer a teacher posted "Question of the Day" with core symbol support

CHALLENGES ALONG THE WAY

The process of implementing our core vocabulary curriculum has not been seamless and we encountered our share of trials and tribulations along the way. One of the biggest take-aways was discovering implementation and use of the curriculum does not happen overnight or even at the end of a school year. Persistence with training and implementation throughout the school year was vital. In most programs, it took 2-3 years of language modeling by the classroom SLP for a teacher and/or

paraprofessional to incorporate core vocabulary into their daily instruction.

When implementing the core vocabulary curriculum, it was initially viewed as “extra work” to teachers and paraprofessionals. They did not view the curriculum as an opportunity to enrich learning and increase exposure to academic vocabulary. Another challenge was consistency with teachers printing and displaying the weekly activity sheets and updating the weekly display marquee. There was more consistency if the teacher or SLP designated a paraprofessional or student helper to ensure this was completed each week.

In some cases, previous experience with a mastery approach to core vocabulary had formed negative, preconceived ideas regarding core vocabulary implementation and use. In these circumstances, the classroom SLP repeatedly demonstrating an exposure approach to core vocabulary was vital in debunking those predetermined ideas.

In the early years of implementing the core vocabulary curriculum, teachers and paraprofessionals struggled to pinpoint opportunities to model core vocabulary during instruction and teachable moments. Also, teachers and paraprofessionals voiced a reluctance to model core vocabulary due to a lack of familiarity and automaticity of icon location. Our team explained it was okay for the students to see the adults touch the wrong icon and self correct or to watch adults take a few extra moments to locate an icon because, just like the students, the adults are learning a new “language” as well.

Across our programs, it was encouraged to make a daily goal with regards to language modeling on our core vocabulary board. It was suggested each teacher and paraprofessional choose one or two words on the board to model during a 10-15 minute lesson. We also encouraged modeling one word every 30-60 seconds to increase familiarity with icon location and comfort level of language modeling during instruction and teachable moments.

SUCCESSSES

Taking on a core vocabulary initiative comes with a lot of trial and error, successes and challenges. At this time our group does not have documented data to verify our success. The progress we've seen over the years can, however, be summarized anecdotally.

Our team and staff have observed a variety of improvements, including

- Carryover of core vocabulary instruction which resulted in an increase in communication device use by students.
- Our younger students embraced the use of our individualized laminated core vocabulary boards in a variety of classroom activities.
- The use of core vocabulary boards was observed to help students regulate their emotions.
- Students were observed using different language forms

when a core board was present even as a visual referent.

- An increase in use of the digital core vocabulary materials during the Pandemic.
- Our administration consistently supported our efforts by providing compensated summer work time used for the review and improvement of our process and the development of new classroom materials.

We have already started to map out our plans for the coming school year. We hope to enhance our materials, improve our staff training and target written expression, stay tuned.

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After the extended disruption from Covid, it is essential to find effective ways to re-engage students in learning and make the most of the federal relief funding. In this session, we will explore how Clicker can be used to address the social, emotional, and academic needs of learners of all abilities, including English learners and students with special needs.

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Learning Outcomes – as a result of this activity, participants will be able to:

1. Identify three ways that Clicker can re-engage learners.
2. Recognize two or more target groups who will benefit from Clicker's support features.
3. Describe three ways that Clicker can support post-Covid recovery.



Gateway and Mind Express: The Power of Two

By Joan Bruno and Fio Quinn

Wednesday, September 22, 2021

2:00 pm – 3:00 pm (Central Daylight Time)

0.1 IACET CEUs and/or Certificate of Attendance Included

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Gateway to Language and Learning is an efficiently organized core word AAC App designed from a developmental language perspective. Mind Express is a flexible and versatile software designed for individuals with significant communication impairments. It can be used for everyday communication and as a therapeutic and educational tool. When combined, the Mind Express software with the Gateway App offers children a powerful tool to become effective communicators and to actively participate in educational and leisure activities. Mind Express with Gateway offers competent communicators a highly efficient communication software with advanced features supporting e-mailing, texting, calling and access to a full range of social media outlets.

In this webinar, participants will learn about the origin of Gateway and will get an overview of the four Page Sets developed for Mind Express.

The presentation will highlight the main language-learning and efficiency components of the Gateway App and the Mind Express key features that have been integrated into these page sets to support many advanced reading, writing, and academic tasks..

Learning Outcomes – as a result of this activity, participants will be able to:

1. Identify requisite receptive and expressive language abilities for using the Gateway app.
2. Select which page set level is appropriate for a targeted student.
3. Determine if Mind Express is the most appropriate AAC application for a specific learner.

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Activities That Put the FUN in AAC Learning: Part 3

By Lauren S. Enders

In Part 3 of the Activities that Put the Fun in AAC Learning Series, attendees will explore a variety of time-saving ready-made, customizable AAC learning activities (Google Slides, PowerPoint, Boom Cards, apps, and websites). Downloadable activities were selected to reduce the labor-intensive activity creation steps while still allowing activities to be tweaked and customized to follow a student's lead.

Selected activities are fun and reusable, versatile, can be used during in-person or virtual instruction, can be used on a variety of devices, can be used with students of varying ages, and are free or relatively inexpensive. Attendees will leave with a digital resource that provides links to all of the activities and resources shared in the webinar!

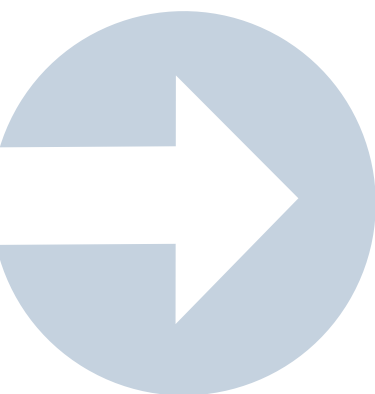


Accessibility and ReadSpeaker: A Voice for All Learners!

By Ginger Dewey and Kathy Wood

One click of the Listen button can open the world to ALL learners. Are you utilizing the power of accessibility tools to ENGAGE all of your students? Join us to see how you can incorporate accessibility tools that reach all students and not just the ones with disabilities. Text to Speech is proven to increase comprehension and depth of learning, boost motivation and self-esteem, reduce screen fatigue and improve learning results.

ReadSpeaker has developed easy to implement, cost-effective solutions to allow educational institutions to integrate text to speech quickly and easily, promoting engagement, increasing comprehension and depth of learning. It also has been proven to boost motivation and self-esteem, aid with assessments, reduce screen fatigue and improve learning results. Some of the UDL tools ReadSpeaker offers include page masking, enlarged text, a reading ruler, and synchronized highlighting. Also offered is a text mode with a customizable background color, font and font size, highlighting for study notes, dictation and proof-listening capabilities.



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The Missing Piece is You

Summary:

In this article from research and treatment trio “The Talker Team,” the importance of building relationships with the families and caregivers of complex communicators will be explored. This relationship is an integral part of successful intervention and requires understanding of interaction beyond the end-user of the SGD. Readers will learn about building alliances and trust with families in order to optimize outcomes.



M. CLAIRE CAMPBELL, M.A., CCC-SLP, ATP, is a licensed speech-language pathologist with over a decade of practice in the pediatric sector. In addition to the ASHA Certificate of Clinical Competence and RESNA Assistive Technology Professional certification, Claire is a LAMP certified provider through the Center for AAC and Autism. Her daily practice is focused on children with a variety of diagnoses using AAC devices, with a particular interest in alternate access technologies. In addition, she is the liaison to the Movement Disorders and multidisciplinary Angelman Syndrome Clinics at Vanderbilt Children’s Hospital and is the U.S. lead for the ISAAC BUILD mentorship project. Claire is a firm believer that every child has potential to communicate and that family support is an integral part of the therapy process.



HEIDI HOSICK, M.S., CCC-A/SLP, is a speech language pathologist and audiologist with over 30 years’ experience practicing in the field of developmental disabilities. She is the Founder and CEO of Independent Therapy Network LLC and Partners In Communication providing PT, OT, SLP, AT, and RD services to individuals in their home and community as well as a Director of Team Autism Memphis; a specialty practice with an emphasis on sensory processing disorders, feeding, AAC and ASD. She teaches and implements “Say More Talk Less”, an approach to engage individuals with autism. Her treatment emphasis is always on the whole child and family incorporating her specialty training in LAMP, Pediatric Autism Communication Therapy (PACT), SPD Proficiency Level 1, PROMPT, Hanen, IM, and DIR/Floortime approaches.



MALLORY RECORD, M.S., CCC-SLP, attended Union University where she received a B.S. in Sports Medicine, minoring in Spanish. She graduated from the University of Montevallo with a M.S. in Speech-Language Pathology. Mallory’s professional energy is focused on autism, augmentative alternative communication (AAC), and early language development. She’s Hanen certified in the “More Than Words” program and previously participated in a DIR Floortime mentorship program through the Profectum Foundation. Outside of the office, Mallory enjoys gardening and yoga.

“He won’t use the device.”

“All she does is play on it.”

“I don’t really know, school uses it.”

Does it ever feel like something is just missing from your intervention with individuals who use AAC? Families come to speech evaluations and therapy sessions and place their children (and sometimes adults with complex needs) in our hands as the “expert.” It’s true—we have gone to hours of continuing education and learned how to program new words while blowing bubbles and singing the wheels on the bus as if we had six hands. But here’s another truth—we, the SLPs, are not the experts in these communicators; the caregivers are.

We are specialists that bring a wealth of knowledge to the table and can jumpstart language, but the missing piece is often the daily communication partner. To have truly successful AAC intervention, we must look beyond the patient/student and to the big picture. After all, carryover of communication across environments is our primary goal. Without caregiver buy-in and participation, that is impossible.

So how do you get the whole team to buy into this idea? You must empower the communication partners. Champion mom that she knows her kid the best and use that knowledge to figure out what is motivating for both her and the child. Listen to the paraprofessional who can read every non-verbal movement and brainstorm how to transform that into globally effective communication. While you are not stepping away from treating the device user directly, you are pulling in others to actively engage, becoming the guide to help them along the path to functional communication.

Particularly for pediatric specialists, this raises an important question. How in the world do I teach and engage adult learners? As SLPs, we were not trained to understand or “educate” a typical adult learner. An adult learner often has vastly different motivations and expectations than the traditional patients we see. As we explore coaching communication partners for interactions with an individual using AAC, it is critical we also understand the communication partner’s profile.

That profile includes several equally important things: how does the communication partner best learn? What is their motivation? What is their readiness to learn and enact change? What is their priority? What will help them be most effective in their job and their interactions?

To learn about these ideas and effectively engage adult learners, we have to look outside of our field. It is critical to remember that change starts with behavior not knowledge; change starts with grace not shame. Through learning from other professionals, including organizational behavior we have learned:

1. “What looks like a people problem is often a situation problem.
2. “What looks like laziness is often exhaustion.
3. “What looks like resistance is often a lack of clarity.”

(Heath and Heath, 2010)

As adult learners, we tend to focus on the problem and the excuses, rather than motivations and solutions. How do we shift from problem focused interactions to solution focused interactions with communication partners?

It is almost always easier to spout off on the problem than to sit down and think through solutions. Thinking through solutions is a reflective exercise, which is something in which many of us are not accustomed to participating. When we take a step back, many of the problems we as clinicians can identify as huge obstacles in our work seem miniscule in the big picture of a family’s life. When that happens, we are losing sight of the relational aspect of our work. All too often, —both clinicians and communication partners— people hold back from engaging out of fear of making a mistake or not performing up to par, since the value of the task is so often put ahead of the relationship.

That poses the question, how can we offer grace and eliminate the shame of not knowing enough, not doing enough, and not prioritizing what the expert “told us to do?” Think about a time in your professional career when you felt lost or like you were not living up to the standards of your professor/boss/co-worker. Now, imagine that instead of it just being your job at stake, it is the life and growth of one of the people you love most.

Additionally, how do we offer feedback without judgment? What will resonate most with families? One of the authors likes to lay everything out on the table when starting therapy with a new family. “I’m going to ask you how things went at home each week. It’s not a trick question. There’s no judgment—if it went great, we want to build on it. If it went terribly, we want to figure out how to change things up.” Engaging in a dialogue about the highs and lows for each week is an effective strategy to help build the communication partner’s profile and identify priorities.

Despite our best intentions, we too will mess up with these interactions and have to allow ourselves grace to grow as therapists and coaches. It is very powerful to admit and show families that we don’t always have the answer—but we are trying—in order to build trusting relationships.

Anytime we are working to exact change, two independent systems are at work. We have the emotional side of the brain—the side that is instinctive, feeling pain, and experiencing pleasure. We also have the rational side of the brain—the side that deliberates and analyzes. Both systems must be taken into consideration when coaching and determining communication



partners' profiles, as there is no way for our human brains to shut off one side or the other.

In order to help ourselves and those we are working with understand the relationships between these two sides of the brain and results, we encourage engaging in a process called reflection. Reflection allows for open, honest communication, without the fear of judgment, to process what is happening in a situation. It can be to assess outcomes, determine triggers, or increase awareness. Supporting reflection during coaching interactions allows us to continue to define the communication partner's learning profile and experiences, often revealing things they were unaware of at a conscious level.

Unfortunately, knowing that we need to build relationships with caregivers too is only the start! Hang in there while we continue to introduce information beyond the field of speech and hearing sciences. Next up is looking at a situation through a cognitive behavioral therapy (CBT) approach. "CBT treatment usually involves efforts to change thinking patterns...(and) also usually involves efforts to change behavioral patterns. (American Psychological Association, 2017)"

A key feature of CBT that is necessary for forward motion in AAC therapy is a conscious decision to act. James Baldwin states in his unfinished manuscript *Remember this House*, "Not everything that is faced can be changed, but nothing can be changed until it is faced (LePerla, 2021)." Sometimes, we must wait until our families are ready to face the depth of the needs of their complex communicators as it relates to our interventions.

Caregivers are always not ready for the work that is needed to make their communicator achieve the most success. That does not make them bad parents or caregivers (shame)--it makes them human (grace). As the guide in this process, we can build that relationship through acceptance and humility while trying to reach the point where the work can be done. This requires trust and mutual respect in the relationship.

Multiple research studies have found empirical evidence regarding the importance of the relationship between a therapist and patient and show that the strength of that relationship is tied to perceived quality of the experience (Leahy, 2008). Leahy goes on to call this relationship an "alliance" between therapist and patient (or in this case the communication partner). Think about that word "alliance." How many of our families, exhausted by countless medical and therapy appointments, are truly looking for an ally to walk the journey with them and help their loved one?

When reflecting on the real relationships in our lives, we recognize that true relationships are made up of mutual respect, connection, conversation, acceptance, and empathy to name a few (Future Learn). Everything begins to fall into place when we take the stance of connection over instruction.

Once this relationship starts to form and we sense a family is ready to make that conscious decision, true change can follow. To capitalize on this, we need to answer at least two of the

questions posed out above: 1) What is the learning style of the communication partner? 2) What is their readiness to learn?

Let's start with learning style. Have you ever gotten stuck trying to instruct a friend or family member on how to do something your way because that is not how the other person learns? We as a research team sure have! There are a few different resources out there for determining one's learning style--we will look at those introduced in the VARK: visual, aural, read/write, and kinesthetic (VARK).

While many people are multimodal learners--meaning they benefit from multiple input types--most individuals have a primary style for learning new information. Claire is a kinesthetic learner and would rather take something apart and reassemble it or just try to put hands on than read a manual or listen to auditory directions. Her mother however, is a visual learner. Even something as simple as instructing a recipe can be hard for the two if they are each relying only on their primary method of learning to instruct the other.

For this reason, it can be useful to talk to caregivers about how they learn best. Do they want to be shown? Try it out themselves? Read about it first? If we only present information in the way we most benefit, we are starting many learners at a disadvantage before we even try to begin coaching. Flexibility is required on the part of us, the specialists, to figure out how to present information in the way that the family member is most willing and ready to receive it.

As SLPs, we have an intimate understanding of language development and strategies for AAC implementation, but we cannot expect that to immediately become a part of the communication partner's learner profile. As trust is established, you are better able to gauge the adult learner's capacity for moving forward with the ideas you as the specialist want to introduce. By focusing on your relationship with the person rather than a preset agenda, you are able to foster a mutual respect and recognition of true needs.

That brings us to readiness to learn. Many people are familiar with the concept of readiness to participate as it relates to sensory integration and AAC therapy, but we also have to gauge the readiness of the communication partner to engage in the session or learning process. Sometimes, the primary communication partner is not ready at all to learn about this new piece of technology you've brought into their lives.

This doesn't mean they are lazy or uninterested in their child's therapy--it could mean 100 things. Maybe mom is working two jobs just to keep food on the table. Maybe the child has been recently diagnosed with a developmental or genetic disorder and is suddenly being told that five types of therapy weekly and countless doctor follow-ups are needed. Maybe the communication partner has had negative experiences in the past and is hesitant to build their hopes again.

All of these and many other reasons are completely valid--any reason a family has is valid! Our job as a coach is to figure out



where the family is, determine their current capacity to move forward and, one step at a time, support them, coach them towards their (and our) ultimate goal and presume competence in the ability to build communication that has “spontaneous and novel utterance generations (SNUG). (Hill & Romich, 2000)”.

In cultivating the relationship piece, we must strive to understand where families are coming from and meet them where they are at. We must take the time to get to know them as unique individuals (not just one more appointment to check off) and figure out where there might be an opening to begin building buy-in with the communication process. As tempting as it can be, you absolutely cannot rush families or make them feel judged for not being at 100% day one. An initial perception of judgment can close the door before it is even opened. Instead, honestly express your own weaknesses and mistakes so that they are normalized and seen as an acceptable part of the process.

If our goal is to meet families where they are, this must begin with a concerted effort to build a positive relationship with the family unit. When serving as SLPs, we may over invest in perfect planning, perfect “activities,” or even take pride in being an expert resource. Many SLPs are Type A after all!

However, we must learn to lay aside the pursuit of perfection for the pursuit of people. Pursue a strong relationship with your patient’s caregivers/family unit in addition to the patient-therapist relationship. Don’t discount the value of empowering siblings in addition to parents—not only does this help build whole family relationships, but it can allow the parent to focus on the child with complex needs without leaving out the sibling.

Prioritizing this connection with the communication partner(s) and understanding what drives them are equally as important as the connection with the device user. When we pursue the communication partner’s core motivations, the real work can begin. Our primary goals may differ, but we are on the same journey. Being able to tie in the communication partner’s authentic concerns and triumphs as a part of your holistic treatment approach is a key part of establishing trust.

While coaching families we give a lot of feedback—always trying to find positives to include with guidance for introducing change. Giving valuative feedback (ex. You did great! Today was a good session.) feels good in the moment; however, does not promote self-reflection and thus change.

How does telling someone “I liked how you did that” allow the partner to understand why what they did had a positive influence on the communication exchange in order to replicate it later?

Rather, consider the impact on an experience of providing a reflective feedback statement such as “it looked like he really understood when you modeled the word “go” while using his favorite truck.” This allows the communication partner to think about how their actions prompted a response from the communicator and empowers them to know that they can successfully

engage in meaningful communication with their AAC user.

It is much more motivating to be able to say, “Wow, I figured that out, and I can do it again!” than to hear you did a “good job.” Incorporating reflective feedback into your practice can in turn be a very powerful tool in guiding communication partners to begin observing and thinking about their interactions as a whole, not just a single outcome.

As these interactions gain momentum and the back-and-forth interactions become stronger, we begin to look for ways to problem solve together. We engage the communication partners to brainstorm alongside the SLP so that we can talk about challenges they experience at home, at school, and in the community in order to look for solutions together. Rather than “assigning” homework, the work is in the daily interactions and the reflection of what worked—and just as importantly, what didn’t. Some weeks, the communication partner’s capacity may be minimal and they may complain that nothing productive was accomplished. In talking through challenges, we peel back the layers, exploring what was done, and always try to find a moment—no matter how small—to celebrate.

One powerful strategy that can guide reflective practices involves videotaping sessions. Videotaping an interaction and watching it afterwards allows us to see where we missed non-verbal cues, jumped in too fast, derailed the interaction with inattentiveness. We can start with our own interactions with AAC users, first watching on our own then finding a mentor to reflect with together. When appropriate, it can also be very powerful to share our own reflections with families. While you do not want to devalue yourself as the specialist, how empowering is it for the parent to occasionally hear, “Oh my gosh! I cannot believe I missed how he was trying to show me that. Do you see what he did there?” In referencing our own missed opportunities, we begin to ease the fear of not being the perfect communication partner.

You might choose to watch the entire session or just small sections that went particularly well—or particularly poorly. You aren’t looking at it to judge the session as “good” or “bad” intervention, you are watching to see the interactions. By observing ourselves we begin to explore the idea of self-reflection in a comfortable non-judgemental manner—reflecting on what we missed, on what might have happened if we asked one more or one less question, or on what opportunities could be enhanced by altering sensory input. After all, how can we ask parents to reflect on their behavior if we are not willing to put ourselves in the uncomfortable potentially position of reflecting on our own behavior—and admitting when we fall short?

Observing our interactions allows us to observe potential changes to the intervention, which in turn opens us to wondering. It allows us to change our behaviors and ultimately begin to see just how powerful a tool self-reflection is. Once we are comfortable with self reflection, we are better able to help families reflect. Being honest and humble in your reflections takes



practice, so be kind to yourself!

Opening up the reflection process to include our communication partners allows them to see both opportunities for change and to celebrate the ways in which they are excelling in being exactly what their AAC user needs. Initially, we may need to guide a communication partner and provide significant support in the way of open ended questions while watching a video playback. Eventually, the goal is for the communication partner, with your skilled guidance, to be able to say, "I wonder if I should have given an additional prompt to see two words strung together"? A proud smile will be all that is needed for them to answer their own questions and you to realize that the missing piece of the puzzle has been found.

Finding that missing piece is integral in avoiding AAC abandonment--an all too common practice in our field.

While researching "device abandonment" for our research and for this article, the top results seem to place blame on the user. This is astonishing, and we think it's time for a paradigm shift!

These results paint a bleak picture:

1. "Abandonment, on the other hand, refers to situations in which clients accept AAC systems initially but later choose not to use them. This may occur despite their ongoing inability to use speech as a primary method of communication." (Johnson, 2008)
2. "AAC abandonment occurs when an individual decides to stop using their AAC device even when it is still needed and fully functional." (USSAAC, 2018)

In our personal experience, after years of practice and anecdotal data, it seems device abandonment more often occurs when the user is the sole focus of treatment and the communication partners have not received adequate--and ongoing--support. The themes of relationship and reflection are necessary to bind the communication partner to the communication journey.

Establishing this relationship with the communication partner and learning to be attuned to their needs and not just those of the end-user can empower the caregiver. Building this empowerment to guide them from where they are now to where you know they can be is a far better strategy than only treating the device user, crossing your fingers, and hoping for the best.

Too often, we allow a box full of confusing information and an alien machine to arrive at the family's home and expect them to immediately jump into figuring out the AAC device. Remember what setting up your first device felt like and then imagine how overwhelming it must be to the parent if they have zero understanding of how to approach using their child's new device. In these situations, overwhelmed people shut down. However, empowered people soar.

Finally, we must address the elephant in every speech room: reporting progress. In doing so, we must consider how success is being measured. Depending on the setting in which you work,

there may be IEP goals, core standards, or insurance data points that must be met, but so much of building a functional communicator goes beyond the hard data points.

Which is a more successful outcome: the user can label every vocabulary term from this quarter's academic glossary or the user is requesting and directing with a small set of highly motivating icons while playing with mom and peers?

When we work from a relational model, we are not drilling a set of specific goals, but rather investing in the individual and their care team in order to make gains meaningful to the user and those with whom they regularly communicate. The specific data, number of words used, or times the device is activated falls secondary to the ways that the user and family learn to use functional communication at home and in the community. We may need to collect some of this information for documentation, but we cannot allow it to be our primary driver.

One example from our work is a six-year-old with a rare genetic disorder using a high-tech SGD with a small set of icons. His first experience with using an AAC device was being drilled to label colors. Mom openly admitted that the device never left the school bag. One day in therapy, he noticed a book that had been left on the table and immediately beelined to it.

In talking to mom, it turns out this child loves to read books--though as a clinician the assumption would have been he was too busy running around to listen to one. Immediately, the clinician and mom sat down to make a reading page and within a few weeks, he was purposefully using these phrases to read with mom and dad with improved joint attention and focus. He was trying to use core words with his reading. He was generalizing some of these skills to new environments.

He still doesn't label colors, but he is now using his device regularly at home and recently began using it with peers. Mom is thrilled with his progress and educating family members on how he communicates. It all stemmed from listening to the family and following the lead of the child and parent. Isn't that more important than labeling an apple as red?

So where do you go from here? The two biggest things you can do to increase success of AAC therapy are to engage in reflection and build a relationship. Remember that the reflection piece is for everyone--you will have missteps yourself and that is COMPLETELY fine--remember grace. Be flexible in your thinking and look at the big picture--not just the individual words or targets. Consider learning more about coaching to change the way you interact with families, be open to possibilities, wonder, think outside the box...be ready to soar!

And lastly, remember, the puzzle only forms when all the pieces connect.



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Monitoring Emergent Literacy Progress Using Authentic Data Collection



KATIE PITTMAN is a Speech and Language Pathologist with 15 years experience. She has worked in both Wyoming and Colorado with students of all ages and needs. She has spent the last 11 years in Lakewood working with students with significant multiple disabilities. She enjoys working side by side with teachers and supporting authentic student learning.



ANDREA CASSO received her Masters degree in Special Education in Melbourne, Australia where she then worked as a special education teacher for 5 years. She has since worked in Colorado as both a special education teacher, and now an instructional coach, helping complex students access curriculum and supporting teachers to provide high quality instruction.



SARAH DAVIDSON received her Masters degree in Special Education in Melbourne, Australia where she then worked as a special education teacher for 5 years. She has since worked in Colorado as both a special education teacher, and now an instructional coach, helping complex students access curriculum and supporting teachers to provide high quality instruction.



JOSH WICKLER has his Masters in Special Education, and has focused the majority of his teaching career working with secondary and transition aged students with multiple disabilities, including those with high behavioral needs. In recent years he has transitioned into an administrative role to continue to support and advocate for these unique students and the staff working with them.



NICKIE WOODS has been an educator for 16 years and currently serves as an instructional coach at a school for students with significant multiple disabilities in Lakewood, CO. Nickie's passion lies in helping these students to build foundational literacy skills through engaging and functional classroom routines, lessons, and experiences. Nickie holds a Masters degree in Special Education.

INTRODUCTION:

Many students with significant disabilities are emerging in their understanding and use of print in order to read, write, and communicate. These students are those that have a diagnosis commonly associated with a severe to profound intellectual disability that may have accompanying sensory impairments, physical limitations, and complex communication needs. The American Association of Intellectual and Developmental Disabilities (2009) continues to characterize these students as having "significant limitations both in intellectual functioning and adaptive behavior as expressed in conceptual, social, and practical adaptive skills" that originate before the age of 18. Despite the nature of these challenges, literature suggests that high quality comprehensive literacy instruction has led to positive outcomes for students with significant disabilities and these positive outcomes can be life changing (Erickson, 2017.) With early conventional literacy skills, individuals with significant support needs can communicate in novel ways and access their communities with more independence.

Comprehensive literacy consists of the following areas: phonemic awareness, phonics, vocabulary, fluency, and text comprehension (National Reading Panel (NRP; NICHD, 2000.) For students with significant disabilities, comprehensive literacy instruction additionally includes the components of speaking, reading, writing, and listening and those behaviors that proceed conventional reading and writing. An emergent literacy learner is most widely defined as an individual who is working towards understanding the functions of print and print conventions, phonological awareness, alphabet knowledge, and important receptive and expressive language skills such as vocabulary, syntax, and narrative skills (Erickson, 2000.) This student is also working towards modified state curricular standards. For the purposes of this article, the student with "significant disabilities" will be referred to as the "emergent literacy learner."

Successful instruction for the emergent literacy learner must be comprehensive, data driven, and consistent in providing individualized classroom accommodations. In order to develop and guide high quality literacy instruction for the emergent learner, the process for collecting quality data is fundamental. Just like in the general education classroom, data should inform modifications to instructional practices and materials as well as the environment to assure emergent learners can access literacy as successfully and independently as possible. However, when educators need to account for the language, cognitive, communication, physical, and sensory challenges (e.g. vision, hearing, tactile deficits) of the emergent literacy learner, accurate and quality data can be difficult to capture. This creates the need for innovative and authentic data collection and progress monitoring tools. Authentic data collection suggests that educators build a body of evidence through numerous methods such as videotaping, anecdotal notes, work samples, and pictures. In the world of emergent literacy, where students are consistently

inconsistent, a body of evidence will show changes over time and capture the sometimes incremental, yet significant progress made by our most complex learners. Data driven and comprehensive instructional decision making provides emergent learners with the education opportunities they need and deserve.

It is important to note that the educator and classroom team's understanding of their roles and responsibilities within the emergent literacy environment significantly affects student performance and, therefore, data collection. In order for data to be accurate, the adult is responsible for implementing assistive technology and strategies for making the learning environment most accessible, predictable, and supportive. Assistive technology (AT), as defined by the Individuals with Disabilities Education Act (2004), consists of "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities." The law also defines AT services as "any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device." The vast majority of emergent literacy learners are unable to access literacy without some form of AT. Simple forms of AT for these students most commonly address sensory, physical, and communication needs. If such accommodations and assistive technology are not consistently provided, corresponding data will be irrelevant. Accurate progress monitoring and data collection must account for adult behaviors and responsibilities when setting up an environment that is most successful for learning.

"Environmental accommodations and assistive technology can be used to circumvent the challenges imposed by multiple disabilities including sensory, physical and complex communication needs" as stated by Boone and Higgins (2007), However, accommodations need to be consistently in place in order to support instruction and student performance. This is particularly critical in the education of emergent learners with physical, sensory, and communication challenges who are in need of intensive instructional support, especially in the areas of reading and writing. Literacy instruction grounded in accurate data will lead to individualized and comprehensive planning and goal setting for the emergent learner. As students move among the phases of emergent literacy on the path towards conventional literacy, instructional design will change from initial exposure and exploration of literacy towards strategies for eliciting novel student responses connected to each student's unique experience.

COMPREHENSIVE EMERGENT LITERACY INSTRUCTION:

According to the Center for Literacy and Disabilities Studies, comprehensive emergent literacy instruction for students with significant disabilities includes the following domains: shared reading, shared writing, alphabet/phonological awareness, independent reading, independent writing, and communication.



Emergent literacy instruction is for those students whose performance in reading and writing is consistently inconsistent and are not yet using language to learn and actively participate in their instruction time. They may still be learning how to engage and sustain interaction and have difficulty coordinating their movements and filtering information through their senses. These students benefit from regular opportunities to experience and explore fun, personally relevant, and engaging literacy activities with great variety and repetition.(Sheldon, 2020).

In each domain of emergent literacy, students begin by observing models of language, reading, and writing and exploring materials. During independent writing, the emergent writer may scribble with a pencil, mouthe the crayon, or bang on a keyboard. During shared reading, the emergent reader may still her body to show joint attention while listening to a story. This same reader may mouthe or tear pages of a book during independent reading. It should be noted that these behaviors follow the same developmental trend of neuro-typical peers, yet are often not accounted for in the school setting as they are learned incidentally before the child begins school. The goal of high-quality, emergent literacy instruction is to provide explicit, guided opportunities that allow for the scaffolded learning of foundational literacy skills much like those that were explored naturally and incidentally by their neuro-typical peers. Opportunities to practice foundational literacy skills are repetitious and offered using a variety of materials.

In this foundational phase of emergent literacy learning, the educator's role is to expose and encourage exploration, activate background knowledge, model language on communication devices, demonstrate the use of materials, and invite students to respond in their own way (Sheldon, 2020.) As students progress through the emergent phase of literacy, they will begin to participate in familiar routines, show preferences for certain materials, and contribute a variety of responses. In response, educators will provide feedback and repetition to promote active and engaged student participation in all areas of emergent literacy. Student behavior and adult instruction can be clearly defined and guided through ongoing progress monitoring.

AUTHENTIC DATA COLLECTION

Educators are under a growing pressure to "prove" that students are learning and meeting educational outcomes as evidenced by hard numbers and quantitative student achievement and growth data. For students with significant disabilities, it is difficult to capture true progress through numbers or percentages over consistent trials. Instead, students should be allowed and expected to have good and bad days, moments of brilliance and struggle over an extended period of time. A one-time snapshot of an emergent literacy learner's performance will likely show an incomplete and inaccurate measure of growth and provides little information to guide instruction. When it comes to most progress monitoring measures, the emergent literacy learner

usually doesn't "fit", even on alternative assessments. This can be because their current literacy skills often don't fall within the measured testing parameters. Other times, the students' degree of physical, sensory, or communication needs do not allow them to access the assessment because of strict uniform testing administration protocols. Oftentimes, their rate of progress doesn't meet a determined criteria. Given the nature of their learning challenges, methods such as anecdotal note taking, videotaping, collecting work samples, and using performance rubrics can capture the small change in behaviors that evidence progress over time. It provides concrete data that, when compiled together to build a body of evidence or a more complete picture, describes what students can do and what skills they still need to acquire. In order for authentic data collection to be successful, educators must take the time to review the data and reflect on individual student strengths and needs (Roehrig 2008.) Having notes, videos, and samples that can be consistently revisited lead to greater collaboration to guide instruction among itinerant support staff or paraeducators. Insights gained from a thoughtful team review of collected data can assist teams in identifying assumptions and predictions about student data, analyzing student data to explore patterns of performance, and addressing the barriers to student progress by developing and implementing new and needed interventions to help students to overcome these hurdles (Lipton & Wellman, 2012). With practice, authentic data collection can become a natural, meaningful, and essential part of the instructional day.

ANECDOTAL NOTES

"Anecdotal records can be written about products or can include information about both process and product" (Rhodes and Nathenson-Mejia, 1992) A well-recorded anecdotal note should describe in detail a specific event, process, or product. It reports the facts rather than evaluate, infer, or interpret. The anecdotal note should relate material and other facts to what is already known about the student (Thorndike and Hagen, 1977.) Anecdotal notes can provide particular insight into how the student responds to instruction. The open-ended nature of anecdotal notes allow educators to determine what details are most important given the situation and what is known about the student's reading and writing abilities (Rhodes and Nathenson-Mejia, 1992.) Using a targeted performance rubric or observational guide can provide a strong knowledge base for educators when collecting data in an anecdotal note. Knowing where the student is and where the student is heading provide the educator with "look fors" during their observation. Posting these guides or rubrics in the classrooms for teams to reference can improve the quality of the anecdotal note by helping staff to familiarize themselves with the individual look-fors for each student and thoughtfully tailor lessons and activities to model these skills for students. Understanding these look-fors also empowers staff to offer opportunities to students to practice these skills in a



guided and supported setting . Once an educator or classroom team sees the value in anecdotal note taking, it can be naturally embedded into the daily routine. Classroom teams may have a rotating list of students to observe and record daily. Specific literacy lessons, depending on the activity or skills targeted, may be especially pertinent to the look-fors of certain students. Those specific times, therefore, may be targeted as data-collection times for certain students in the classroom. Optimally, progress monitoring occurs for every student once to twice a week in each of the following literacy domains: shared reading, shared writing, alphabet/phonological awareness, independent reading, independent writing, and communication. Taken daily or weekly, anecdotal notes can not only guide instruction but can tell a story of an individual student’s journey towards becoming a reader and writer. What better way to share data with a parent or caregiver than by telling a story?

Anecdotal notes not only provide insight into student behavior but they also provide feedback on an educator’s instruction. Continual reflection on anecdotal notes can help with instructional decision-making and provide educators with opportunity to self-evaluate. Anecdotal notes often lead to further questions about student and adult behavior which can drive further assessment and data collection. Additionally, classroom teams can cross-compare the effectiveness of different instructional techniques to increase student success by sharing and comparing data. As educators bear witness to progress, it is likely they will become more invested in the process of reviewing and improving their instruction.

VIDEOTAPING

In the same regard as anecdotal notes, videotaping can serve as a permanent, observational record of student performance and response to instruction. It offers the same opportunities for educators to revisit and reflect on their own instruction. Videotaping allows for more genuine interaction between educators and students as educators do not have to pause to collect data in the moment. Uninterruptive data collection practices can build stronger bonds between educators and students as each feels more comfortable and instruction feels like a natural conversation. When reviewing a video file, educators often discover student skills or behaviors that were missed during real time interaction. For educators who do not have the additional support of a paraeducator or aide, they may choose to video an entire group of students during instruction and reflect on individual data at a later time. Videotaping may also prove effective towards teaming practices by allowing team members not present in the moment to review instruction and student responses to develop and adjust future additional accommodations and interventions to the instructional approach.

WORK SAMPLES

Work samples can be used in conjunction with a performance rubric or checklist as an authentic measure to determine next steps for instruction. In regards to literacy, an obvious data point is a student’s written work. Educators can use writing samples to analyze patterns of success and struggles. Comparing writing samples side by side can be a very strong measurement of growth over time. For an emergent writer, initial writing samples may be a string of repeating letters produced by holding a single key down on the keyboard or by continually activating a switch to select the same letter during partner-assisted scanning. From here, progress may be seen as the student begins to select a more varied array of letters or, perhaps, familiar letters such as the letters in her name. As she becomes more proficient in the process of writing and begins to associate letters with sounds, word-like patterns may appear in her writing. These samples, along with others along the way, can tell a compelling story of progress over time to those less-familiar with the students’ literacy journey. Often “seeing is believing”, especially when sharing data describing the most complex emergent literacy learners. Other work samples can include pictures. For example, a picture of a student’s message window on her AAC device during a shared reading can reveal developments in vocabulary or social functions. Also, a picture of a student eye gazing towards the reader can provide evidence of joint attention around a book. Pictures can provide visual data of individual student engagement where other data collection methods may not. Work samples are another authentic and meaningful measurement of student progress to be combined with other forms of data to build a body of evidence.



Figure 1

Foundations of Reading (Book Knowledge/Appreciation/Print Awareness/Story Comprehension)

| 1. How does handle/interact with books? | | | | | |
|---|--------------------|------------------------------|---------------------------------|---------------------------|------------------------------|
| Explores books | Browses book pages | Holds the book appropriately | Independent study of book pages | Turns pages appropriately | Recognizes book by its cover |
| 1 | 2 | 3 | 4 | 5 | 6 |

| 2. How does interact with symbols/print? | | | | | |
|--|------------------------------|-----------------------------|----------------------------------|-------------------------------|-------------------------------|
| Communicates a choice of story, song or rhyme using a picture, symbol, or object | Beginning to recognize print | Frequently recognizes print | Makes print to speech connection | Knows where to read on a page | Understands "concept of word" |
| 1 | 2 | 3 | 4 | 5 | 6 |

| 3. How does engage in the act of reading? | | | | | |
|---|--|---|---------------------------|---------------------------|---|
| Indicates awareness that someone is reading to him/her. | Displays joint attention while being read to | Points, labels, comments, acts out story characteristics during joint reading | Parallel/Solitary Reading | Reading to <u>another</u> | Reading from memory, but paying attention to the printed word |
| 1 | 2 | 3 | 4 | 5 | 6 |

Figure 2: 4 of the 11 scales of The Bridge

RUBRICS

Knowing that emergent literacy learners follow the same learning progression as their neuro-typical peers, a need to revisit emergent literacy milestones has risen. Using typical early literacy and language milestones as individual data points can provide the basis of a performance rubric to guide instruction for our most complex learners. In her work with North Carolina Public Schools and The Center for Literacy and Disabilities Center, Patti Pierce has created The Bridge, an adapted observational assessment guide from the TROLL © Education Development Center, to frame emergent literacy progress. The Bridge collects data in all areas of emergent literacy including the Foundations of Reading, the Foundations of Writing, Alphabet Knowledge, Phonological/Phonemic Awareness, and Oral Language.

See Figure 2: 4 of the 11 scales of The Bridge

Classroom teams might see the need to develop similar rubrics based on the individual needs of the students in their classrooms and the early literacy outcomes outlined by their particular state. For example, the authors of this article have further adapted The Bridge to include Colorado’s Early Learning and Development Milestones and created an emergent literacy progress monitoring tool to use with students with significant disabilities at their separate school in Lakewood, Colorado. This team of authors found it beneficial to expand upon The Bridge to account for the incremental, yet significant growth in emer-

gent literacy skills of their school’s incredibly unique population. Information from other resources such as Charity Rowland’s (2006) Communication Matrix or the Emerging Literacy Behaviours Checklist (2012) can be used to guide the development of a performance rubric for emergent literacy.

BODY OF EVIDENCE

Authentic data captured in video files, anecdotal notes, work samples, and pictures can all be collected in paper-based or electronic portfolios to build a body of evidence supporting growth over time and informing ongoing instruction. Using technology can be beneficial when taking and sharing data and can streamline the process for the entire classroom team. Educators in today’s classroom are realizing the importance of incorporating technology in data collection. Apps such as Childfolio (Puerling & Fowler), PearNote (2013) and Livescribe (2015) are now available to help classroom teams collect a body of evidence through technology. Likewise learning management systems tools, such as Google Drive provides an accessible platform for collecting and sharing data using various media. In addition to compiling a wide body of evidence, these tech-friendly portfolios can also be shared with the family and home therapy providers to help with showcasing growing skills to practice as well as to align therapeutic interventions at home and school. No matter how the data is compiled, educators and classroom teams need to continually revisit and reflect on that data to improve instruction.



Access Form Example

| Student is.... | Adult is.... | Environment is... |
|--|--|--|
| <ul style="list-style-type: none"> • warmed up their yes and no head nod • Seated in supported seating • Has had a sensory break beforehand to bring himself/herself into a well-regulated state. | <ul style="list-style-type: none"> • presenting bright objects (fluorescent orange, yellow, red) on high contrast background (black) • Communicated learning target • Communicated the first/next/last of the activity • the PODD book readily available and student knows it is available/where it is • allowing sufficient wait time to establish visual attention (up to 10 seconds) • is presenting materials within 3 feet on visual field at midline | <ul style="list-style-type: none"> • reduced visual clutter |

Figure 3: Example of Access Form

However, the most thorough collection of data can be considered irrelevant if the classroom adult does not consistently provide environmental accommodations and assistive technology for each individual student. For example, Student A has a physical impairment limiting the functional movement of her right arm and hand. During independent reading, the student is only provided with paperback books. She is unable to independently hold or turn the pages of the book. The same student, when provided a board book with its back cover attached to her desk, is able to independently flip pages and point to pictures of interest. For emergent literacy learners, other examples of AT could include high contrast letters, a keyboard or scanning flip chart for writing, page fluffers in books, an easel, adaptive seating, electronic or braille books, a scribe, a visual schedule, a built-up pencil, a fidget, among many others. Most emergent literacy learners have complex communication needs and require augmentative, alternative communication (AAC). AAC may be a low-tech, picture communication book or a high-tech speech generating device. These students can not participate in literacy instruction to their fullest potential when AT is inconsistent or unreliable. A simple example of this would be collecting data on a shared reading interaction when the student has no AAC to support communication. Without accessible AAC, it is impossible to accurately capture the student's true level of literacy skill without giving her access to communication to showcase the connections she is making with the presented text. It is the responsibility of the classroom team to set up a supportive and accessible environment for instruction, especially when data is

collected. Classroom teams may find it beneficial to include a simple checklist of assistive technology and accommodations for the team to put in place prior to instruction and data collection. It is recommended that classroom staff complete this checklist each and every time they enter data to ensure consistency in environment and instruction. This checklist is to serve as a working document and is revisited and updated regularly by the team as the student progresses. In addition, classroom teams may consider constantly revisiting the accommodations listed in the IEP during consultative times and provide training to all team members working with the student on how these accommodations are provided during instruction. See Figure 3: Example of Access Form

REFLECTING ON DATA

As student behaviors change in response to instruction, so should the behaviors of the educator and classroom team. Regular data reviews, alongside reviews of accommodations for optimal access, will inform and guide instructors as to next steps for their students. As Roehrig (2008) notes, data-informed instruction creates "a sense of responsibility for student learning by teachers and others in the school." Due to the limited resources available to teachers with emergent literacy learners and the complexities of their access needs, it is common to feel frustrated or stuck in instruction. IEP goals may seem random and often circle back year after year or on a cycle (Goodman, 1993.) To alleviate this trend, data reviews are a crucial instructional practice. Using an aforementioned scale or rubric, educators can look at



Figure 4: Data collection during instruction

the student's body of evidence and decide next steps. As data is continually reviewed, the classroom team must constantly consider what changes need to be made in instruction and/or environment to improve student learning. Data should be determining these changes when a student is making promising progress towards their goals and when progress has plateaued. Although the process of reviewing authentic data as a classroom team might seem challenging due to time constraints or other responsibilities, it is the core of quality instruction for the emergent literacy learner. Observable progress will encourage educators to invest their time and energy into improving their instruction and setting higher outcomes for emergent literacy learners. See Figure 4.

CONCLUSIONS

Quality data leads to quality instruction and all students are deserving of quality and comprehensive instruction. For students with significant disabilities, literacy is the ultimate life skill. Even a basic understanding and use of print can empower this vulnerable population of students to generate novel messages, to demonstrate knowledge, to express beyond their wants and needs, to report abuse or neglect, and to advocate for their futures, for their hopes, dreams, and fears.

The literature shows that when provided with comprehensive literacy instruction, all students, despite their learning challeng-

es, can make gains in their use and understanding of print in order to read, write and communicate. Authentic data collection in the form of anecdotal notes, video files, and work samples can be collected as a body of evidence to capture the emergent literacy learner's growth over time. When used with a performance rubric or in relation to typical literacy milestones, regular and thoughtful data review can show educators where students have been and where they are headed. As in the general education setting, special educators can use students' responses to guide their own behaviors and instructional practices. Part of the classroom team's responsibility is to provide a supportive, accessible, and predictable environment for learning. Given the need for consistent and responsive adult support for emergent literacy learners, classroom teams may want to consider adding regular and on-going professional development around emergent literacy instruction and adult supports to their overall professional learning plan. Such training can help adults to identify where students are currently in their literacy development and how to add scaffolds to the classroom environment and instruction that can help students to continue growing in their literacy skills. Teams are also encouraged to implement structures that allow teams to meet regularly to review data and update students' literacy interventions and accommodations needed to progress further. With these new interventions, it is important that all classroom professionals know and understand their role

in assisting each student's literacy journey. Accurate data to inform instruction along the continuum of emergent literacy can be ensured by consistent and individualized AT accompanied by quality instruction. Such practices will lead to new and exciting changes in educational approach and consistently higher expectations, appropriate rigor, and progress for all learners.

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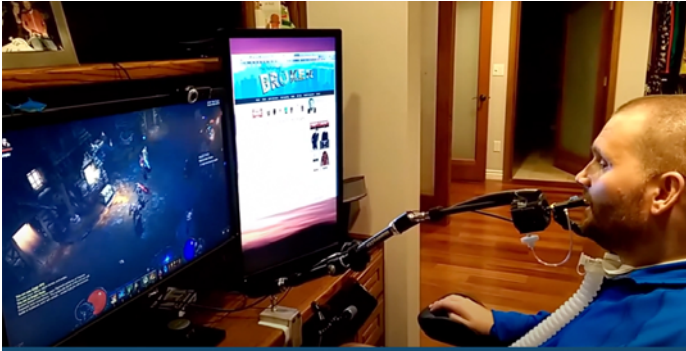
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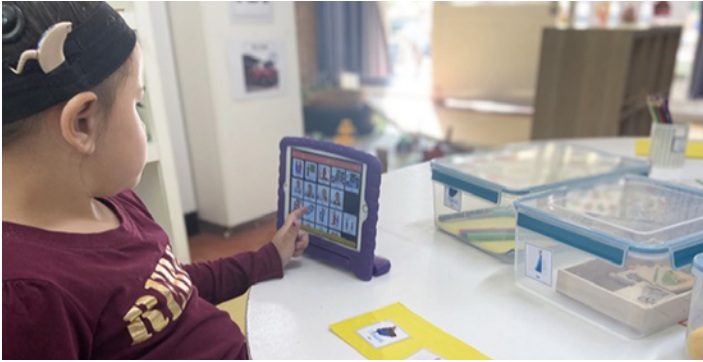


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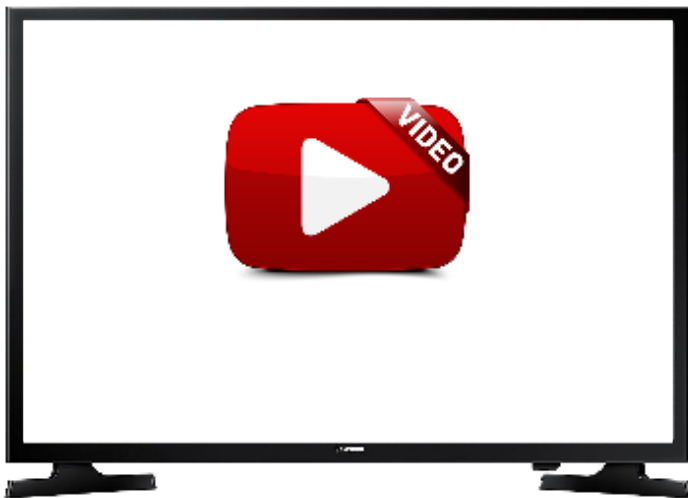


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