Synopsis - Digital Accessibility Knowledge Among TVIs: Proficiencies In Acquiring Accessible Materials

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Overarching Research Question

How were TVIs utilizing technology to acquire digital AIM for K–12 students with visual impairments in the United States?

Flowchart: Making Accessible Instructional Materials (AIM) for the Student

START HERE — Does the Classroom Teacher Know How to Make AIM for the Student?

- **No** → Get Classroom Materials
- **Yes** → Is it usable to student?

Get Classroom Materials
- Remotely (via email, cloud sharing)
- In Person Physical/photocopy (can require driving to school).

Is it accessible to the student?
- **No** → Does it need a quick turn around?
- **Yes** → Is it usable to student?

Does it need a quick turn around?
- **Yes** → Adapt in House (By TVI, Transcriber, Para, etc.)
- **No** → Can you order it through AMPs or other sources?

Can you order it through AMPs or other sources?
- **Yes** → Receive Materials from AMP or other sources
- (No) → Adapt in House

Adapt in House (By TVI, Transcriber, Para, etc.)
- **Is it digital?**
  - **No** → Scan Material → Retype or OCR
  - **Yes** → Is the text editable?
    - **No** → Retype or OCR
    - **Yes** → Make changes to material to meet needs of student

Retype or OCR → Make changes to material to meet needs of student

Make changes to material to meet needs of student
- Utilize mainstream and specialized technology to make changes
- → Does the student know how to use the tech to access the material?

Receive Materials from AMP or other sources → Is it usable to student?

Is it usable to student?
- **No** → (back to Get Classroom Materials / Yes path)
- **Yes** → Does the student know how to use the tech to access the material?

Does the student know how to use the tech to access the material?
- **Yes** → Student Accesses the Material
- **No** → Teach Student Technology (By TVI, CATIS, or AT specialist)

Teach Student Technology (By TVI, CATIS, or AT specialist)

Student Accesses the Material

Summary of Literature

- Long history (Legislation and technology)

- History of low proficiency w/ tech

- More needed for what is happening K-12

- Limited on TVIs and Digital AIM

CHAT + TPACK Framework

Research Design

Concurrent Mixed Methods Design	
Survey Responses	Simulations

QUANT

- Closed Ended Survey Questions
- Simulation Rubrics

QUAL

- Open-ended Survey Themes
- Simulation Themes

Transform & Merge
Qualitizing & Quantitizing

Interpret
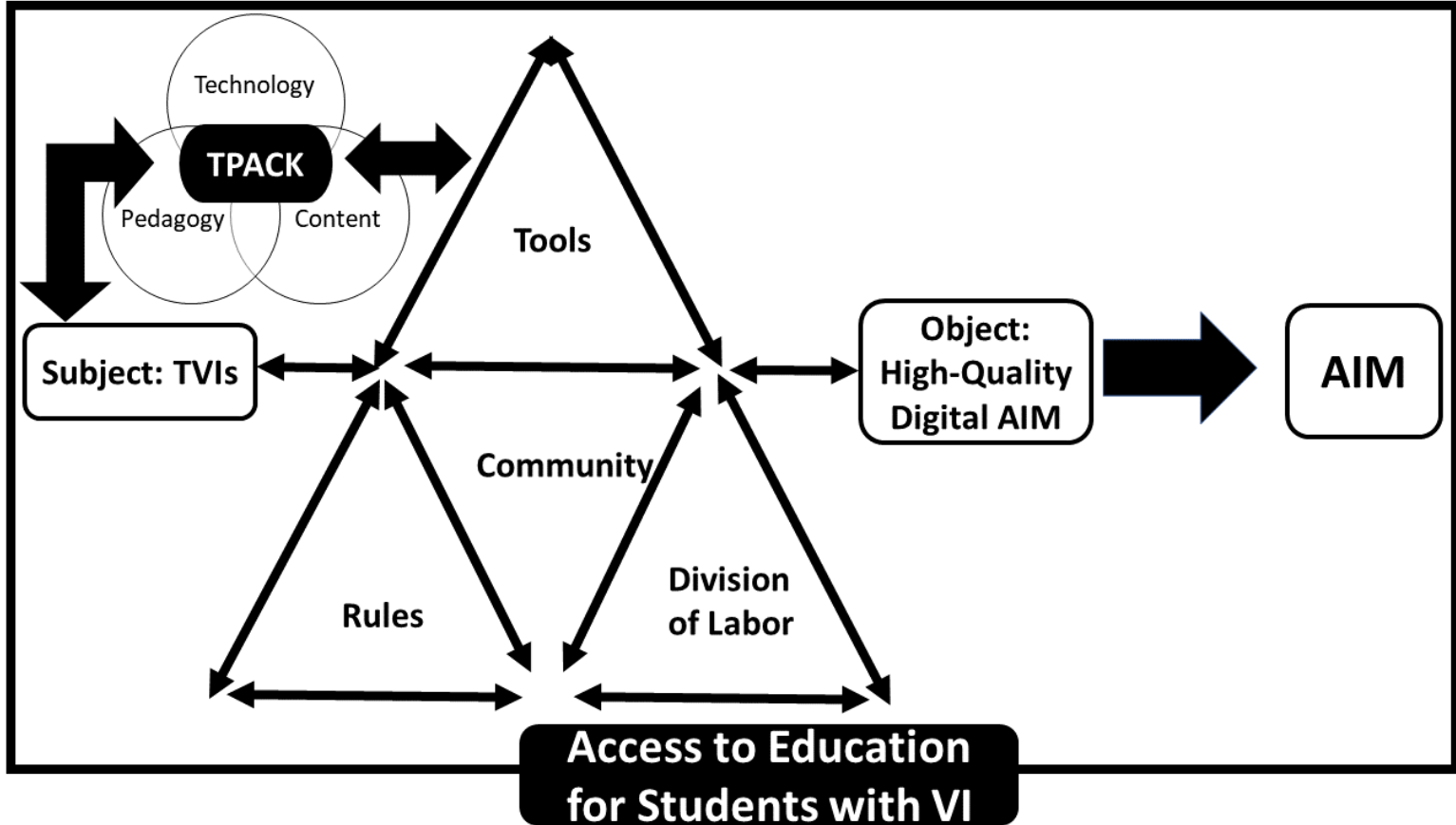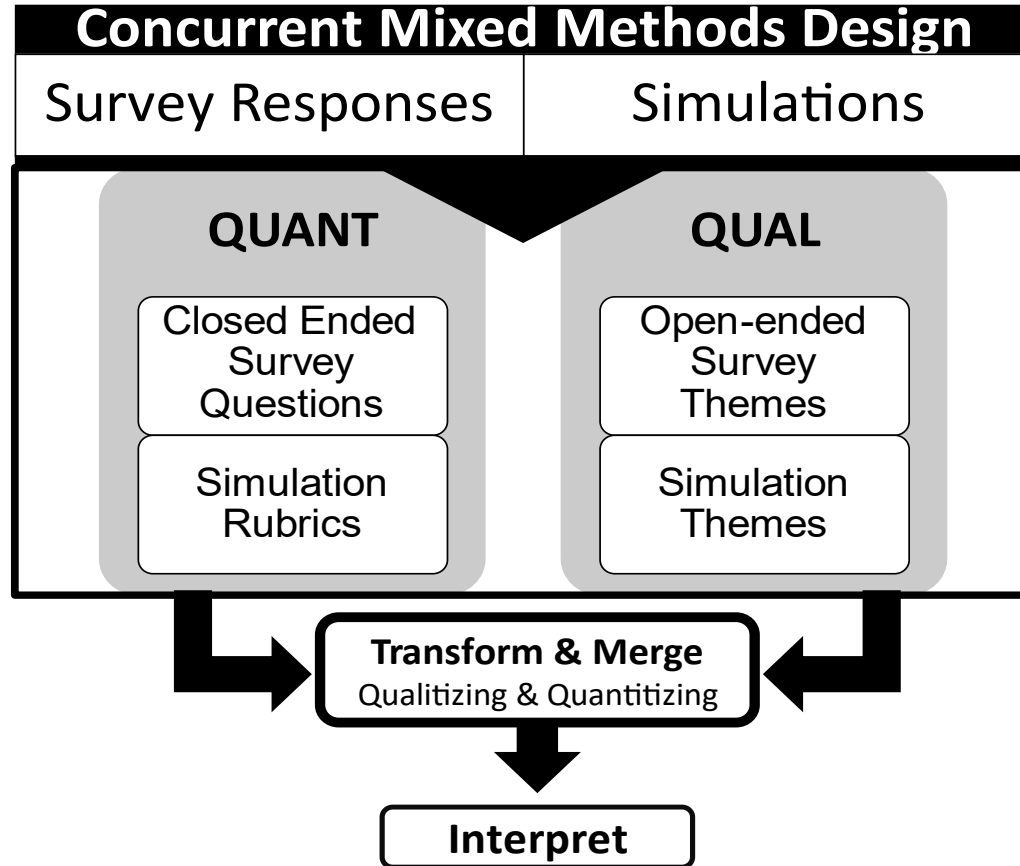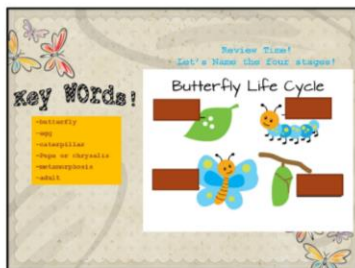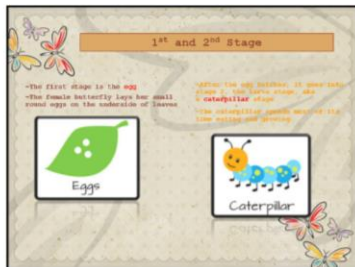
Name: _____   Date: _____

The Life Cycle of a Butterfly

Directions: Read the passage and answer the questions using the word bank.

Butterflies are beautiful insects that go through a process called metamorphosis. This means they go through several stages of development before becoming an adult butterfly. A butterfly' four stages: the egg, the larva (caterpillar), the pupa (chrysalis), and the adult.

The First Stage!
The first stage of a butterfly's life is the egg. The mother butterfly lays her eggs on a plant or tree. The eggs are very small and are usually round or oval in shape. They are laid on the underside of leaves so that they are protected from the wind and rain.

The Second Stage!
The second stage of a butterfly's life is the larva or caterpillar stage. When the egg hatches, a tiny caterpillar emerges. The caterpillar is very small and has a big appetite. It eats the leaves of the plant or tree on which it was born. The caterpillar molts or sheds its skin several times as it grows bigger.

The Third Stage!
The third stage of a butterfly's life is the pupa or chrysalis stage. The caterpillar stops eating and attaches itself to a leaf or twig. It then sheds its skin one last time and forms a chrysalis or pupa. Inside the chrysalis, the caterpillar's body transforms into a butterfly. This process is called metamorphosis.
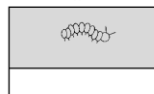
The Fourth Stage!
The fourth and final stage of a butterfly's life is the adult stage. When the butterfly is fully developed, it emerges from the chrysalis. Its wings are soft and wet, but they quickly dry and harden. The adult butterfly then flies away to begin the cycle again.

Questions!

WORD BANK (hint some of the options can be used more than once or not used at all!)

dry	adult	photosynthesis	regeneration	chrysalis	flap
twig	metamorphosis	leaves	5	larva	fruit
egg	flowers	transformation	soil	4	duplication

1. _____ is the process of transformation from one form to another.
2. There are _____ stages in a butterfly's life cycle.
3. The first stage of a butterfly's life is the _____ stage.
4. Butterfly eggs are usually laid on _____.
5. The second stage of a butterfly's life is the _____ stage.
6. Caterpillars eat _____.
7. During the pupa stage, a caterpillar undergoes _____.
8. The final stage of a butterfly's life cycle is the _____ stage.
9. After it emerges from the chrysalis, a butterfly's wings need to _____.
10. Label each of the pictures with the correct stage number.

Extra credit

Go to this website https://sites.google.com/imsb.edu/butterfly1 or this website https://sites.google.com/imsb.edu/butterfly2 and watch the video about the life cycle of a butterfly and write one cool fact you learned!
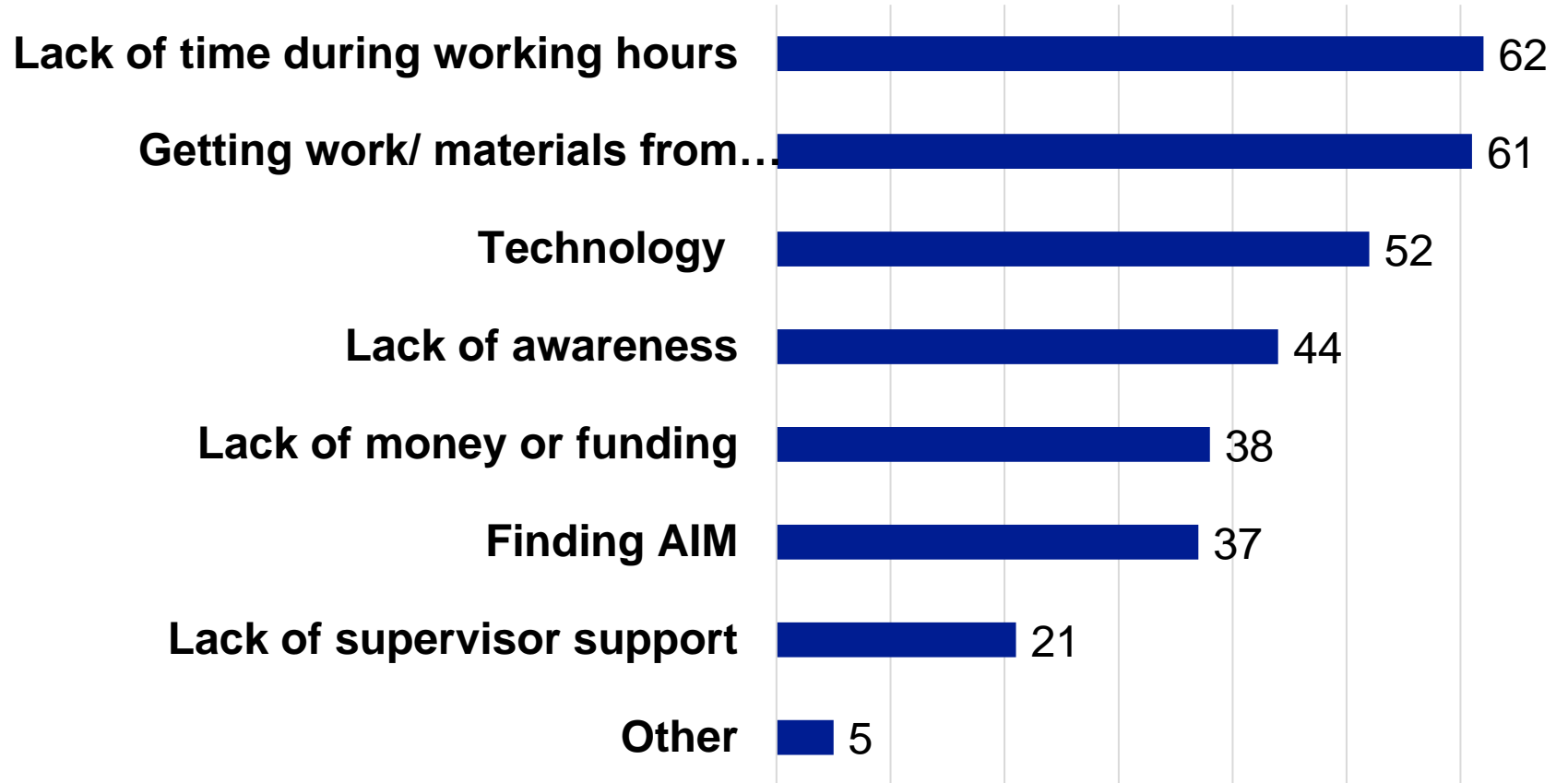
Summary of Participants

- **Total Participants:** 114
- **Most Participants**
  - Age 35-44, white, female
  - Teach K-12
  - Itinerants, Work for school district
- **Average Years in Field:** 8.5 years
- **Caseload Average:** 20.56 students
- **Primarily Learned Digital AIM:** On the job
- **Weekly Hours for Digital AIM:** 8 hours

Barriers

| Barrier	Value
Lack of time during working hours	62
Getting work/ materials from…	61
Technology	52
Lack of awareness	44
Lack of money or funding	38
Finding AIM	37
Lack of supervisor support	21
Other	5

Designated Persons	Gather	Order	Adapt	Deliver	Teach
No designated	5 (4%)	6 (6%)	5 (5%)	3 (3%)	2 (12%)
***TVI**	**57 (50%)**	**57 (52%)**	**61 (55%)**	**62 (56%)**	**69 (62%)**
Transcriber/ braillist	19 (17%)	12 (11%)	27 (24%)	11 (10%)	4 (4%)
Alt. media specialist	14 (12%)	14 (13%)	12 (11%)	12 (11%)	11 (10%)
GenEd Teacher	32 (28%)	10 (9%)	18 (16%)	27 (24%)	13 (12%)
SPED Teacher	35 (31%)	17 (16%)	23 (21%)	30 (27%)	21 (19%)
CATIS					13

Theme	Total References	Top Reference	Total of Theme Category
Printed Materials	64 (25%)	Worksheets	27 (42%)
		Teacher-made materials	12 (19%)
Books	47 (18%)	Novels	30 (64%)
		Textbooks	17 (36%)
Digital documents	32 (12%)	PDFs	7 (22%)
		PowerPoint	6 (20%)
Core Curriculum	26 (10%)	Math	10 (38%)
		Science	6 (23%)
Visuals	21 (8%)	Maps	6 (29%)
		Graphs	4 (15%)

Tools Used To Acquire Digital AIM
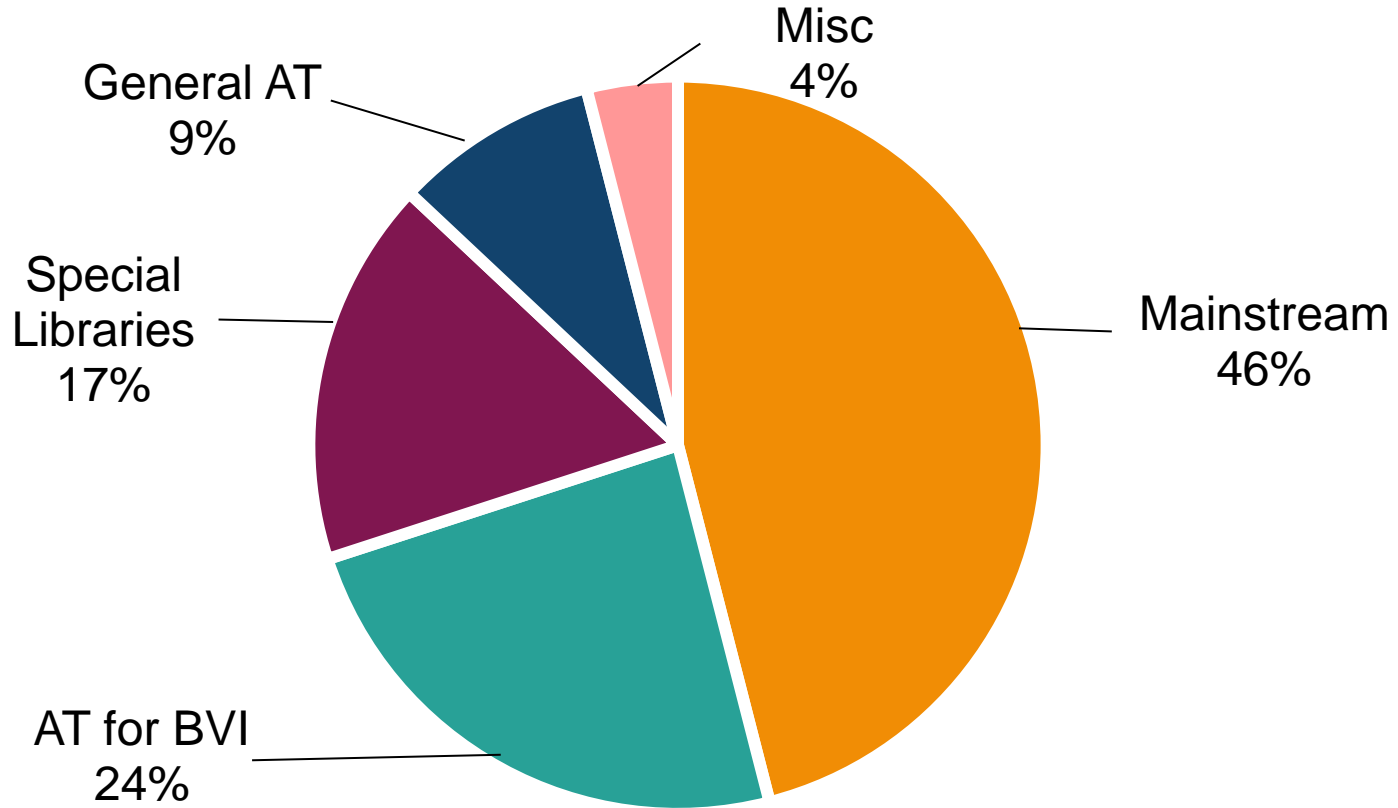
Tech Proficiency Status

Proficient
28%

Not
Proficient
72%
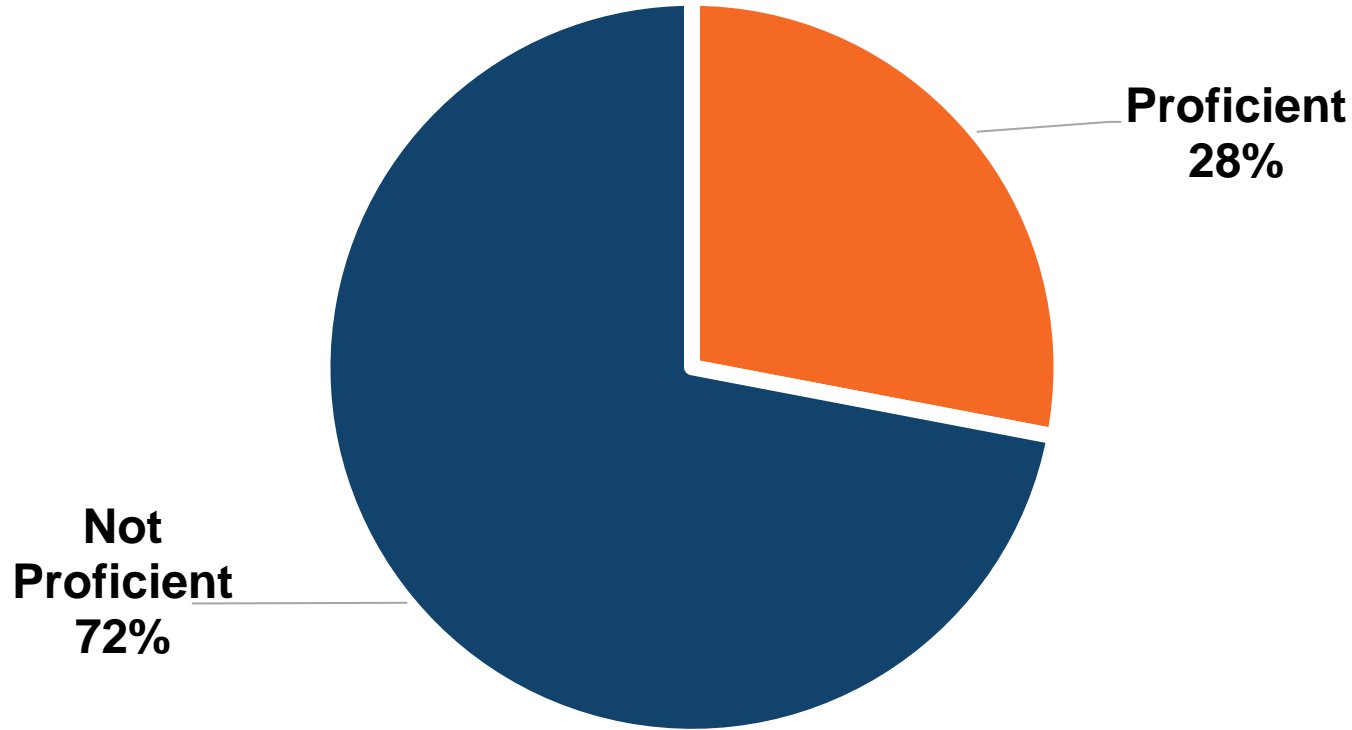
Summary Rubric Element				
Elements	**Presentation**		**Worksheet**	
	Score	**%**	**Score**	**%**
*Overall Score	**28.45**	**57%**	**33**	**66%**
Alt Text	2.70	54%	3.29	66%
Font Type [a]	3.80	76%	4.88	98%
Font Size [a]			4.12	82%
Spacing	1.90	38%	2.29	46%
Unique Titles [b]	2.90	58%	-	-
Headings [c]	-	-	2.41	48%
Links	1.75	35%	1.76	35%
Color	3.45	69%	4.18	84%
Contrast	3.95	79%	4.47	89%
Lists	1.80	36%	2.29	46%
Accurate Text	4.25	85%	3.29	66%
Reading Order [b]	1.95	39%	-	-

Implications

- Determining Access

- Time vs Quality Dilemma

- Documented Time

- Caution with Consult

- Introduction
- Literature Review
- Methodology
- Key Findings and Implications
- *Recommendations
- Q & A

Training Recommendations

- Refresh of legislations

- Recognizing and applying essential accessible elements to common file formats

  - Simplified accessibility guidelines

  - More frequent hands-on training using commonly available tools (i.e. rubric requirements)

	Text alternatives: Include alt text with all visuals and ensure all text is electronic, not just an image of text.
	Font Type: Select familiar, simple fonts such as Arial or Calibri.
	Font Size: Use at least 12pt for word documents and 18pt for presentations. Avoid using all capital letters and true excessive italics or underlines.
	Spacing: Line spacing at least 1.5 times the font size. Avoid unnecessary blank lines.
	Meaningful links: Add meaningful, unique text to hyperlinks
	Color: Avoid using color alone to communicate.
	Contrast: Use sufficient contrast for text and background colors
	List and columns: Use the built-in list or column formats
	Accurate Text: Make sure the text is accurate
	Headings (only applies to word documents)**:** Use built-in headings and styles.
	Correct Reading Order (only applies to presentations)
	Unique Titles (only applies to presentations): Give every slide a unique title.

Future Research

- University curricula

- Relationships of caseload sizes, placements, and certification statuses

- Field and Longitudinal studies

- Material complexity and adaptation accuracy

- Introduction
- Literature Review
- Methodology
- Key Findings and Implications
- Recommendations
- Q & A