



## **NASET's Classroom Management Series**

### **The Four Quadrants of Learning: Contextualizing the Language of Instruction for Students with Disabilities**

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This issue of **NASET's Classroom Management series** was written by Marissa Desiree Pardo. The following case being studied will focus on Eradio, a seventh-grade student who is Deaf and hard in Hearing (DHH). He is struggling in his Social Studies classroom at Palm Tree Middle School. As a result of this study, a range of contextual supports and cognitive involvement will be examined. Cummins' four quadrants of language learning will be explained including quadrant one, cognitively undemanding and context embedded, quadrant two, context embedded and cognitively demanding, quadrant three, cognitively demanding and context reduced, and quadrant four, context reduced and cognitively demanding (Cummins, 1995). This study will identify at least three activities per quadrant that Eradio can benefit from participating in that fall within the criteria of each quadrant.

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#### **Abstract**

The following case being studied will focus on Eradio, a seventh-grade student who is Deaf and hard in Hearing (DHH). He is struggling in his Social Studies classroom at Palm Tree Middle School. As a result of this study, a range of contextual supports and cognitive involvement will be examined. Cummins' four quadrants of language learning will be explained including quadrant one, cognitively undemanding and context embedded, quadrant two, context embedded and cognitively demanding, quadrant three, cognitively demanding and context reduced, and

quadrant four, context reduced and cognitively demanding (Cummins, 1995). This study will identify at least three activities per quadrant that Eradio can benefit from participating in that fall within the criteria of each quadrant.

### **Range of Contextual Support and Cognitive Involvement: Cummins Quadrants**

According to Jim Cummins (1995), all language tasks can be plotted on two planes. The first plane is the contextualization of language. Contexts are the supports you give a task to provide meaning for the student. Within the first plane, there is a context embedded, which is a range of additional visuals and oral cues or scaffolds that are used within an activity to supplement learning. There is also reduced context, meaning there are little to no scaffolds provided during an assigned task. The second plane is cognitive demand, which is a range that measures the difficulty of a task. Cognitively undemanding tasks are simple tasks that require minimal thought to abstract concepts, whereas cognitively demanding tasks require extensive analysis of abstract concepts and higher-order thinking skills. These two planes then intersect to create a quadrant in which a combination of contexts and demands vary (Cummins, 1995).

There are four quadrants for the contextualization of language. Quadrant one is ‘cognitively undemanding and context embedded’, meaning it can be a task that requires minimal critical thinking skills, while supplemented with visuals or scaffolds. Quadrant two is ‘context embedded and cognitively demanding’, meaning the task requires higher-order thinking and synthesizing skills, but scaffolds are provided to enhance the learning process. Quadrant three is ‘cognitively undemanding and context reduced’, meaning the task does not require higher-order thinking skills but includes a variety of visual cues. Quadrant four is ‘context reduced and cognitively demanding’, meaning the activities are intellectually challenging, however they lack scaffolds and visual cues. Quadrant four is usually the most restrictive quadrant considering it does not cater to a variety of learners, including students with disabilities (SWD) (Cummins, 1995).

## **A Brief Description of the Case**

Eradio is a seventh-grade student who is DHH and struggles in his Social Studies government class. He wears a cochlear implant in order to access the general education curriculum to the maximum extent possible. He spends most of his time sitting at a table with a ‘U’ shape to be able to easily identify who is speaking and in turn participate in classroom discussions. This also allows him to be near his teacher. When using the computer, headphones are often necessary for him to be able to isolate the audio and to raise the volume when he has trouble hearing. Eradio understands Spanish but speaks mostly English within the classroom setting. He does not know American Sign Language nor does he lip-read when other teachers are speaking. There is an academic gap of two standard deviations below grade-level as a result of his disability, resulting in the need for multi-tiered instruction. Eradio particularly struggles in Social Studies due to a lack of interest in the topics discussed. He is in a class with 10 other peers, one teacher, and a classroom paraprofessional. He is very social with his peers.

When it comes to executive functioning skills, Eradio struggles in sustaining attention during a task, organizing his work and his notes, the use of metacognition and problem-solving skills, and planning how to initiate and complete a task. His teacher is currently leading instruction focused on the American government and has decided to conduct a mock election in the classroom to demonstrate the voting process. The Florida State Standard and goals for instruction states that he must “conduct a mock election to demonstrate the voting process and its impact on a school, community, or local level.”

## **Quadrant One: Cognitively Undemanding and Context Embedded**

The requirements of quadrant one activities are that they are undemanding in nature and context embedded. When thinking in terms of introducing a new topic, a good set that Eradio’s teacher can use to gain the attention of her students is using informational videos. Many classrooms are provided with a smartboard, which can be used to project videos exhibiting what the electoral

process looks like for that lesson. A feature that can help Eradio follow along with the video includes closed captioning, in which the videos, specifically videos on YouTube, have captions that narrate everything being spoken in the videos. Although Eradio has a cochlear device, sometimes he still struggles with being able to hear during instruction. When it comes to videos on a smartboard, the volume can vary and sometimes the sound quality is very poor. Closed captioning includes the name of the person speaking and all the dialogue throughout the video. Videos also provide imagery and sound, which supplements the student learning with visual and auditory supports. The videos should be about five minutes in length to reduce distractibility. The teacher or the paraprofessional can monitor Eradio to make sure he is sustaining attention to the task. Between videos or during a particularly lengthy video, the teacher can discuss the content at the end or during each video with the students to check for understanding.

Presentations are also a very cognitively undemanding task that the teacher can have students experience. The students simply must listen and possibly take notes. They can also be context embedded with a variety of images and visuals. The teacher can present the lesson about the chapter using a PowerPoint. Due to Eradio's difficulties in hearing, there is a higher chance he may retain more of the information when he sees the presentation in writing with imagery, as well as hearing the teacher lecture and read the slides aloud. The teacher can also implement images, videos, and audio within the presentation. The images and videos may include impartial videos about the current president, presidential debates, and videos outlining the electoral process. This can assist Eradio in his organizational executive functioning skills. At this time, he must know that he may need his journal and a pencil to write notes and that all other objects on his desk that he isn't using must be put away. During this time, Eradio can take notes from the presentation for key points that seem important to him or are highlighted/emboldened in the presentation. His teacher can also provide subtle cues as to what information within the presentation is important, such as repeating the information more than once or stating, "This is a very important part, because..." The teacher can also choose to incorporate items that will be found in future assignments or assessments based on the topics discussed.

For Eradio, sometimes identifying content through visual task cards is successful. For this lesson, there are some keywords that may arise throughout the chapter, such as president, election, or political parties. For these terms, it would be helpful to align a visual image to the vocabulary. For example, when using the key term “president”, Eradio can choose an image from a selection of three cards and match the image to the key word. This task card can be of the current president of the United States or presidents through history. If he selects the incorrect image, he must select from the two remaining task cards. This can then be translated to matching a key term task card to a task card with a definition written on it. The students can see the word, read the definition, then match a visual to the word to reinforce the meaning he internalizes. The images and task cards can be orally selected within a large group or cut and pasted into his Social Studies journal as a visual study guide. This activity can also assist Eradio in organizing information. He physically sees a word, a definition and an image to support the context of the key terms within the text. This allows him to self-monitor his task completion skills, by asking himself if he thinks he sorted the task cards correctly and to correct himself until he feels confident in his responses.

Considering Eradio has a considerable gap of knowledge in comparison to his non-disabled peers, he would benefit from having the classroom paraprofessional assist him occasionally during instructional time, especially to provide support in communicating his needs in the classroom. The paraprofessional can ensure that he is focused on the assigned tasks. If he is struggling with the content for any reason pertaining to his exceptionality, the paraprofessional can also communicate those needs to the teacher during the lesson or the planning of future lessons.

## Quadrant Two: Cognitively Demanding and Context Embedded

Quadrant two focuses primarily on cognitively demanding activities with context embedded in the tasks. Eradio's teacher recognizes that in order to hold a mock election, students must be aware of voting rights. After reading the text and reviewing the content, the students can explain what they know about voting rights using creative posters. According to Amendment XIX, there are explicit rights for voters in the United States, including legal voting age, lack of denial to vote based on race, color, or gender, and denial of voting rights for felony crimes. In this assignment, students can be paired into groups or teams to create a poster design that highlights the importance of voting rights. Students can base their designs on historical events and landmark decisions regarding voting. The teacher can assign historical landmark decisions about voting for students to discuss, such as the Women's Suffrage Movement of the 1920's or when voting rights were granted African-Americans during the Civil Rights era. The goal of this task is for each poster to be historically accurate, creative, and visually appealing. The students can vote on which poster they think is the most effective in conveying their message about voting rights in the United States. This can help Eradio prioritize and plan how to present the information. As a group, there needs to be a plan before creating the poster and roles must be assigned, such as the writers, illustrators, presenters, etc. They must identify what information is necessary for their presentation and what information is secondary.

When voting rights were granted to different racial groups and women in the United States, presidents and members of congress had to debate whether these issues were of importance to sway public opinion when they arose. With every decision regarding a radical reform, there were two sides that were being argued about specific topics and ultimately a decision was made through voting. For the next activity, students can hold a debate in the classroom in which two groups have to argue in favor of or against a topic. The students must provide information and data as to why their points are more valid than the points of the competing team. The teacher will then vote in favor of the team who has the most valid points and data to back up their reasoning. The teacher can pick an issue discussed in the textbook or an issue that is relevant for students in

the school setting, such as whether wearing uniforms is necessary for school or not. As a supplementary activity to include in the debates, students can create a poster and/or video to mirror political advertising to summarize their political views and opinions. For Eradio, the use of closed captioning can assist him in hearing the video from the opposing team. He also has more than one way to present his knowledge on the topic. He can create a written poster with his peers, participate in a suggested video portion, present the case for his argument with his team, and so forth. This activity can assist Eradio in metacognitive thinking skills. He can ask himself, “What side am I on?”, “Can I relate my personal experiences to this argument?” or “How can I improve my argument based on the opposing arguments from the other team?” For instances regarding debates about issues relevant to the students, Eradio can utilize his working memory skills and apply the project to his past personal learning experiences. He can reflect on other times where he may have participated in other mock debates or mock elections in elementary school, especially considering most schools participate in this activity on a school-wide level.

At this point, students are aware of who can vote and how presidential nominees debate to accumulate support from the public, meaning the students have to put this knowledge into practice. This emphasizes, not only the importance on voting for issues, but voting for a person who is charged with resolving these issues. From each team, the students can conduct another mock election to vote on who they believe should be the class president. This must be based on work ethic, positive rapport with peers within the classroom, and what the students' beliefs are when it comes to classroom improvement. The students will then hold the classroom mock election, where each student will debate their key points and the class will vote on who can be class president. This can be authentic and official for the rest of the year, or it can be used solely for lesson purposes. The students who are not in the nominations must construct at least two relevant questions to ask either of the nominees. Eradio can access his working memory to reflect on past experiences in which he may have been part of a class or school-wide election, how elections are discussed and perceived at home, or what he has previously learned about the electoral process in the classroom.

What these activities instill is that there are qualifications as to who can vote for a presidential nominee, a method in which the nominees express their views to attain votes, and a process in which these nominees are elected to be president.

### **Quadrant Three: Cognitively Undemanding and Context Reduced**

There are many activities that can be deemed as cognitively demanding with reduced context. Eradio's teacher typically previews the chapter of the text before beginning the lesson. She asks the students to define the vocabulary terms within the chapter. The students must locate the highlighted key terms or bold text and define these terms before reading the text. Although the students are encouraged to find the definition using context clues, it is occasionally permissible to utilize the glossary in the back of the book to write the definitions if no clear meaning is given within the sentence or paragraph. The definitions can be written in their Social Studies journals to study for assessments. This activity is intended to be an independent activity and can be completed within 10-15 minutes. Although this method may not be efficient in addressing Eradio's sustained attention deficits, they may assist him in organizational and note-taking skills. He can be given a specific rubric for previewing the lesson and understand the key words are crucial for being able to decipher the text. To complete the task, he needs to be able to estimate how long it will take to complete each word and manage his time efficiently.

The teacher can also provide a crossword puzzle where students can read definitions of key terms or important concepts within the text and choose a word from the word bank to match the definitions. The words and clues can be grade-level content and directly taken from the text. The crossword puzzle will reinforce the content of the text, while also providing students with opportunities to self-correct when an answer does not fit within the allocated boxes. The teacher can easily create a crossword puzzle online, which can also allow for modifications in the number of words that will be included in the crossword, which key terms and concepts the

students will learn, and how rigorous the activity will be. A crossword puzzle typically requires 20 minutes to complete. The teacher can modify the activity by making it a test or allowing Eradio to use a textbook to assist him in looking up definitions. To complete the task, he needs to be able to estimate how long it will take to complete each word in order to manage his time effectively. Although there are no explicit struggles in time management, Eradio's off-task behavior and lack of sustained attention result in incomplete or late work. A crossword puzzle is very clear and explicit, provides many opportunities for self-correction, and usually requires little time to complete.

Fill-in-the-blank statements can be simple and typically lack visual content. It is also an activity that can be implemented after the text has been read aloud and studied. The students will be given a word bank in which to select words from. These words usually include key terms that were studied in the beginning of the lesson and other terms that the teacher feels are important. The students are to pick the words that best fit into sentences that convey the meaning of that word. This activity can be done independently or in a whole group setting and typically does not exceed 20 minutes depending on how many fill-in-the-blank-statements are on the sheet. This activity is very useful when thinking in terms of time management. This task does not take a long time to complete and is not incredibly challenging. This provides Eradio with an opportunity to use his time wisely to complete the task.

Considering Eradio is academically two standard deviations below grade-level, it is important to take into consideration that learning this way can be very difficult for him due to a lack of visual content and context. The teacher can modify the assignments to make them less demanding to accommodate Eradio by asking him to express his knowledge in a different way, these activities are very limited considering the lack of scaffolds.

## Quadrant Four: Cognitively Demanding and Context Reduced

Quadrant four focuses on cognitively demanding tasks with reduced context. Before reading the text, Eradio’s teacher will ask each student to create an outline of the chapter that is being studied. A student will begin by skimming the chapter, focusing on key terms found in bold or highlighted, the introduction and conclusion, headings, and subheading. The students will then use their Social Studies journals to jot down key points to grasp the overall message that the chapter is conveying. The teacher can encourage the students to have at least two questions written within the outline that the student would like answered after reading the text. Although the students have some visuals from their textbooks, they are generally given limited time to form their outlines and observe the visuals. To assist the students in writing outlines, the teacher can provide a handout in which the sections are clearly written for the students, including a title section, heading sections for students to write two to three main points about each main heading and a section for the main idea of the topic. The process of creating a chapter outline usually takes between 25-30 minutes of instructional time to complete. The goal of this activity is to identify the main theme of the chapter based on the information they wrote in their outlines. The teachers can then ask the class to stop writing and as a group, the teacher will receive input from the students to create a whole group classroom outline. This can be helpful as a study guide for tests, especially if there are student who require test outlines as an accommodation.

As part of teaching this standard, knowing how to vote for a leader within the community or in the country is significant when considering the electoral process. Eradio’s teacher can use this opportunity to have students use the text and their outlines to create a graphic organizer. The teacher can ask students to create a concept map. At the center of the concept map, it can read “How to Vote for a President”. Reflecting on the text and through the use of their resources, textbooks, and chapter outlines, the students can cite all of the ways in which a president can be voted into office including the requirements of becoming a president (U.S. born citizen, at least 35 years old, and a permanent U.S resident for at least 14 years), the caucuses to select a party candidate, primary elections, national conventions to select presidential nominees, and the

general election to vote a nominee into presidency. This can be done on a sheet of paper individually, but it could be much more beneficial if done in a whole group setting. The teacher can facilitate the discussion and students can volunteer information or take turns adding to the concept map. The concept map must be sequential considering the process of becoming a president has steps. Since Eradio struggles with hearing during instructional time, the use of the ‘U’ shaped table can help him identify who is talking and he can remain near the teacher and his peers. He will also see responses from the students written on the board or on a large poster board so he can read the information and copy it into his journal.

After the students have read the text and have an accurate understanding of the contents of the chapter, including key terms and main ideas within the text, students must recognize that people can vote to select a leader within their schools and communities. The overarching theme of the standards is the electoral process and how it is implemented when selecting government officials and the president. Much like the electoral process when voting for a president, students must be able to identify the roles of leaders in their immediate environment and how they’re selected for those positions. This would be an opportune moment for Eradio’s teacher to create another concept map in which the students can identify members of the school personnel and the student body. At the top of the concept map would be the principal of the school, and it is up to the students to decide where teachers, staff members, and students fit in under the hierarchical concept map. They must answer how the principal is decided when selecting from a pool of other potential candidates. How does the principal assign roles to school personnel, much like how a president assigns roles to members of his party? The teacher can highlight how these roles are given to teachers and other school personnel through being selected from other candidates as a result of how suitable they are for the role, much like how a president and his party are selected based on similar criteria. This activity can allow students to apply abstract knowledge to their natural settings so they can more easily relate to the content of the text. This activity must be completed in a whole group setting so that each student can discuss what they have individually learned from the chapter and their previous activities, while the teacher observes how the students apply it to their natural setting. The goal is to take knowledge of key terms and concepts

from the chapter, then apply this to real-life situations that are relatable to the students. Eradio must consider what he has learned about the electoral process through the previous activities and then apply that to his knowledge of the people working in their school. With the help of his group, he must also prioritize where members of the school personnel fit in on the concept map and ask himself why he feels their placement is accurate based on the learning and his personal experiences.

## Conclusion

According to Smith, Saez, and Doabler (2016), there are four strategies in which to support working memory and executive functioning skills. To support Eradio's working memory and executive functioning skills, the teacher first selected skills and sequenced them in the order in which she wanted the students to learn. For example, in quadrant four, the teacher had the students outline the text, create a concept map about how to be president based on a set of criteria presented in the text, then followed up with a concept map about how leaders within their school are placed in their positions to allow the students to generalize an abstract concept and apply it to their natural setting. The teacher also provided clear instructions and a time frame in which tasks were to be completed, giving Eradio many opportunities to address his time management skills and prioritize which information was the most essential for mastering the content. The teacher also participated in guided practice, differentiating between the whole group, small group, and independent activities. The students were also able to manipulate the information they have learned in the text and apply it to social settings. The teacher, especially in the whole group activities could monitor the activities and provide feedback, especially during the mock election activity or the poster activity.

When sequencing the activities for every quadrant, there is a facilitation of working memory within most of these activities, specifically in quadrants one and two. The skills are most deliberately practiced with intensity after each activity. The students must use the skills they learn about the electoral process and apply it to their long-term memory. For Eradio, he can

consider how the electoral process functions by comparing it to leaders within the school setting and how they were placed within their positions or during the mock debate Eradio can consider how the issues being discussed affect him or somebody else he knows. In quadrants three and four, his organizational skills and his methods of prioritizing information would be increased, because he is given clear outlines and instructions in finding information the is the most useful within the text, such as key terms, important points under headings and subheadings, and information that is bolded or highlighted.

Optimally, most teachers would benefit from planning lessons within quadrants one and two, since they provide scaffolds and visuals for a variety of learners including visual, auditory, and kinesthetic learners. Most importantly, quadrants one and two can be implemented for learners in different academic tiers, especially using embedded context. The teacher can modify the level of demand for students like Eradio, who have a significant learning gap as a result of a disability, or students that are struggling in general, while also making sure they are being challenged academically at their level.

Quadrants three and four, although successful for students that can learn without the added scaffolds are not beneficial for SWD and students that are struggling academically who may require scaffolds to access their learning environment. Also, when considering the needs of English language learners (ELL), it is not possible to teach the student without some form of scaffolding, making quadrant four very difficult to implement. Quadrant one is the optimal quadrant. Students need content that academically challenges them to be able to make gains, while also being provided imagery and supports to assist them in their learning. Transferring personal knowledge in new situations is usually associated with cognitively demanding processes (Kalyugam p.1, 2013). It is the most engaging because the tasks require more open-ended responses and output from students. Quadrant one also considers that students who are ELL, SWD, and struggling learners who may need more than teacher-led instruction with textbooks and oral presentations.

## References

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