ROBOSTEAMSEN
Training SEN teachers to use ROBOTICS for fostering STEAM and develop computational thinking

Project Number: 2023-1-ES01-KA220-SCH-000155379

Understanding and Use of a Technological Resource

Institution	Pixel
Disciplina STEAM	Technology
IDD Student Context	Secondary students with ASD Level 1
Resource used	Infinitas Historias

Description of the step-by-step activity before the project

1. Student Profile and RoboSTEAMSEN Planning: Since the student profile is already established within the RoboSTEAMSEN Project, the methodology involves identifying strengths, challenges, and the educational plan. Identify key aspects of engagement, communication, and sensory preferences.
2. Define the STEAM Learning Objective: Choose a STEAM-related activity that aligns with classroom goals (e.g., coding, robotics, problem-solving, mathematics, or communication skills).
3. Support structured learning within a STEAM-focused environment.
4. Review Methodological Strategies for Adaptation: Consider instructional structure and visual supports. Incorporate visual aids (e.g., pictograms, step-by-step guides, schedules) to enhance understanding. Ensure the environment is structured, with clear routines and predictable interactions.
5. Utilize resources from the RoboSTEAMSEN Project to reinforce programming objectives and accessibility.
6. Find a new resource that aligns with the objectives and the plan but is not available on the resource website**: "Infinite Stories".**

Try the new resource and then register it on the RoboSTEAMSEN Project resource website.

Description of the activity step by step (changes in red)

1. Steps 1-6 remain the same.
2. **Trying the new resource: "Infinite Stories".**
3. Introducing "Infinite Stories" as a learning tool: Show examples of simple, interactive stories that model expected behaviors and structured activities.
4. Develop a personalized story for introducing a new tool by defining the sequence of activities, such as classroom routines, steps to complete a project, or an animated digital guide on how to use a specific tool or follow collaboration rules. Write simple, clear text for each step and include audio narration if needed.
5. Allow free exploration and customization by letting students personalize their own stories based on their experiences. Provide pre-made templates where they can change characters or backgrounds.
6. Create a story-driven challenge where students understand and follow step-by-step instructions for a STEAM task.
7. Set up the environment by using visual schedules to reinforce the learning process.
8. Encourage social interaction and collaboration by designing group stories where students create and share their narratives while modelling teamwork, turn-taking, and peer interactions.
9. Observe and support students with prompts and adaptations by offering verbal and visual cues to help them engage with the app. Adapt stories to individual needs, adjusting text complexity, sensory elements, and response options.
10. Wrap up and reflect by reviewing the stories created and discussing the main concepts learned. Encourage students to describe their experiences using AAC (Augmentative and Alternative Communication) tools if needed. Save and revisit digital stories to reinforce learning over time.
11. Evaluate learning outcomes by assessing student engagement and progress, determining

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how well the activity aligned with the student's profile, strengths, challenges, and educational plan, and updating results based on performance and engagement. **12. Register it on the RoboSTEAMSEN Project resource website.** 13. Within the website, Log in, navigate to Resources and Tools, then go to Robotics and Methodological Resources. In the top right corner, the "Insert New Document" tab will appear. Introduce the resource in the web. 14. Look for new resources and activities to refine learning outcomes using the student profile 15. Expand and create new challenges by introducing progressive learning activities that build on previously acquired skills and encouraging students to create their own stories. **Keep registering new resources and tools**	
Extra resources	Mobile robots,
Similar activities	Explore the web

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Basic Movements of a Robot

Institution	Pixel
Disciplina STEAM	Technology
IDD Student Context	Primary/Secondary students with ASD Level 1/2
Resource used	Pepper

Description of the step-by-step activity before the project

1. Present the Activity: Introduce the lesson and Pepper's role.
2. Allow Exploration Time with Pepper freely before structured tasks. Encourage simple interactions such as greetings, asking basic questions, and responding to Pepper's gestures.
3. Define the STEAM Learning Objective: Choose a STEAM-related activity that aligns with classroom goals (e.g., coding, robotics, problem-solving, mathematics, or communication skills).
4. Program Pepper for the Task: Customize Pepper's responses to match the learning objective (e.g., responding to student input, giving hints, providing encouragement).
5. Conduct the Activity: Guide students through the predefined STEAM task using Pepper.
6. Observe and Support Students During the Process: Ensure that Pepper's interactions remain structured and supportive.
7. Evaluate Learning Outcomes: Assess student response to Pepper and progress toward STEAM learning objectives.

Description of the activity step by step (changes in red)

1. Classify the IDD into the taxonomy if previously it has been not done: Identify key areas where Pepper can be useful in meeting learning and interaction needs.
2. Create the profile for the students based on the student's strengths, challenges, and needs.
   Identify key aspects of engagement, communication, and sensory preferences.
3. I look for methodological resources and other existing resources: integrate robotics and structured learning.
4. I define the activity in the user model and associate it the IDD student plan:
   Customize the activity to align with their abilities, incorporating robotics as an engaging educational tool.
5. Review Methodological Strategies for Adaptation: considering instructional structure, visual supports. Incorporate visual aids (e.g., pictograms, step-by-step guides, schedules) to enhance understanding; Ensure the environment is structured, using clear routines and predictable interactions.
6. Utilize resources from the RoboSTEAM Project to reinforce programming objectives and accessibility.
7. Follow steps 1-7 considering all previous steps: Ensure that future activities and learning experiences consider the student's profile, progress, and previously defined objectives, reinforcing their learning journey through structured programming experiences.
8. Present the Activity: Use visual schedules and step-by-step instructions to introduce Pepper's role and the learning objectives. Provide clear expectations and reinforce instructions using icons, charts, or social stories.
9. Allow Exploration Time with Pepper freely before structured tasks. Encourage simple interactions such as greetings, asking basic questions, and responding to Pepper's gestures.
10. Define the STEAM Learning Objective: Ensure the task is aligned with STEAM learning goals (coding, robotics, problem-solving, mathematics, communication). Break down the

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activity into small, manageable steps.

11. Set Up the Environment: structured and predictable setting for interaction and use visual markers and labels to define work areas.
12. Program Pepper for the Task: Customize Pepper’s responses to match the learning objective (e.g., responding to student input, giving hints, providing encouragement). Predefine Pepper’s responses to support engagement and guidance.
13. Conduct the Activity: Facilitate student engagement by guiding them through the structured learning experience and reinforce participation by using visual feedback (e.g., checklists, progress trackers).
14. Encourage Social and Collaborative Learning: Have students collaborate in pairs or small groups to interact with Pepper and use Pepper to model turn-taking and question-response sequences.
15. Observe and Support Students During the Process: Provide verbal and visual prompts as needed and ensure that Pepper’s responses remain consistent and predictable. If students encounter challenges, adjust Pepper’s prompts or simplify the activity and offer reinforcement strategies like visual choice boards or guided scripts.
16. Wrap Up and Reflect: Conclude the session with a summary and visual review of what was learned.
17. Evaluate Learning Outcomes: Assess engagement and progress using checklists, rubrics, or observational notes. Gather feedback from students and educators to refine future activities. Ask students to share their experiences using structured communication supports (e.g., sentence starters, choice boards).
18. Expand and Create New Challenges: Plan progressive learning activities that build upon prior experiences and continue to integrate Pepper in varied subject areas using structured guidance and supports.

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