

Technology Integration for Multilingual Learners in Elementary Classrooms

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Observations

Observation 1: 3rd Grade ELA Classroom (General Education with ENL push-in support)

- **Class Type and Students:** 22 students total, including 8 multilingual learners (Spanish, Haitian Creole) at mixed proficiency levels (Entering-Expanding)
- **Subject:** Identifying main idea and key details using an informational text about animals.

Observation 2: Elementary Library - Poetry Unit

- **Class Type and Students:** 24 6th grade students total, including 6 multilingual learners (Spanish, Haitian Creole) at mixed proficiency levels (Entering-Expanding)
- **Subject:** Poetry and digital publishing

Observation 3: 5th Grade ELA Classroom (General Education)

- **Class Type and Students:** 25 students total, including 6 multilingual learners (Spanish, Haitian Creole) at mixed proficiency levels (Entering-Expanding)
- **Subject:** Opinion writing (claim, evidence, reasoning) and technology. Students worked on drafting paragraphs using digital tools

Observation 4: 4th Grade Science (General Education with ENL push-in support)

- **Class Type and Students:** 26 students total, including 5 multilingual learners (Spanish) at mixed proficiency levels (Entering-Expanding)
- **Subject:** Food chains and ecosystems focusing on understanding relationships between organisms.

Observation 1: 3rd Grade ELA

Observation Notes (Summarized)

Setting & Students: General education classroom with ENL support (22 students total; 8 ELLs with mixed proficiency).

Technology: 1:1 Chromebooks, Google Classroom, Google Slides, YouTube (read-aloud), SmartBoard.

Lesson Focus: Identifying main idea/key details in an informational text (animals), integrating multimodal technology for comprehension.

Instructional Analysis:

1. **Multimedia Input (YouTube Read-Aloud):** Used visuals, highlighted text, and audio. **Analysis:** Supported comprehensible input (visual + auditory) but limited language production.
2. **Guided Practice (Google Slides):** Included vocabulary, images, and sentence frames. Students typed responses, sometimes using translation. **Analysis:** Scaffolds language, but structured output reduced spontaneous oral language.
3. **Independent Work (Google Classroom):** Digital worksheet with short, sentence-based responses. Students worked individually, relying on translation/rereading. **Analysis:** Promoted task completion over interaction; limited extended discourse.
4. **ENL Small Group:** Teacher used simplified slides, repetition, and oral modeling ("Say it with me"). **Analysis:** Strong scaffolding for oral language, but responses were formulaic.

Classroom Discourse: Teacher-dominated, mostly closed-ended, recall-based questions. Student talk was minimal, short, or repetitive. **Key Insight:** Interaction was controlled, focusing on accuracy over expression.

Student Engagement: High engagement (replaying videos, typing, using translation) was task-based, not necessarily linked to extended language production.

Technology Impact: Technology aided comprehension (reduced cognitive load) but may have unintentionally limited productive struggle and spontaneous language use. **Tension:** Increased access vs. decreased authentic language production opportunities.

Interview

Interview: Elementary Classroom Teacher

Q1: How do you use technology to support multilingual learners in your classroom?

A: I frequently utilize programs like Google Slides and the SMART Board. I make an effort to make everything interactive and visual. Before writing, I also let my multilingual students to express their thoughts aloud. Occasionally, they practice with a partner or use voice typing.

Q2: How do you ensure technology aligns with your curriculum goals?

A: I always start my lesson planning with the standard in mind. I then consider the best tool to use when teaching that goal. I never begin with technology, it must align with the objective.

Q3: What types of technology have been most effective?

A: Anything with both auditory and visual assistance is quite effective. The most successful programs allow students to participate rather than to observe. When students are able to use technology, I've noticed a significant improvement.

Q4: What challenges have you experienced?

A: Students can become overly preoccupied with technology rather than learning. It must be organized correctly to support the lesson rather than distract from it.

A third-grade general education ELA classroom with ENL push-in support was the first class I observed. The lesson's main objective was to use an informative text about animals to identify the main idea and important details. Chromebooks, a SmartBoard, Google Slides, Google Classroom, and a YouTube read-aloud video were among the technologies utilized to assist with language development and understanding. After using images, audio narration, and highlighted words to follow along with the book, students finished tasks like identifying important details, utilizing sentence frames, and digitally answering questions. These resources allowed students to interact with the material in a variety of ways while also helping to scaffold knowledge.

Observation 2: Elementary Library

Observation Notes (Summarized)

Interview

Setting: Elementary Library
Focus: Poetry and digital publishing

Technology Used	Instructional Analysis	Student Interaction & Outcomes
Chromebooks, Digital Poetry Platform, Audiobooks, Google Docs, SmartBoard		
1. Exposure to Poetry (Audio + Visual Input)	Students listened to poems with highlighted text, replayed recordings.	Outcome: Supports prosody, rhythm, and pronunciation. Primarily receptive input.
2. Poetry Writing (Google Docs)	Students wrote poems using sentence starters, exploring rhyme and imagery. They relied on sentence frames and model structures.	Outcome: Supports writing development. Caution: Language may become formulaic, limiting creative risk-taking for some Multilingual Learners (MLs).
3. Book Creator Project (Publishing and Recording)	Students compiled poems and recorded themselves reading, frequently replaying and editing voice recordings. Increased attention to pronunciation observed.	Outcome: Strong support for oral fluency, self-monitoring, and confidence. Key Distinction: This required <i>production and performance</i> , unlike the previous receptive activities.

----Synthesis of Technology's Role

Area	Evidence of Language Development	Analysis/Critical Insight
Listening	Audio repetition improved listening comprehension and vocabulary/fluency.	Students frequently replayed audio, showing technology supported iteration and self-correction .
Writing	Sentence starters provided writing scaffolding.	Students used typing tools to revise, encouraging ownership of language production .
Speaking/Pronunciation	Recording and replaying recordings improved speaking and pronunciation.	Critical Insight: Unlike the classroom lesson, this activity required both receptive AND productive language use.

----Key Takeaway

Technology functioned as a tool for **language production and identity** (allowing students to Create, Revise, and Perform), not just for comprehension.

I observed a library lesson related to a poetry unit at the elementary school level. The lesson's main objectives were to examine various poetry genres and recognize poetic devices like rhyme, rhythm, and imagery. Both literacy and language development were supported by technology, such as Chromebooks, Google Docs, and Book Creator. After hearing poems read aloud and following along with highlighted passages, students used sentence starters and models to write their own poetry. They recorded themselves reciting their poetry out loud and collected their work into digital volumes. Through these exercises, students were able to interact with poetry both orally and in writing while utilizing technology to edit, improve their fluency, and take responsibility for their work.

Interview 3: Elementary School Librarian

Q1: How do you use technology to support literacy?

A: I make an effort to use technology to help students become creators rather than just readers. For example, when students published their own poems using Book Creator during our poetry unit.

Q2: How does technology support multilingual learners in the library?

A: The recording feature has a lot of power. In order to improve their fluency, students can listen to themselves and, if they so choose, rerecord. Because it boosts confidence, that is particularly beneficial for multilingual learners.

Q3: What stood out to you during the poetry unit?

A: The level of participation was really high. Students enjoyed perfecting their recordings and hearing their own voices. It allowed them to take responsibility for their work, which had a significant impact.

Observation 3: 5th Grade ELA

Observation Notes (Summarized)

Interview

Class Details: 24 students (6 Spanish-speaking multilingual learners), Mixed proficiency (Emerging–Expanding), General Education.

Technology: 1:1 Chromebooks, Google Docs, Google Classroom, SmartBoard.

Lesson Focus: Opinion Writing (Claim, Evidence, Reasoning). Students drafted paragraphs using digital tools.—**Key Observations**

1. Instruction & Modeling:

- Teacher used the Smartboard to model writing an opinion paragraph.
- **Visual Support:** Color-coding was used for structure: Claim (green), Evidence (blue), Reasoning (yellow).
- **Prompt:** Emphasized evidence must support the claim, providing a sentence frame.

2. Guided Practice (Google Docs):

- Students worked independently on Chromebooks using Google Docs.
- **Scaffolding:** Students used explicit sentence starters ("I believe...", "One reason is...", "This shows...").
- **Digital Tools:** Some students used voice typing; multilingual learners referenced translation tools.
- **Process:** One student noted, "I said it first, then typed it better," indicating a transition from oral to written language.

3. Student Interactions:

- Work was largely independent.
- Limited peer discussion or collaboration observed.
- Focus was on drafting, rereading, and editing individual sentences.

-----Analysis of Language & Discourse

Feature	Supports Observed	Limitations Observed
Language Development	- Sentence frames supported structure. - Voice typing supported oral-to-written transfer. - Visual modeling supported organization.	- Writing was highly <i>structured</i> and controlled. - Students <i>relied</i> on frames instead of generating original language. - Limited opportunities for extended discussion or peer interaction.
Discourse		- Teacher talk <i>dominated</i> instruction. - Student responses were <i>short and structured</i> . - Minimal student-to-student interaction.

-----Critical Insight

Technology (Chromebooks, Google Docs) successfully supported students in **written language production**. However, the overall language environment was **controlled and heavily scaffolded**. This limited the opportunities for **authentic, independent language expression** and rich student-to-student discourse.

Interview 4: 5th Grade Teacher

Q1: How do you use technology to support opinion writing in your classroom?

A: I mostly use technology to assist students better organize their thoughts and write down their ideas. Students don't have to worry about rewriting everything when they draft, edit, and modify using Google Docs. I also utilize the SmartBoard to demonstrate how to organize an opinion paragraph by highlighting the assertion, supporting details, and logic in various hues. Particularly for my bilingual students, that visual aid is quite beneficial.

Q2: How does technology support your multilingual learners during writing tasks?

A: Technology is a huge help to my multilingual students. They have access to sentence starters, voice typing, and translation tools. Before writing, I also advise them to express their thoughts aloud. This facilitates their transition from oral to written language. The tools help them get started and gain confidence, but they don't do the work for them.

Q3: How do you ensure that technology aligns with your curriculum goals?

A: I always begin with the goal and the standard. The objective of opinion writing is for students to make a clear assertion and provide evidence to back it up. After determining the objective, I select the technology that will assist students in achieving it. Instead of taking the place of writing, technology must enhance it.

Q4: What types of technology have been most effective for writing instruction?

A: Because I can provide real-time feedback and students may update with ease, Google Docs has proven to be really helpful. Modeling is another area where the SmartBoard is useful. Additionally, I've witnessed success with voice typing since it facilitates the expression of ideas in students who have trouble writing.

Q5: What challenges have you experienced when using technology for writing?

A: One issue is that students may get overly reliant on resources like sentence frames or translation. They occasionally depend on them rather than attempting to create their own language. Maintaining kids' attention is another difficulty because they can become sidetracked when using electronics.

Q6: How do you balance support and independence when using technology?

A: I make an effort to eliminate supports gradually. I provide sentence structures and examples at beginning, but eventually I want students to write more on their own. Although technology can help, kids still need to improve their linguistic and cognitive abilities.

I observed an ELA class in general education for fifth graders. The topic of the lesson was opinion writing, specifically formulating a precise claim backed up by explanation and proof. The writing process was supported by technology, such as Chromebooks, Google Docs, Google Classroom, and a SmartBoard. Students utilized digital tools and sentence frames to create their answers after the teacher demonstrated how to structure an opinion paragraph using color-coded samples. Students worked on tasks including typing their paragraphs, coming up with ideas using voice typing, and editing their work. With the use of these resources, students were able to better arrange and develop their thoughts while also scaffolding the writing process.

Observation 4: 4th Grade Science

Observation Notes (Summarized)

Interview

Observation 4: 4th Grade Science (Content and Language Integration)

Detail	Value
Students	26 total
Multilingual Learners	5 (Spanish-speaking)
Support	1 ENL push-in teacher
Topic	Food chains and ecosystems

Technology Used

Smartboard, YouTube video, Chromebooks, Google Slides, Lesson Flow and Observations

- 1. Introduction:** YouTube video on food chains (visuals, diagrams). Prompt: "Watch how energy moves..."
- 2. Guided Instruction:** Teacher used Google Slides on Smartboard; covered food chain diagrams and key vocabulary (producer, consumer, predator) with images and definitions.
- 3. Student Activity:** Students completed a digital food chain diagram on Chromebooks (labeling, matching vocabulary to images).
 - o *Observed Behavior:* Students, especially multilingual learners, relied heavily on visuals. **Limited written responses.**
- 4. Small Group Support (ENL Teacher):** Oral vocabulary review using repetition and gestures; simplified explanations. Prompt: "A producer makes its own food. Say it with me."

Language Development Analysis

Category	Supports Observed	Limitations Observed
Comprehension	Visuals, repetition, diagrams (concept-language connection)	N/A
Production	N/A	Limited opportunities for speaking in full sentences or explaining reasoning . Language output was minimal.

Discourse and Technology Use

- **Discourse:** Teacher asked mostly recall questions. Students gave one-word answers or short phrases.
- **Technology Interaction:** Mostly task-based (clicking, selecting answers); few opportunities for discussion or explanation.

Critical Insight

Technology effectively supported content understanding (recognition) through visuals and matching tasks. However, the lesson design **did not require students to actively use or produce academic language**, minimizing the focus on language production.

Interview 5: 4th Grade Teacher

Q1: How do you use technology to support science instruction in your classroom?

A: I mostly use technology to assist students in visualizing ideas that are difficult to understand in real life. Students must comprehend linkages and processes in science, particularly when studying subjects like ecosystems. Interactive slides, infographics, and videos aid in clarifying certain concepts. I also model and explain ideas step-by-step using the SmartBoard.

Q2: How does technology support multilingual learners in your science lessons?

A: Visual aids are crucial for bilingual learners. Having pictures, labeled diagrams, and videos makes it easier for students to understand a lot of science language, which can be difficult. In order to give them several opportunities to hear and see the language, I also try to repeat essential terms along with gestures or demonstrations.

Q3: What types of technology have been most effective in your classroom?

A: The most successful have been interactive slides and videos. Students learn more effectively when they can observe how energy moves or witness a food chain in action rather than just reading about it. Additionally, Chromebooks are useful for tasks that require students to match words or label diagrams.

Q4: How do you ensure technology aligns with your curriculum goals?

A: I begin with the learning objective every time. The objective of this lesson was to help students comprehend the interdependence of creatures. I selected resources that would make such connections easy for students to understand. Instead of taking the place of instruction, technology serves to reinforce the idea.

Q5: What challenges have you experienced when using technology in science instruction?

A: One problem is that students may occasionally finish tasks without completely grasping the language. For instance, they might accurately match an image yet be unable to articulate it verbally. I therefore have to make sure that I give them the chance to speak and share their thoughts.

Q6: How do you support students in using academic language in science?

A: I make an effort to demonstrate the vocabulary while asking students to repeat it. To help students practice utilizing the language, I also utilize sentence openers like "A producer is" or "This organism depends on." It is crucial that students are able to use the vocabulary, not simply understand them.

I observed a general education science lesson for fourth graders. Understanding food chains and the interactions between producers, consumers, and predators was the main focus of the ecosystems lesson. A SmartBoard, Google Slides, a YouTube movie, and Chromebooks were among the technological tools utilized to help in vocabulary growth and content comprehension. After seeing a video that explained the idea and following along with labeled vocabulary and visual representations on the SmartBoard, students finished a digital exercise in which they had to identify and label the various components of a food chain. By giving students interactive and visual aids, these tools made difficult scientific subjects easier to understand.

Final Interview

Interview 1: ICT Specialist

Q1: How do you decide which technology tools to implement in classrooms?

A: I always begin with the student's needs and standards. We consider if a tool really enhances education rather than just selecting it based on how popular it is. The tool must help with both language growth and content learning, especially for multilingual learners.

Q2: How does technology support multilingual learners specifically?

A: It offers audio, pictures, and sometimes translation features, so technology is incredibly useful. Many of our students require repeated exposure to the language. They can rehearse in a relaxed environment as well. For example, someone can try something again or record themselves without feeling uncomfortable.

Q3: How do teachers use data from technology platforms?

A: Real-time data is provided by programs like Google Classroom and Waggle. Teachers can immediately identify the areas in which students are having trouble and modify their lesson plans. Instead of guessing about what students need, it helps make instruction more focused.

Q4: What challenges do you see with technology integration?

A: Ensuring that teachers receive enough training is one of the most difficult tasks. If a tool isn't used properly, even the best one won't perform. Ensuring that every student has constant access to electronic devices is another difficulty.

Q5: How does technology prepare students for the future?

A: It goes beyond academics. Students can develop their digital literacy, teamwork, and communication skills with the help of technology. They will also use these items throughout middle school, high school, and beyond.

Technology Used Across Observations



SmartBoard



Chromebook



Google Slides



Google Docs



Google Classroom

Google
Classroom



YouTube



Book Creator



enVisions
Math

Technology and Instructional Impact

Purposeful Use of Technology in Instruction: Smartboards, Chromebooks, and Google platforms were among the technological tools utilized to facilitate access to grade-level content. With the use of these tools, teachers might deliver knowledge in a variety of ways, such as interactive, visual, and audio formats, increasing the accessibility of the material for a wide range of students.

Impact on Multilingual Learners: Multilingual learners were better able to comprehend vocabulary and ideas due to digital supports like sentence frames, audio input, and visuals. By relating meaning to sounds and sights, these technologies helped students understand academic material and lessened language barriers.

Differentiation Through Digital Tools: Different levels of support could be provided within the same instruction due to technology. By offering scaffolding like repetition, guided practice, and customized pacing, programs like Waggle and organized Google Slides allowed students to interact with content according to their language proficiency.

Limitations of Technology Integration: Although technology helped with comprehension, extended language production was not always encouraged. Instead of encouraging students to explain concepts or have meaningful conversations, many activities concentrated on completion and recognition.

Key Takeaway: When technology is purposefully employed to facilitate comprehension and active language usage, it works best. The task's effect on learning is determined by its instructional design rather than the tool itself.

Roles of Teachers in Technology-Integrated Learning

Instructional Designer: Teachers designed classes that used technology to support certain learning goals, making sure that resources like Google Slides, SmartBoards, and digital platforms matched language and topic objectives.

Scaffold Provider: In order to make content accessible for multilingual learners, teachers employed technology to give resources such images, phrase frames, modeling, and repetition.

Facilitator of Learning: Teachers used technology to model thinking and promote understanding while guiding students through assignments instead of giving them information directly.

Observer and Feedback Provider: While students worked independently, teachers kept an eye on their progress and used digital tools to give quick feedback and modify their lesson plans.

Roles of Students in Technology-Integrated Learning

Engaged Learners: By watching videos, providing answers, and finishing tasks that aided in material comprehension, students engaged with digital tools.

Supported Language Users: Multilingual students accessed meaning and engaged in academic work through the use of technology (translation tools, images, and audio).

Developing Communicators: Students used programs like Google Docs and Book Creator to practice writing and, occasionally, speaking about their ideas.

Independent Workers: Students may work at their own speed, review material, and finish assignments with different degrees of assistance because to technology.

Key Insight

Although teacher-centered instruction gave way to a more supportive learning environment in the classroom because of technology, how assignments were organized still affected how students used language.

Key Findings

- **Technology Increased Access to Content:** By lowering language barriers and enhancing comprehension, digital resources including movies, graphics, and interactive slides assisted students in understanding grade-level content.
- **Multimodal Supports Strengthened Understanding:** Students were able to process material in a variety of ways due to the combination of interactive, visual, and auditory components, which promoted vocabulary growth and concept clarity.
- **Differentiation Was Embedded Through Technology:** Students were able to participate at varying levels of skill because to scaffolding like repetition, phrase frames, and self-paced learning offered by programs like Waggle, Google Slides, and Book Creator.
- **Language Production was Inconsistent:** Students had less opportunities to actively utilize academic language because many activities required minimal speaking or prolonged writing, even while technology supported understanding.
- **Task Design Determined Effectiveness:** When students had to produce, explain, or communicate concepts (like poetry recordings) rather than just finish digital tasks, technology worked best.

Learning Theories and Technology Integration

- **Comprehensible Input (Krashen):** According to Comprehensible Input, language acquisition occurs when students are able to comprehend messages that are just a little bit above their current level. By removing linguistic barriers, tools like audio, visual, and video aids made academic content easier for multilingual learners to absorb.
- **Output Hypothesis (Swain):** This idea emphasizes how crucial language production is to language competency development. According to the observations, when students had to convey their thoughts through tasks like writing in Google Docs and recording poems in Book Creator, technology most successfully supported output.
- **Cognitive Load Theory:** According to the cognitive load theory, learning gets better when needless mental effort is lessened. Students were able to concentrate on comprehending important ideas rather than just decoding English because to the simplification of difficult material provided by visual aids, diagrams, and organized slides.
- **Academic Language Development:** Building vocabulary and linguistic structures unique to a discipline is the main goal of academic language development. Sentence structures, simulated answers, and frequent vocabulary exposure helped students acquire the language required for assignments like science explanations and opinion writing.

Key Insight

When technology matched understanding with chances for students to actively develop and use academic language, it was most effective in supporting language learning.

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