

# Accessible and Quality Digital Education for Autism and Intellectual Disabilities ToT Course for Educators

*Accessibility and quality in teaching and  
learning for autism and ID*

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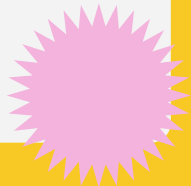
**Overview of accessibility recommendations in digital education**

**02**

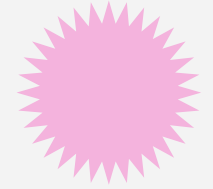
**Strategies for Effective Support in Computer-assisted Instruction**

**03**

**Specialised Instructional Components**



# Expected Learning Outcomes



By the end of this session, you should be able to:

Understand accessibility in three dimensions of information access: physical, intellectual, and social

Define and explain key accessibility recommendations in digital education for learners with autism and intellectual disabilities


Evaluate the accessibility of digital learning materials and make necessary modifications to enhance inclusivity and usability

Understand and differentiate between various strategies for providing effective support in computer-assisted instruction for learners with ASC and ID

Know and understand specialised components of effective instructional design for learners with ASC and ID in computer-assisted instruction



01



Overview of accessibility  
recommendations in digital  
education



## Before we start

Have you worked with digital education in special needs contexts? How much experience do you have?



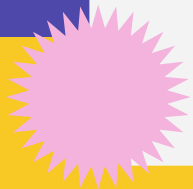
None



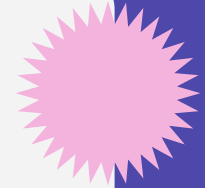
Moderate



A lot



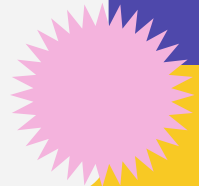
# Why Accessibility Matters?



- Technology as an Enabler: Enhances learning for students with ASC and ID, providing tailored educational experiences.
- Motivation and Engagement: Digital tools increase interest, aiding concentration, comprehension, and independence.
- Visual and Cognitive Supports: Facilitate learning and transitions, improve communication, social, and emotional skills.

# Why Accessibility Matters?

- Overcoming Physical Barriers: Keyboards and touchscreens assist learners with motor skill challenges, fostering classroom participation.
- Language and Literacy Aid: Synthesised speech technologies support language development for non-verbal learners.
- Digital Inclusion vs. Exclusion: Access to quality IT resources is critical to avoid deepening educational inequalities.



# Why Accessibility Matters?

## True or False

Accessible digital tools are only beneficial for learners with disabilities.

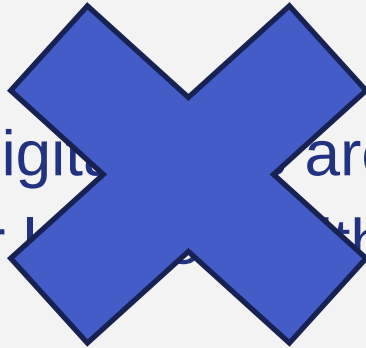




# Why Accessibility Matters?

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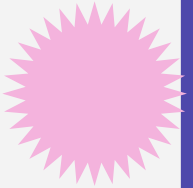
# Guiding Principles for Accessible Digital Education

- **Principle 1:** Inclusivity - Education for all, regardless of ability.
- **Principle 2:** Adaptability - Tailoring learning to individual needs.



If a student struggles with text-based content, which principle guides us to provide an alternative learning format?

# Recommendations for Physical Accessibility



## **Colour & Contrast**

Offer diverse colour and contrast settings

## **Fonts & Sizes**

Provide clear, sans-serif fonts with size choices

## **Navigation**

Maintain simple, predictable site navigation

## **Audio Control**

Avoid loud sounds; allow volume adjustments

## **Design**

Use whitespace and avoid distracting elements

## **Clickability**

Use large, distinct, clickable icons and buttons

# Recommendations for Physical Accessibility

## Customisation

Enable interface personalisation

## User Autonomy

Avoid auto redirects;  
allow task time control

## Reversibility

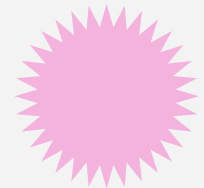
Permit undoing and confirming actions

## Touchscreen-Friendly

Ensure sensitive, accurate touch interactions

## Access

Free, with support for native languages



# Which intended physical accessibility purpose can this assistive technology be beneficial for?

Easier typing for learners with limited fine motor skills



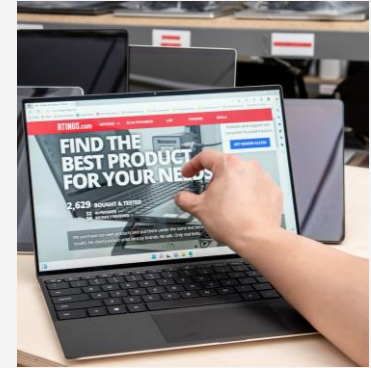
More interaction and visual stimulation for learners with autism



Learners with limited general motor control



Computer navigation for users with limited hand movement



# Which intended physical accessibility purpose can this assistive technology be beneficial for?

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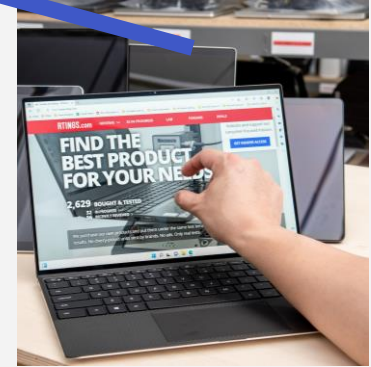
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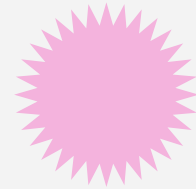


Learners with limited general motor control



Computer navigation for users with limited hand movement





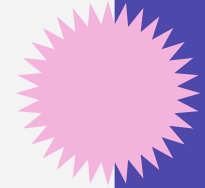
# QUIZ TIME

**When designing digital content for intellectual accessibility, which element is important for helping users understand and focus on content?**

- A) Using long paragraphs with detailed descriptions
- B) Providing information in only text format to maintain consistency
- C) Including a variety of representations like text, video, audio, and images
- D) Implementing high-contrast colour schemes for all visual materials



# QUIZ TIME

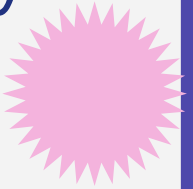


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# Recommendations for Intellectual Accessibility



## Multimodal Content

Pair icons with text and use videos, audio, and images for clarity

## Concise Information

Be succinct to reduce cognitive load

## Clear Language

Opt for simple vocabulary and concrete examples

## Structured Layout

Use lists and headings for easier reading

# Recommendations for Intellectual Accessibility



## Customisation

Allow personalisation of visual and audio elements

## Visible Features

Display all navigational elements openly, avoiding hidden menus

## Simplified Navigation

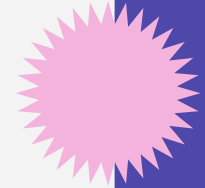
Ensure straightforward movement through content with clear labels

## Interaction Instructions

Provide clear guidance for interface use and immediate feedback



# QUIZ TIME

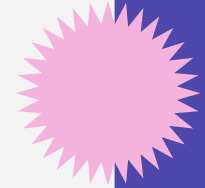


**What should be avoided to support social accessibility in digital content for learners with autism?**

- A) Using emotional icons
- B) Providing clear definitions
- C) Organising information in a FAQ format
- D) Using precise language



# QUIZ TIME



What should be avoided to support social accessibility in digital content for learners with autism?

- A) Using emotional icons
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# Recommendations for Social Accessibility

**Clear Language:** Use specific language, avoiding colloquialisms and idioms.

**Visuals:** Choose neutral icons over those with emotional expressions.

**Contextual Clarity:** Provide clear reasons for nonstandard instructions.

**Information Organisation:** Use FAQs to clarify complex information's relevance and application.

**Definitions:** Clearly define terms with varying social meanings.

**Cultural Sensitivity:** Respect autistic culture in language and content representation.



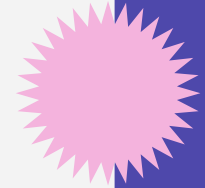
02



## Strategies for Effective Support in Computer-assisted Instruction



# QUIZ TIME

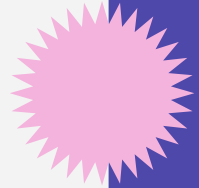


**Why is technology particularly effective for autistic learners?**

- A) It aligns with their preferred visual learning style.
- B) It requires less interaction with people.
- C) It always replaces traditional learning methods.
- D) It is less engaging than other tools.



# QUIZ TIME

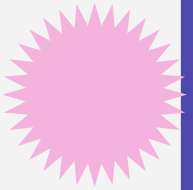


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# Using Technology as a Learning Tool



**Tailored to Visual Learners:** Technology enhances learning for those with a strong visual preference.

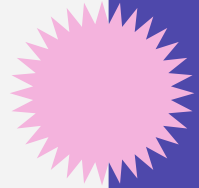
**Interactive Engagement:** Devices like iPads can increase comprehension and retention.

**Alternative Learning:** Offers a break from socially intensive traditional methods.

**Confidence Building:** Predictable tech environments can boost self-esteem in learners.



# QUIZ TIME



**How do visual supports benefit learners in an academic setting?**

- A) They replace all forms of traditional learning.
- B) They provide clarity and context to learning materials.
- C) They are only useful for artistic subjects.
- D) They decrease engagement.



# QUIZ TIME

How do visual supports benefit learners in an academic setting?

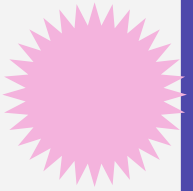
- A) They replace all forms of traditional learning.
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# Use Visual Supports

**Enhanced Comprehension:** Visual supports like pictograms aid in understanding academic content.

**Reinforce Learning:** Symbols alongside text can strengthen information retention.

**Concrete Examples:** Objects and manipulatives help illustrate abstract concepts.



# Applying Detailed Differentiated Instruction

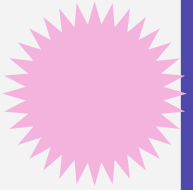
**Task Breakdown:** Simplify tasks into smaller, teachable steps.

**Supportive Strategies:** Combine visual aids with verbal prompts for instruction.

**Diverse Techniques:** Use methods like big question teaching and learning agendas.

**Skill Mastery:** Enable learners to gradually achieve independence in skills.

**Flexibility & Engagement:** Offer varied learning activities to cater to individual needs.





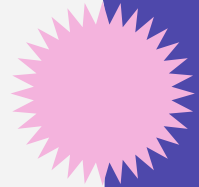
# QUIZ TIME

**What is the benefit of using big question teaching in differentiated instruction for learners with autism and ID?**

- A) It simplifies the curriculum to a single focus question.
- B) It encourages learners to memorise facts.
- C) It engages learners through intriguing questions and promotes higher-order thinking.
- D) It allows for quicker lessons without detailed explanations.



# QUIZ TIME



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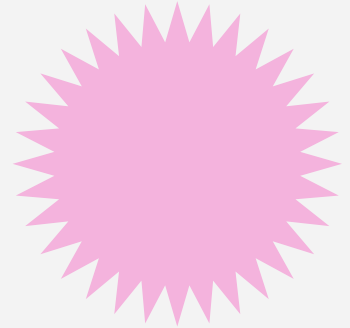
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# Establishing Structured Learning Environments

**Routine and Consistency:** Implement clear routines to reduce anxiety.

**Visual Schedules:** Use visual/written schedules for better organisation.

**Clear Expectations:** Set and communicate clear academic expectations.



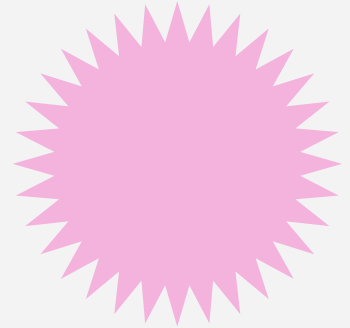


# Limiting Sensory Overload

**Classroom Adaptations:** Implement strategies to minimise sensory distractions.

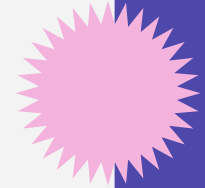
**Sensory Sensitivity Management:** Recognise and mitigate sources of sensory overload.

**Environmental Adjustments:** Create calm periods and utilise quieter spaces.





# QUIZ TIME



What strategy can teachers use to help learners with sensory sensitivities?

- A) Increase classroom noise levels
- B) Schedule high-sensory activities without breaks
- C) Allow time to decompress after noisy activities
- D) Encourage learners to adapt without support



# QUIZ TIME

What strategy can teachers use to help learners with sensory sensitivities?

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# Incentives and Feedback

**Positive Reinforcement:** Utilise rewards to promote desired behaviours.

**Clear Communication:** Give straightforward feedback to avoid confusion.

**Progress Monitoring:** Conduct regular check-ins to support learner needs.



# Adapted Shared Reading Activities

**Customised Interaction:** Modify reading sessions to suit individual learner needs.

**Engagement Tools:** Use visual aids and objects to enhance comprehension.

**Language Development:** Encourage more than one-word responses to build communication skills.



たんじょうび

おめでとう

たんじょうび

こねし

15 min activity

What sensory accommodations would you make to this classroom?



**ENERGISER**  
MOVEMENT CHAIN



03

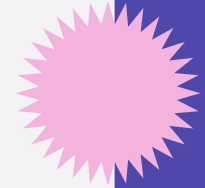


## Specialised Instructional Components





# QUIZ TIME



**In a digital learning activity, what is the most effective way to reinforce a nonverbal learner for choosing the correct answer?**

- A) Use a loud sound effect
- B) Display a virtual sticker or animation
- C) Wait and provide feedback at the end of the session



# QUIZ TIME

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- C) Wait and provide feedback at the end of the session

# Differential Reinforcement



**Identify Behaviour:** Choose specific behaviours to reinforce in digital activities.

**Alternative Behaviours:** Find replaceable behaviours using assistive technology.

**Reinforce with Rewards:** Use virtual stickers or animations for positive reinforcement.

**Immediate Feedback:** Provide visual/audio cues for correct behaviour.

**Adapt Activities:** Tailor digital activities for nonverbal learners' needs.

# Token economy



**Flexible Reinforcement:** Adapts to learners' and teachers' needs.

**Generalised Reinforcers:** Tokens exchanged for desired rewards.

**Reinforcing Skills:** Effective for academics, communication, self-help, prosocial behaviour.

**System Design:** Consider tokens, earning criteria, token count, and backup reinforcers.

**Adaptation for Language Skills:** Simplify for limited language abilities, clarify for well-developed skills.



# QUIZ TIME

**In a token economy, what should you consider when designing your system for a learner with autism?**

- A) The colour of the tokens
- B) The learner's interests and the criteria for earning tokens
- C) The number of tokens in total



# QUIZ TIME



In a token economy, what should you consider when designing your system for a learner with autism?

- A) The color of the tokens
- B) The learner's interests and the criteria for earning tokens
- C) The number of tokens in total



# Token economy

**Interest-Based Tokens:** Using tokens that reflect the learner's interests increases effectiveness.

**Building Intrinsic Motivation:** Gradually reduce tangible rewards, shifting focus to the task's internal satisfaction.



# Multiple exemplar instructions

**Variety in Teaching:** Expose learners to various examples of a skill or concept.

**Promotes Generalisation:** Helps learners apply knowledge across different contexts.

**Crucial for Comprehensive Understanding:** Ensures recognition of core characteristics despite variations.



Why is it important to use multiple exemplars when teaching the child about a certain object?

A A A H A A



# Stimulus prompting

**Definition:** Altering materials to aid correct responses.

**Gradual Fading:** Important to slowly return materials to their original form as mastery is achieved.

**Positional Prompts:** Positioning answers to hint at correctness, like placing the correct option closer to the learner.

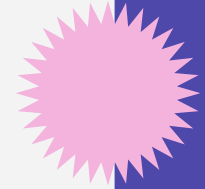
**Changing the Stimulus/Material:** Modifying materials for cues, such as using size differences in PECS.

**Goal of Fading Prompts:** Ensuring learners understand the concept, not just the prompt.





# QUIZ TIME



What is the purpose of gradually fading stimulus prompts in teaching?

- A) To make the lesson more challenging
- B) To ensure the learner understands the concept independently of the prompt
- C) To test the learner's memory



# QUIZ TIME

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# COFFEE BREAK



# Response Prompting Procedures

**Purpose:** Used to evoke correct responses by acting on the learner's response.

**Major Forms:** Verbal Instructions (oral/non-vocal), Modelling, Physical Guidance.

**Prompting Hierarchy:** Ranges from least to most intrusive (e.g., expectant pause, direct verbal, full physical guidance).

**Careful Use:** Avoid over-reliance to promote independent responses.

Prompt Fading: Gradually reduce prompts over time for skill mastery.

**Example:** Using the word 'GO' in a learning activity – from indirect verbal hints to full physical guidance.





# Discrete Trial Training

**Technique Basis:** Rooted in applied behaviour analysis (ABA).

**Skill Breakdown:** Complex skills divided into smaller steps.

**Teaching Sequence:** Involves clear instruction, prompting, and immediate reinforcement.

**Types of Prompts:** Verbal, physical, or visual cues to guide correct responses.

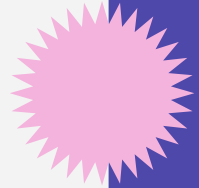
**Reinforcement and Feedback:** Positive reinforcement for correct answers; corrective feedback for errors.

**Digital Integration:** Use of digital manipulatives and touchscreen devices to enhance engagement.

**Customisation and Progress Tracking:** Tailoring to individual learner needs and monitoring progress.



# QUIZ TIME



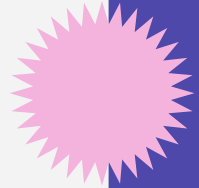
**In a DTT session using a touchscreen app, what should a teacher do if a child correctly identifies a colour?**

- A) Provide immediate positive reinforcement
- B) Wait and provide feedback at the end of the session
- C) Move to a more complex task immediately





# QUIZ TIME



In a DTT session using a touchscreen app, what should a teacher do if a child correctly identifies a colour?

- A) Provide immediate positive reinforcement
- B) Wait and provide feedback at the end of the session
- C) Move to a more complex task immediately

# Teaching emergent literacy using chaining



**Chaining Principle:** Breaks complex behaviours into manageable units; each step reinforces the previous and sets up the next.

**Task Analysis:** Breaking down a behaviour into separate steps, choosing between total task, forward chaining, or backward chaining.

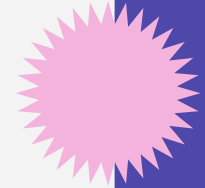
**Teaching Techniques:** Forward chaining starts with the first step, backward chaining begins with the last step, total task teaches all steps together.

**Engaging Material Development:** Use interactive books, fun games, and visual aids for enjoyable learning experiences.

**Consistent Practice & Progress Monitoring:** Regular practice sessions and tracking progress to meet set literacy goals.



# QUIZ TIME

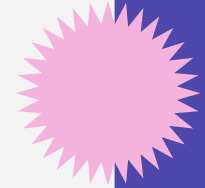


**In teaching emergent literacy using forward chaining, what is the initial focus of the instruction?**

- A) Completing the entire task at once
- B) Mastering the first step before moving to the next
- C) Focusing on the last step of the task



# QUIZ TIME



In teaching emergent literacy using forward chaining, what is the initial focus of the instruction?

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# Digital Tools for Maths Skill Acquisition



**Virtual Manipulatives:** Digital objects on-screen to teach concepts like counting and geometry, useful for interactive learning.

**Abacus and Flashcards:** Engage senses and simplify presentation of concepts.

**Teaching Principles:** Concrete-to-abstract, familiarity, and generalisation for effective learning.

**Music and Rhymes:** Use songs to help memorise maths facts and principles.

**Incorporating Interests:** Tailor maths lessons to include learner's personal interests.

**Multimedia Use:** Employ videos, interactive software, and visual aids for learners with strong visual-spatial skills.

**Gamification:** Introduce maths games and interactive tools for engaging and fun learning.

# Gestalt Language Processing

**Language Development Approach:** Learners process language in chunks like phrases or sentences, typical in autistic and hyperlexic learners.

**Challenges and Strengths:** Struggle with expressive language and inflexible language use but excel in memory and contextual understanding.

**Support Strategies:** Use common scenarios and non-verbal cues, avoid correcting speech directly, and work with a speech pathologist for deconstruction.



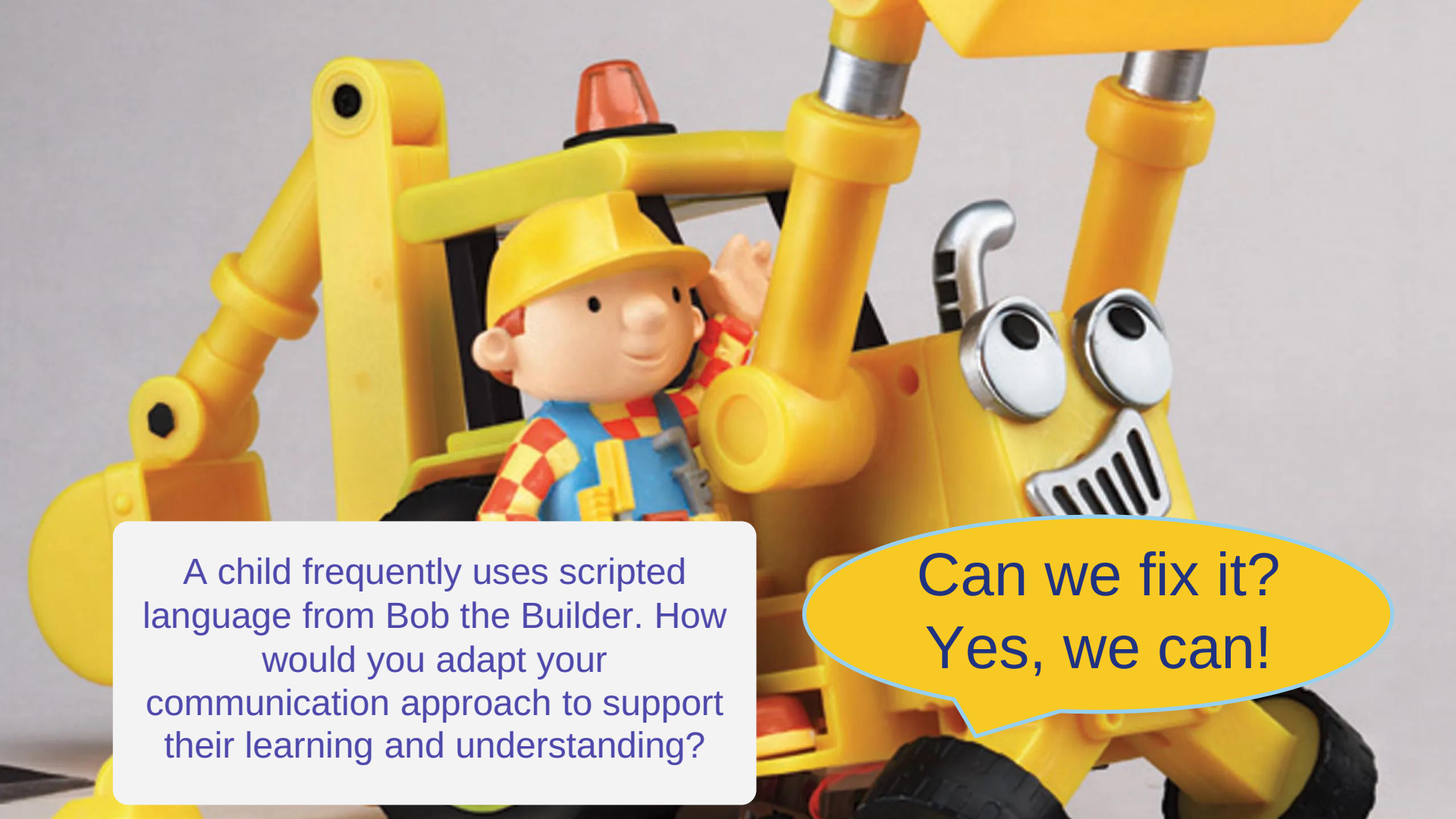


# Gestalt Language Processing

**Communication Tools:** Utilise Augmentative and Alternative Communication (AAC) devices, adapting them for gestalt processing.

**Environment Adaptation:** Create a supportive environment focusing on natural interactions and relationship-based communication.

**Group Activities for Learning:** Sensory explorations, group walks, music and movement activities, and book clubs.



A child frequently uses scripted language from Bob the Builder. How would you adapt your communication approach to support their learning and understanding?

Can we fix it?  
Yes, we can!



# Gestalt Language Processing



**Recognise and echo the phrase:** "That's what Bob the Builder says! He likes fixing things and working together, doesn't he?"

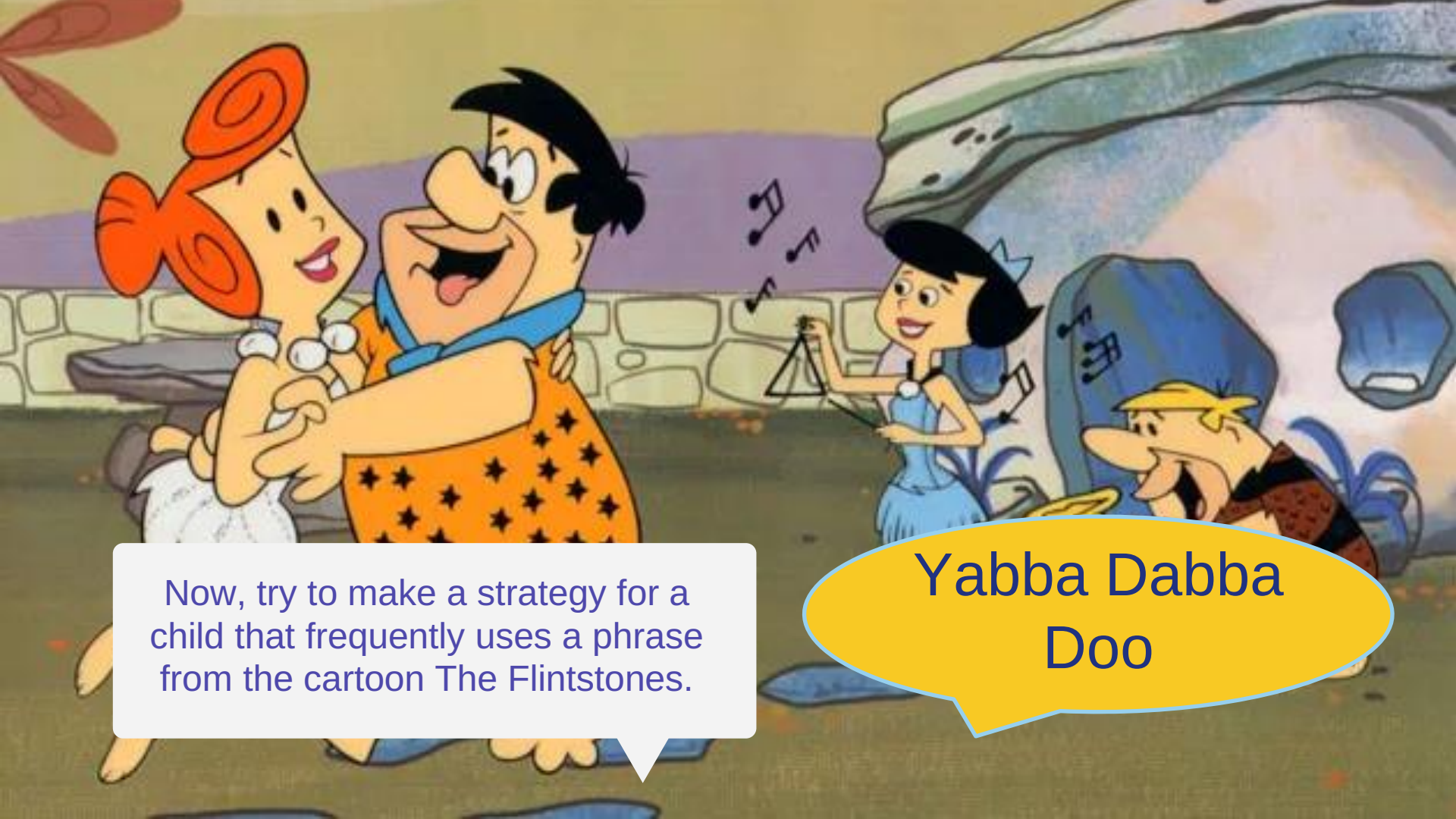
**Contextual Understanding:** Discuss themes of teamwork and problem-solving from the show, relating them to real-life situations or classroom activities.

**Expanding Language Use by Encouraging the child to apply the phrase to classroom tasks:** "What can we fix or solve together today in class?"

**Use of AAC Tools:** Include the phrase in the AAC device, using it to motivate tasks or group activities.

**Natural Interaction and Play:** Engage in constructive play or teamwork activities, using the phrase to inspire collaboration.

**Encouragement and Positive Reinforcement:** Praise cooperative behavior and problem-solving attempts, reinforcing the show's message of teamwork and capability.



Now, try to make a strategy for a child that frequently uses a phrase from the cartoon The Flintstones.

Yabba Dabba  
Doo

# Activity – Yabba Dabba Doo

Recognize  
and echo  
the phrase

1

Expanding Language  
Use by Encouraging the  
child to apply the phrase  
to classroom tasks

3

Natural  
Interaction and  
Play

5

2

Contextual  
Understanding

4

Use of AAC  
Tools

6

Encouragement  
and Positive  
Reinforcement



# QUIZ TIME



How many quizzes did you do in this unit (not including this one)? 😊

- A) 5
- B) 9
- C) 11
- D) 14



# QUIZ TIME



How many quizzes did you do in this unit (not including this one)? 😊

- A) 5
- B) 9
- C) 11
- D) 14

# Our team



**MSSA**  
Macedonian Scientific Society  
for Autism



**Vesna Filipovska**



**Andrea Ivanovska**



**Prof. Vladimir Trajkovski**

Presented by:  
**Fiki Gaspar**



# Thank you for your attention!

Do you have any questions?  
Learn more about ISEC-ADE at [isec-ade.eu](http://isec-ade.eu)



Accessible digital education for learners with autism and intellectual disabilities:  
Innovating solutions and enhancing educators' competences  
ISEC-ADE - Erasmus+ Project 2021-1-CY01-KA220-SCH-000027701



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