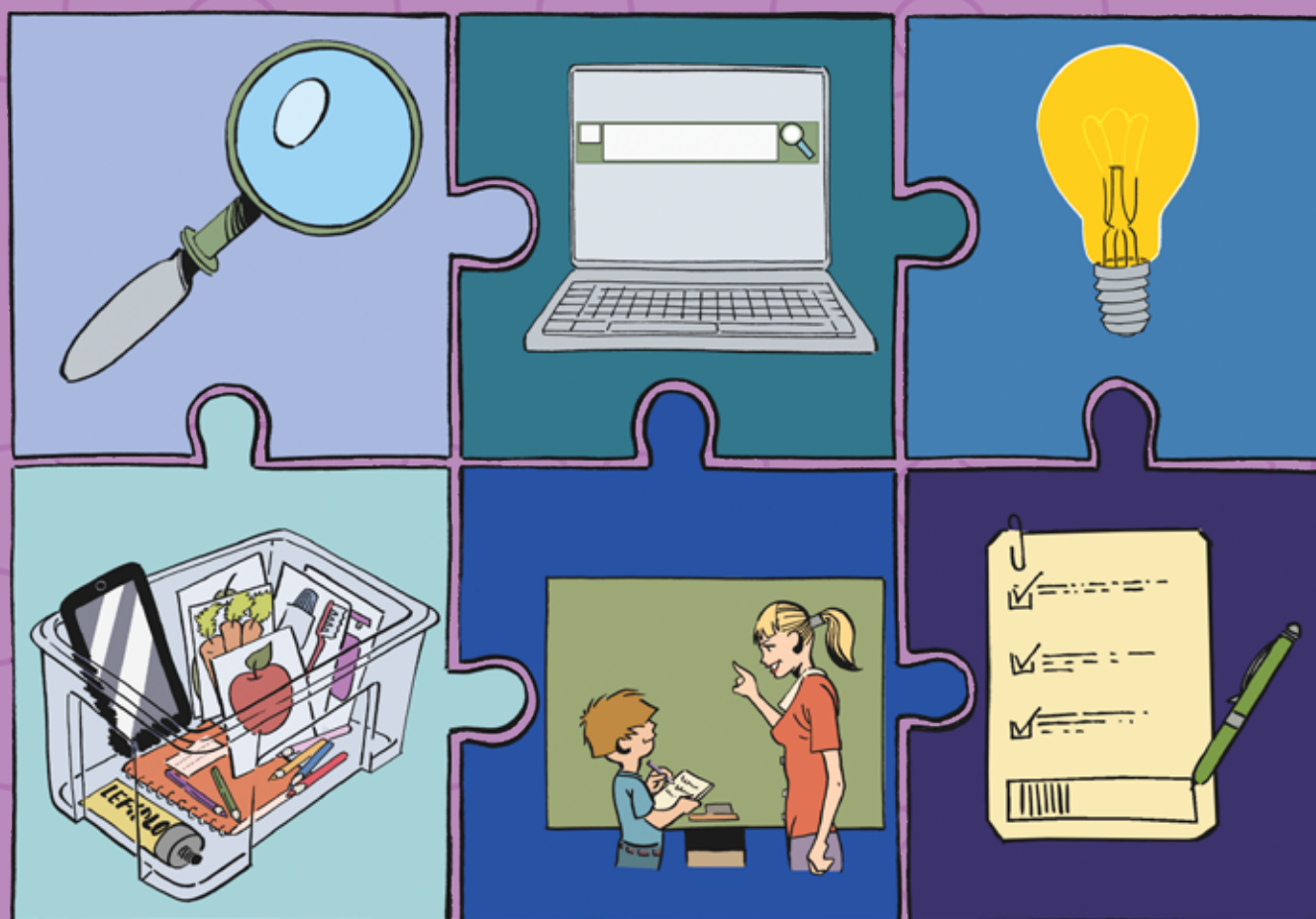


METHODOLOGY GUIDE

on Evidence-Based Practices for Students with Disability

Essential resource for teacher assistants



Jahodovka

Profesní Institut Jahodovka

РЦСЕ

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- Základní škola Solidarita, Praha 10.

A NOTE ON TERMINOLOGY

The authors respectfully acknowledge that there are differences in the ways people talk about disability. Some people with disability prefer person-first language (i.e., a person with disability), and some prefer identity-first language (i.e., autistic person). In this guide the authors use person-first language, which reflects the predominant usage in the international context and the majority of literature reviewed. The authors use terms such as “challenge” and “difficulty” when referring to students, to be in line with the social model of disability and respect community preferences. Terms such as “impairment” or “deficit” are not used as they are considered ableist and not in line with the preferences of people with disability.

The term “special education needs” is an official term used in relation to students with disability in the Czech Republic and Slovenia. However, we want to acknowledge that the term “special education needs” is found offensive by many people with disability and their supporters. Specifically, in Australia, people with disability do not support the use of euphemisms for disability, as it implies that there is something wrong with having disability (PWDA, 2021). As this guide is published for teachers and teacher assistants in the Czech Republic and Slovenia, we use the term “special education needs” as this is culturally and contextually relevant to this audience.¹



Disclaimer

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

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INTRODUCTION

Special and inclusive education continue to constantly develop as a result of new knowledge based on rigorous research about (i) students with disability, and (ii) effective interventions that support students with disability to achieve their education goals. Those interventions which were proven by rigorous research as highly effective are called evidence-based practices. Evidence-based practices are essential in supporting students with disability to achieve their educational goals.

This Methodology Guide on Evidence-based Practices responds to the professional development of teacher assistants. In the experience of the Methodology authors, teacher assistants often feel uncertain about how to support with students with disability.

This Methodology Guide on Evidence-based Practices presents the concept of evidence-based practices. The Methodology Guide on Evidence-based Practices takes the reader through the individual stages of selecting and implementing evidence-based practices in an understandable and illustrative form. In the Methodology Guide on Evidence-based Practices, you will find six evidence-based practices: (i) social narratives, (ii) visual supports, (iii) technology-aided instruction and intervention, (iv) prompting, (v) reinforcement, and (vi) task analysis. The individual evidence-based practices are complemented by case studies, which demonstrate how the individual practices can be used with specific students to achieve outcomes across various skills.

This Methodology Guide on Evidence-based Practices was developed using reports from Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, and Autism Evidence-Based Practice Review Group^{2, 3}, and internationally recognised research from Autism Focused Intervention Resources and Modules (AFIRM)⁴, What Works Clearinghouse⁵, The IRIS Center⁶, and The National Clearinghouse on Autism Evidence and Practice (NCAEP)⁷. The research team would like to recognise these organisations and their authorship of the presented materials. The case studies illustrating the selected evidence-based practices were developed by the authors of this Methodology Guide.

Which practices are considered evidence-based?

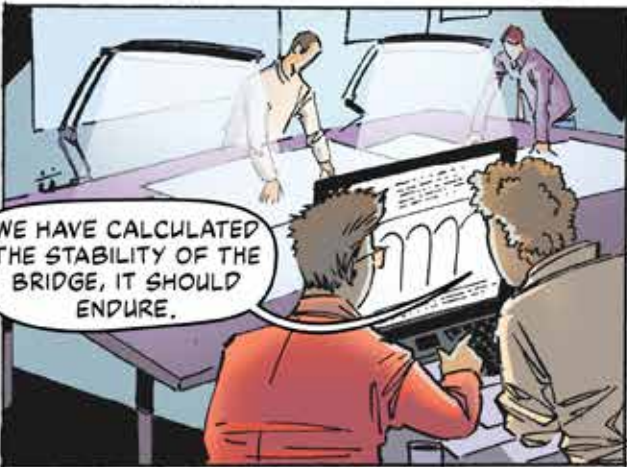
These practices are validated by high-quality and rigorous research. Such research has been conducted with a number of diverse students, in diverse settings (e.g., home, school), in different countries and has led to a number of benefits (educational, social or behavioural). The use of these evidence-based practices supports students with disability in achieving outcomes in various areas (e.g., academic, social and emotional, and self-determination and life skills).^{8, 9, 10}

Why is it important to use evidence-based practices?

Almost every educator has felt frustrated at some point when they couldn't find a way to support their student. They may have tried one approach after another, wasted a lot of time, and energy, and still did not achieve the expected positive results. Evidence-based practices in education have a proven track record of helping students with disability to improve their outcomes. Evidence-based practices have been used for many years in other fields of knowledge, such as medicine.



I NEED TO BUILD A BRIDGE.



WE HAVE CALCULATED THE STABILITY OF THE BRIDGE, IT SHOULD ENDURE.



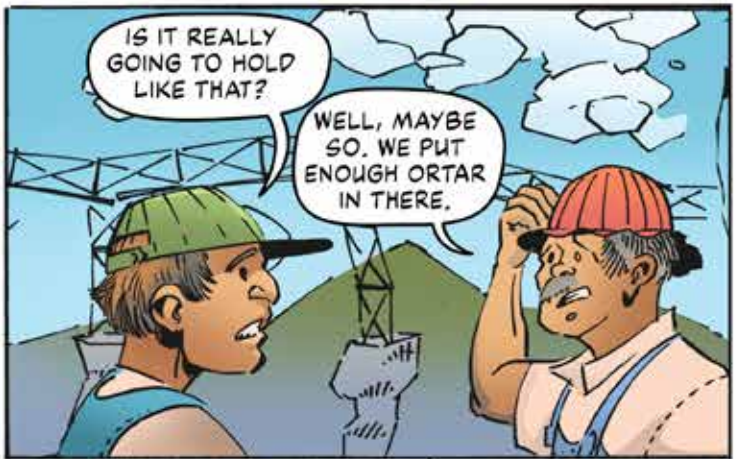
THE STRESS TEST HAS VERIFIED THAT THE BRIDGE IS STRONG, WITH GOOD ENDURANCE.

GOOD JOB, MATE.



HAVE YOU EVER BUILT A BRIDGE?

NO, BUT I'VE GOOGLED IT. I THINK I KNOW HOW.



IS IT REALLY GOING TO HOLD LIKE THAT?

WELL, MAYBE SO. WE PUT ENOUGH ORTAR IN THERE.



WHICH BRIDGE SHOULD I CROSS SO IT DOESN'T CRASH WITH ME?



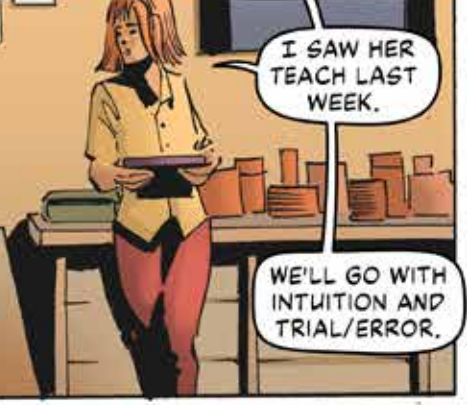
MAX!

COOPERATION WITH MAX IS REALLY BAD, WE HAVE TO HELP HIM.



HERE ARE METHODS THAT HAVE BEEN TESTED ON MANY CHILDREN IN MANY COUNTRIES. THEY HAVE VERY GOOD RESULTS.

OR WE CAN TRY WHAT OUR COLLEAGUE HELLEN DID.



I SAW HER TEACH LAST WEEK.

WE'LL GO WITH INTUITION AND TRIAL/ERROR.



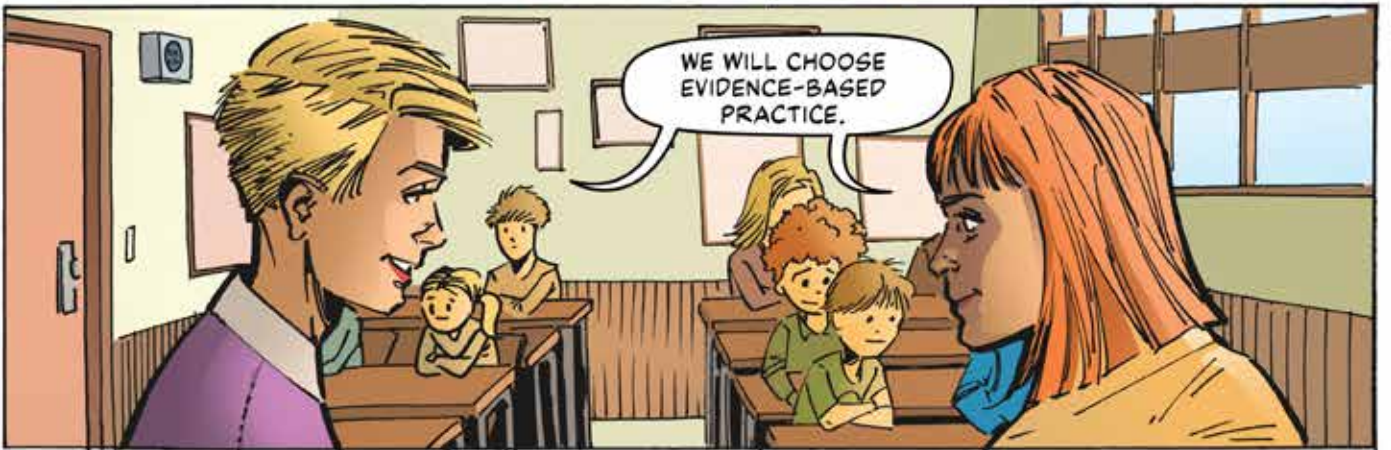
WHEN WE USE A EVIDENCE-BASED APPROACH, WE ARE MORE LIKELY TO ACHIEVE POSITIVE OUTCOMES FOR THE STUDENT.

WE WILL NOT WASTE OUR TIME AND RESOURCES.



WELL, IT TAKES A LOT OF TIME TO PREPARE AN EVIDENCE-BASED APPROACH.

LOOK, WE WANT TO GET EXACTLY THESE RESULTS WITH MAX.



WE WILL CHOOSE EVIDENCE-BASED PRACTICE.

PART I.

Implementation of evidence-based practices

Evidence-based practices are implemented in six consecutive phases:



Each phase is important for the overall success of implementing any evidence-based practices.



Phase 1

IDENTIFY SKILL OR BEHAVIOUR¹¹

The aim of this phase is to gather information about the student's preferences, needs and behaviours, and identify a skill or behaviour that would be benefit from support through the implementation of an evidence-based practice. In this phase, we also consider the student's situation, their learning environment, and the perspectives of key stakeholders (student's parents, student's teacher and teacher assistant).

It is important that we identify and remove any potential assumptions, prejudices, previous experiences, and premature evaluations.

There are three critical steps in this phase, as presented below.

STEP 1: Behaviour description

Behaviour descriptions need to be accurate, clear and focus on the specific behaviour presented by the student. Unfortunately, the initial stimulus for working with a student is often vague and includes similarly vague assessment of the student and their behaviour.

TIP

We focus on what the student does. Not on what he is like.

Student's description

He is lazy.

She is not cooperating.

He is socially delayed.

Description of what the student does

He does not clean his desk.

She does not communicate with her classmates.

He sits alone during the school break.

An example of an undescriptive description of a student's behaviour: Pavel behaves inappropriately. He is aggressive.

Why is this description undescriptive?

- Such a description of behaviour tells us nothing about how the behaviour manifests itself.
- What does "being aggressive" mean? Does Pavel hurt his classmates? Does Pavel tear his clothes? Does he throw things around the classroom?
- Such a description also tells us nothing about how often the behaviour occurs or in what situations.

How can we phrase an observable description of behaviour?

- We will be specific about the behaviour, so that it can be understood by anyone.
- We will describe the behaviour in as much detail as possible.
- We will describe the beginning and the end of the behaviour and make note of how long it takes.
- We will note how often the behaviour occurs.
- This is important, because based on our description of the student's behaviour, any of our colleagues should be able to observe this behaviour based on our description.
- See examples of vague behaviours, and of observable behaviours in Table 1.

Table 1

Examples of vague behaviours, and of observable behaviours. Adapted from Mertin et al. (2012, p. 343).¹²

Example of undescriptive, vague, hard-to-observe behaviour	Example of observable behaviour
Paul is inattentive. He is slow.	Paul does not complete his assigned task.
Paul is excessively active. He is impulsive.	Paul interrupts his teacher.
Paul is forgetful.	Paul doesn't wait for his turn. Paul does not raise his hand when he wants to ask his teacher a question. Paul doesn't complete his homework.

● STEP 2: Collect baseline data

The next step is to find out how often and for how long the behaviour that we are targeting occurs.

We will collect information about this behaviour immediately after it occurs.

We collect this information for a minimum of four days.

In some cases, data needs to be collected over multiple days.

TIP

If the student's educational goal is to improve their reading, we will collect information about, for example, the frequency and type of reading errors for a short period of time.

If we want to influence the student's behaviour, we will have to choose a comprehensive approach. Focusing on the context in which the behaviour occurs requires more time to gather information.

The collection of data is important in order to assess the progress that the student will make. It also provides important information on whether we have selected an evidence-based practice that helps the student to achieve the target skill or improve behaviour.

Functional behaviour analysis is an evidence-based practice that analyses why a behaviour occurs and what that behaviour is trying to communicate¹³.

This approach will help us form an assumption as to why a student behaves in a certain way.

We will be interested in the function of the student's behaviour, in what situation it occurred and how others reacted to it.

We will record what preceded the behaviour (e.g., who was present, in what environment did the behaviour occur).

We will also monitor what follows the behaviour (consequences, impacts).

We will monitor how the environment and people present react to the student's behaviour.

● STEP 3: Goal setting

The next step is goal setting. At this stage we will reflect on what we want to achieve with the selected evidence-based practice. The goal must be observable and measurable (see Table 2).

Sometimes the selected goal or skill needs to be divided into several smaller steps. This will allow us to determine measurable and observable goal.

The involvement of the student's family in setting the student's goal is essential.

The team also needs to determine the timeline to achieve the selected goal.

TIP

Write the goal in the first person. Discuss and compile it directly with the student. In this way, we will achieve a higher motivation for its fulfillment.

For example:

During the English class, I have a textbook and other aids on the table, my eyes follow the teacher, I cooperate with the teacher by answering questions and thinking about the material, asking questions when I need to, every day this week..

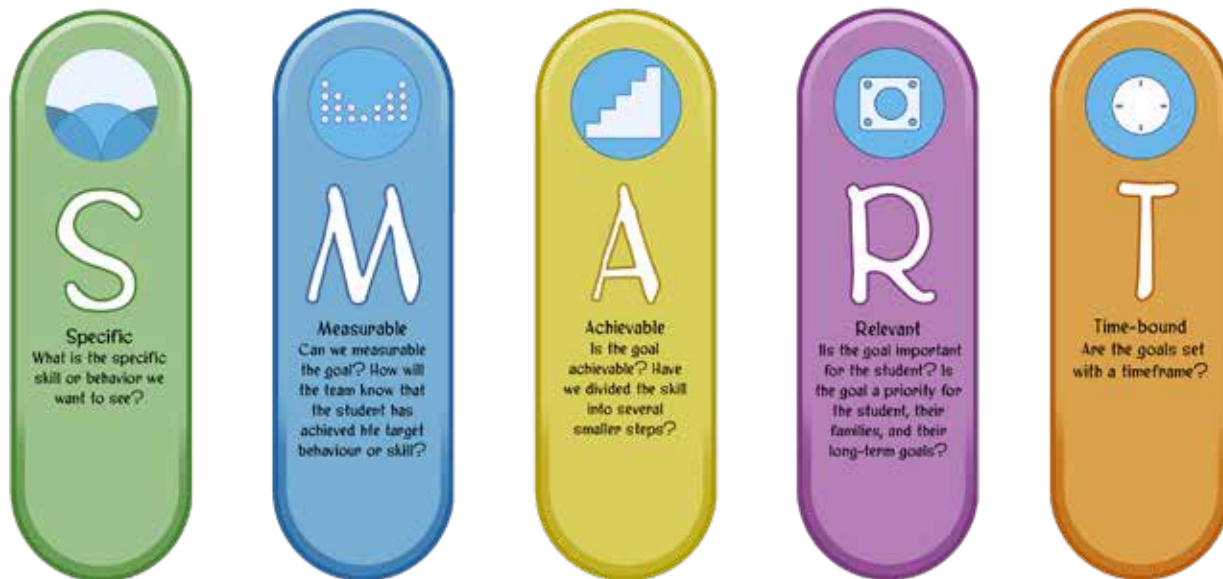
Table2

Examples of non-specific goals, and of specific goals. Adapted from Estrapala and Reed (2020).¹⁴

An example of a non-specific goal	An example of a specific goal
Michelle will respect other's personal space.	When talking to friends or school personnel, Michelle will stand a minimum of 1½ feet from them at least 90% of the time.
I will work harder in class.	I will complete all my science assignments, check my answers, and ask for help when needed during class every day for the next 3 weeks.
I will be prepared for class.	I will arrive to class on time with my textbook and completed assignments ready to start class 5 out of 5 days this week.

Each goal should include a SMART description.

(Karnas, 2020¹⁵; Hedin and DeSpain, 2018¹⁶) - see also table 3. Table 4 (see below) presents possible areas on educational goals.



Specific

What is the specific skill or behaviour we want to see? Have we specified the student's skill or behaviour in a way that everyone can understand, including the student?

Measurable

Can we measure the goal? How will the team know that the student has achieved the target behaviour or skill? How will we collect data to measure this? Have we established how many times, how often or for how long does the behaviour or skill occur?

Achievable

Is the goal achievable? Have we divided the skill into several smaller steps?

Relevant

Is the goal important for the student? Is the goal a priority for the student, their families, and their long-term goals?

Time Bond

Goals should be set within a timeframe:

- Short-term goals (e.g., a term or 2 terms).
- Long-term goals (e.g., a year or 3 years).

Timeframes are a marker for measuring progress and student success. Have we planned enough time to achieve the goal? It is important that there is flexibility with the timeframe for goals – goals can be modified and adjusted.^{17, 18}

Table 3

Writing SMART goals

Sarah's parents and teachers want her to increase how much she plays with her friends at lunch times. She likes to the games that they do, but she doesn't always ask to play with her friends. This was discussed in their last planning meeting. All stakeholders (Sarah, her parents and teachers) decided that supporting Sarah's social skills was a priority for the next term, and therefore should be included as a goal in Sarah's individual learning plan.

By the end of the term, Sarah will initiate play with her peers during lunch break three out of the five school days.

What makes this a SMART goal?

Specific

This goal is specific as it clearly outlines the desired behaviour or skill that is being addressed. It is also worded as an 'action' which is focused on what the student will do.

Measurable

This goal is measurable as it clearly states that Sarah is expected to do this skill 3 out of 5 days. This can be tracked through observational data collection.

Achievable

This goal is achievable as all stakeholders discussed this goal and feel that it is a realistic expectation for Sarah.

Relevant

This goal is relevant as it was discussed in collaboration with all stakeholder's including the student. It was agreed that social skills should be a focus for Sarah in the next school term.

Time Bond

This goal clearly defines the timeframe that this intervention will be implemented, monitored and achieved by the student.

Table 4

Selecting an evidence-based practice.¹⁹

Outcome	Definition	Examples
Academic/ pre-academic	related to performance on tasks typically taught and used in school settings	matching, sorting, classification, identification of shapes/colors/ numbers/letters, sequencing, reading, writing, math, spelling, science, social studies
Adaptive	related to independent living skills and personal care skills	telephone, shopping, transportation, map skills, budgeting, cleaning, cooking, opening containers, eating, dressing, grooming, toileting, safety, health
Behavior	related to decreasing or eliminating behaviors that interfere with the individual's ability to learn, especially those that cause harm to self or others	destructive, self-injurious, aggressive, repetitive, maladaptive
Cognitive	related to performance on measures of intelligence, executive function, problem solving, information processing, reasoning, theory of mind, memory, creativity, or attention	test, achievement tests, early learning scales, Tower of London test, Sally Anne test, Test of Problem Solving
Communication	related to the ability to express wants, needs, choices, feelings, or ideas	language, speech, augmentative communication, sign language, manding, tacting, imitating, gestures and/or symbol use
Joint attention	related to behaviors needed for sharing interests and/or experiences	initiating and responding to eye gaze, coordinated joint looks, showing, pointing
Mental Health	related to emotional well-being	self-esteem or self-efficacy, anxiety, stress, depression, co-occurring conditions, phobias, other psychiatric conditions
Motor	related to movement or motion, including both fine and gross motor skills, sensory system/sensory functioning	balance, gait, vestibular/proprioceptive functioning, handwriting, typing, use of tools, grip, exercise, participation in recreation
Play	related to the use of toys or leisure materials	symbolic/pretend/functional play, use of toys or leisure materials, development of play schemes, cooperative play with peers/adults, generalization of play behaviors, recess or playground skills, participation in games or play activities
Self-determination	related to self-directed actions in setting and achieving goals or making decisions and problem-solving	self-awareness, assertiveness, self-esteem, self-advocacy, problem-solving, evaluating choices, setting goals, motivation, decision-making, goal achievement
School readiness	related to performance during a task that is NOT directly related to task content	on task, task engagement, waiting, remaining seated, orienting to materials, self-regulation, and self-monitoring, responding to instruction
Social	related to skills needed to interact with others	Changing oil, cake decorating, relating to customers, problem-solving, time management, computer skills.
Vocational	related to employment or employment preparation, self-advocacy, self-determination, and transition planning	changing oil, cake decorating, assembly, filing, relating to customers, problem-solving, time management, computer skills



Phase 2

INVESTIGATE EVIDENCE-BASED PRACTICES²⁰

There are convenient databases where evidence-based practices are clearly presented and explained.

These databases significantly reduce the time spent searching for available evidence-based practices. Because finding available resources is a difficult and time-consuming task, here are some reliable databases:

- **AFIRM Module – *Selecting an evidence-based practice***²¹: you can sign up for this database free of charge. It contains key evidence-based practices, including an online training in each of them.
- **What Works Clearinghouse**²²: this database rates programs or practices with strong evidence as “++”.
- **The National Clearinghouse on Autism Evidence & Practice**²³: this database is free of charge. It contains research on evidence-based practices and how they have been used within the classroom.



Phase 3

SELECT EVIDENCE-BASED PRACTICES²⁴

It is essential that when selecting an evidence-based practice that it has been proven to be effective for the age of the student and the skill or behaviour you are wanting to target.

All characteristics and unique qualities of the students, their families, the environment and the teachers and other education professionals are important for choosing the appropriate approach.

What will we consider?

The better match between an evidence-based practice and student’s needs, the more likely we will to achieve the desired results. Please see Table 4 with example questions to consider.

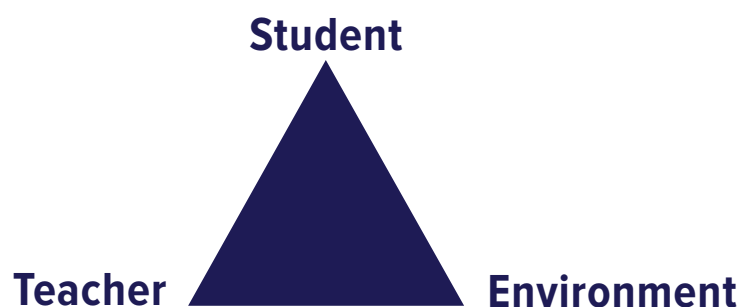


Table 5

Questions to ask when searching for a suitable evidence-based practice. Adapted from Torres et al. (2014, p. 85)²⁵.

Stakeholders	Stakeholders' characteristics
Student	<ul style="list-style-type: none"> • How old is the student? • What are the student's strengths? • What are their language skills? • What is their disability? • What grade does the student attend? • What are their learning needs? • What motivates the student? • What is the student's cultural background?
Teacher	<ul style="list-style-type: none"> • How knowledgeable is the teacher's and what teaching experiences do they have? • What is the teacher's teaching philosophy? • What are the teacher's abilities to implement new approaches and practices (does the teacher stay up to date on research and practices, is the teacher flexible to implementing and adjusting their practice)? • Has the teacher done professional development to implement this evidence-based practice?
Environment	<ul style="list-style-type: none"> • What is the school environment like? • How is the classroom organised? • What is the time available to implement the intervention? • What aids and equipment do we have in the classroom? • What resources do you have access to (computer, internet, other technology, printer and laminator to create resources)? • Who will work with us from the staff?



Phase 4

PREPARE FOR IMPLEMENTATION²⁶

This phase involves securing and organising resources. Although some evidence-based practices require minimal resources, others are more demanding. Things we need to consider may include²⁷: Materials for teachers (e.g., manual, demonstration tools):

- Materials for students (e.g., books, leaflets, Easy Read materials).
- Equipment (e.g., computer, tablet).
- Planned time allocated for implementation.
- Lesson planning time.
- Time for ongoing training, coaching and mentoring.



Phase 5

IMPLEMENT EVIDENCE-BASED PRACTICE²⁸

What is one of the most critical aspects of implementation?

FIDELITY OF IMPLEMENTATION

Changes to one or more key components of evidence-based practice may result in the practice being ineffective. Implementation fidelity means that we use the intervention exactly as it was described.²⁹

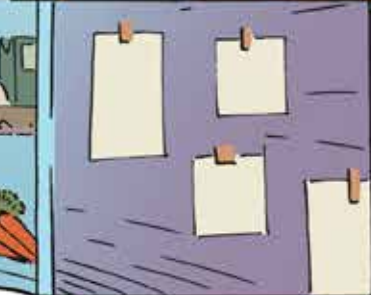
Teachers and teacher assistants are very creative people. As teachers and teacher assistants, we often adapt ideas and strategies from colleagues and use them in different ways (e.g., we combine ideas or use only specific aspects of strategies). We may be tempted to do the same when using evidence-based practices.

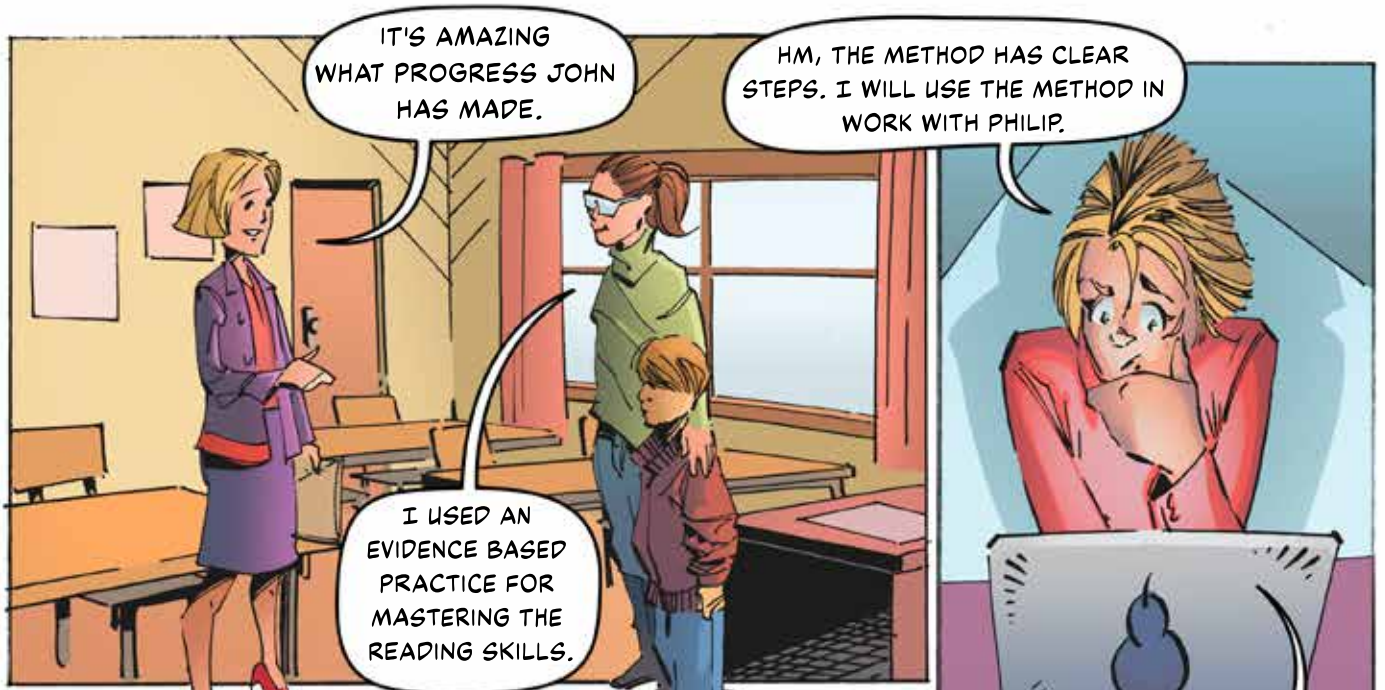
The more we adhere to the fidelity of implementation, the more likely it is that the evidence-based practice will lead to a student achieving their education outcomes. Table 6 contains examples of what (not) to do.

Table 6

What (not) to do.³⁰

What NOT to do	What to do
Do not introduce an evidence-based practice that is too complicated and for which we do not have adequate training.	Teachers and teacher assistants should receive adequate training and support before implementing an evidence-based practice.
Do not leave out aspects of evidence-based practices that we don't like. Evidence-based practices need to be implemented with fidelity.	Teachers and teacher assistants need to implement evidence-based practices with fidelity. Teachers and teacher assistants regularly monitor and evaluate the implementation of evidence-based practices, including the fidelity of implementation.
Do not shorten the implementation time of evidence-based practices.	Teachers and teacher assistants work with solid time plans for implementation of evidence-based practices. They do not underestimate how long it takes to implement evidence-based practices.
One of the most common reasons why teachers do not achieve the expected results is that they give up on implementing an evidence-based practice after first difficulty arises.	Teachers and teacher assistants need to implement a selected evidence-based practice for a while and collect data on its effectiveness. Persisting after an encountered difficulty or two is important. However, if collected data continue to show that the evidence-based practice is not effective, teachers are encouraged to select an alternative evidence-based practice.

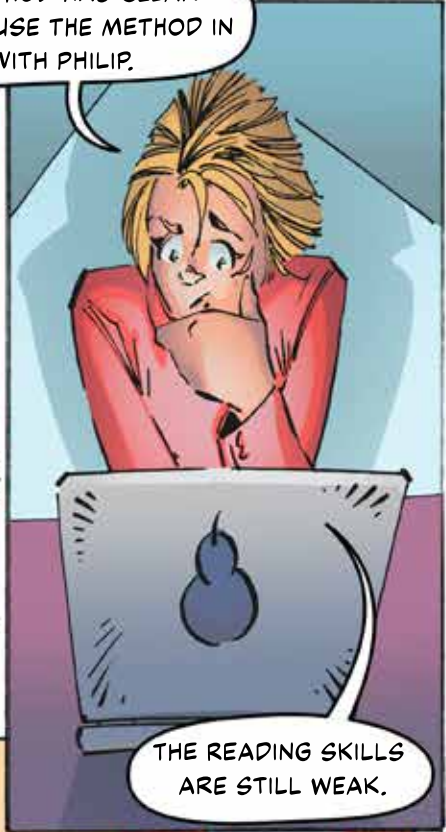




IT'S AMAZING WHAT PROGRESS JOHN HAS MADE.

HM, THE METHOD HAS CLEAR STEPS. I WILL USE THE METHOD IN WORK WITH PHILIP.

I USED AN EVIDENCE BASED PRACTICE FOR MASTERING THE READING SKILLS.

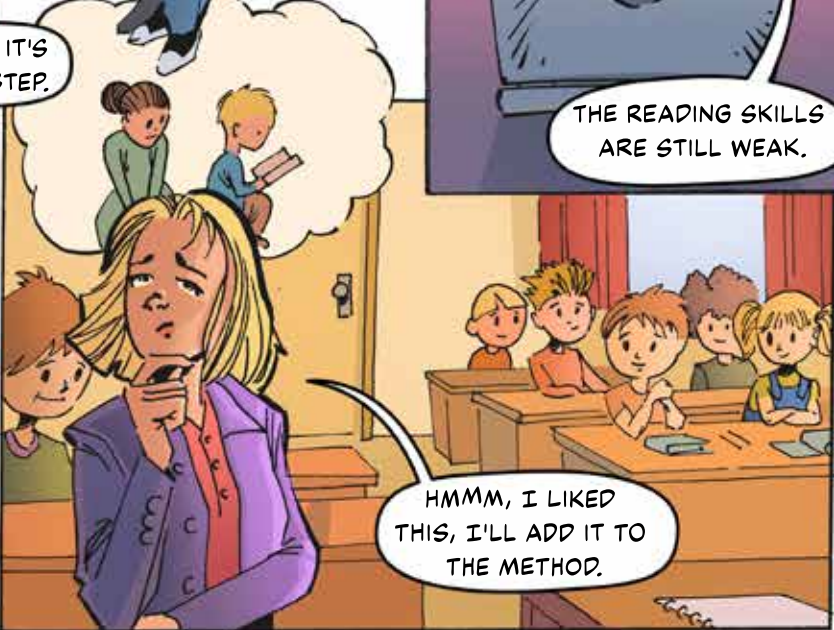


THE READING SKILLS ARE STILL WEAK.

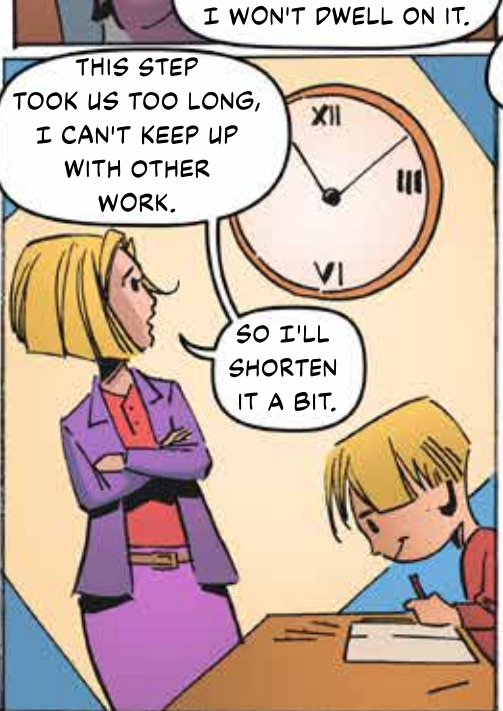


I DON'T LIKE THIS, IT'S AN UNNECESSARY STEP.

PHILIP CAN CERTAINLY DO IT. I'LL LEAVE IT OUT, I WON'T DWELL ON IT.

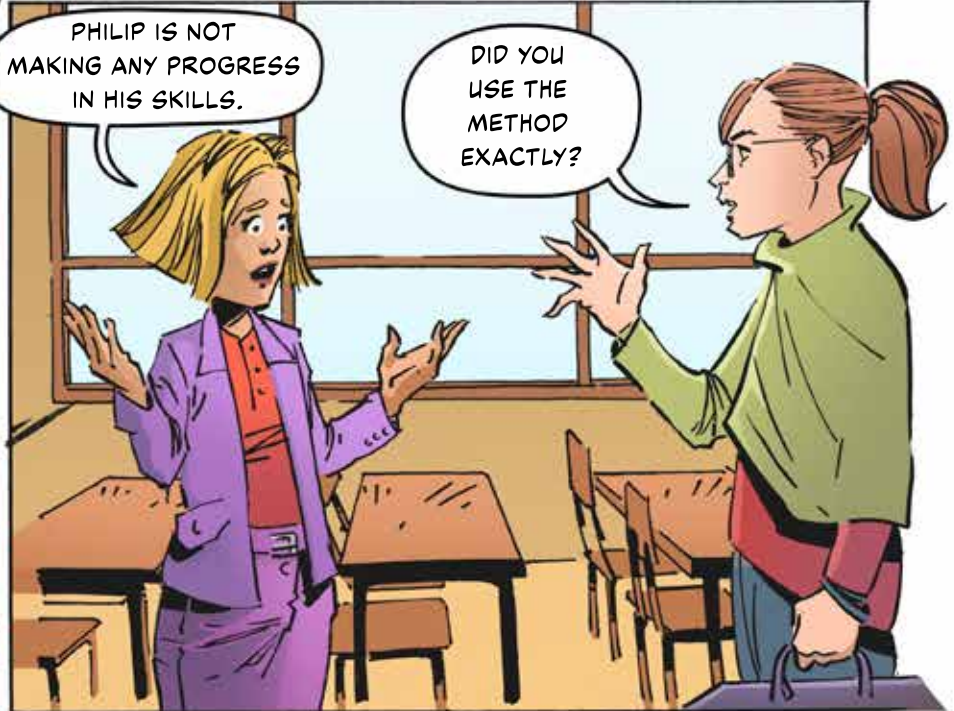


HMMM, I LIKED THIS, I'LL ADD IT TO THE METHOD.



THIS STEP TOOK US TOO LONG, I CAN'T KEEP UP WITH OTHER WORK.

SO I'LL SHORTEN IT A BIT.



PHILIP IS NOT MAKING ANY PROGRESS IN HIS SKILLS.

DID YOU USE THE METHOD EXACTLY?



Phase 6

MONITOR IMPLEMENTATION³¹

Implementation monitoring consists of two important components:

1. We assess the fidelity of the implementation.
2. We assess students' outcomes.

This should include:

- We continuously monitor whether we follow all the implementation steps.
- We continuously collect data on student's progress.
- The purpose of monitoring is to see whether students are achieving their education outcomes (i.e., learning the desired behaviour, learning a specific skill). We need to question whether the selected evidence-based practice is effective for the student.
- We assess the relationship between fidelity of implementation and student's results.
- If the fidelity of implementation is high, an increase in student's performance can be attributed to the evidence-based practice.
- Similarly, if fidelity is high and there is no change in student's performance, it can be inferred that the evidence-based practice was not effective for that student. If necessary, we will modify the implementation.
- Another option is to find more suitable evidence-based practice. Even when an evidence-based practice has been proven to be effective by rigorous research, it still does not mean that it will be effective for every student.

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PART II.

Selected evidence-based practices

● SOCIAL NARRATIVES (SN)³²



Description of the evidence-based practice

Social narratives (SN) describe social situations for students by providing relevant cues, explanations of the feelings and thoughts of others, as well as descriptions of appropriate behaviour expectations. Social narratives are individualised based on the needs of the student. They are short and written from the perspective of the student.³³

Who are social narratives for?

Research has proven social narratives to be effective for students

- on the autism spectrum,
- with intellectual disabilities.

Table 7 outlines the outcomes and student ages for which social narratives are an evidence-based practice.

Table 7

Outcomes and student ages for which social narratives are an evidence-based practice.³⁴

Early intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
	Social	Social	Social	
	Communication	Communication		
	Joint Attention	Joint Attention		
	Behaviour	Behaviour	Behaviour	Behaviour
		School-Readiness		
	Play	Play		

Social narratives across the six phases of implementation



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

Possible areas suitable for using social narratives include:

- teaching appropriate behavioural skills,
- making choices,
- playing appropriately with materials,
- playing with peers,
- increasing hand raising,
- increasing social interactions,
- initiating requests,
- initiating comments,
- increasing appropriate responses,
- reducing tantrums,
- decreasing problematic behaviours,
- increasing sportsmanship,
- increasing on-task behaviours, and
- understanding expectations.

TIP

Sometimes we are concerned about multiple unmastered skills in one student. For example, a pupil is disruptive by shouting, rolling around the classroom and also has difficulty interacting with adults.

Let's focus on one social skill first, for which we will build a social story, and only when that skill is acquired and mastered, move on to the next skill in a new social story.

Reminder for before you start

To make sure you have selected the most appropriate evidence-based practice, you need to ask yourself the following questions:

- Have you identified the target behaviour or skill?
- Have you collected baseline data through direct observation and other means?
- Have you established a SMART goal?
- Does the team supporting the student know how to tell when the target behaviour or skill is mastered?

If the answer to any of these questions is “no”, review the process of selecting an appropriate evidence-based practice.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

Source of information reliable databases:

- [AFIRM Module – *Selecting an evidence-based practice*](#)³⁵
- [What Works Clearinghouse](#)³⁶
- [The National Clearinghouse on Autism Evidence & Practice](#)³⁷



Phase 3 **SELECT EVIDENCE-BASED PRACTICES**

Source of information:

The *Select an evidence-based practices* module on AFIRM will help you to determine the best evidence-based practice to implement with your student.³⁸



Phase 4 **PREPARE FOR IMPLEMENTATION**

Table 8

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).³⁹

Questions and considerations	Applied to student
Has this evidence-based practice been proven to be effective for this age group?	
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	

● **STEP 1: How to prepare a social narrative**

We need to begin by reflecting on the student's target behaviour or skill. We then select an appropriate social situation that we plan to use the social narrative for. To do so, we need to ask ourselves the following questions:

- What is happening in a social situation?
- Who is involved?
- Are the same people involved each time?
- What are the perspectives of each person involved in the social situation (student, classmates, teacher, parent...)?
- How does the student respond to the social situation?
- Is there anything that the student may not understand in the social situation?

STEP 2: Select the appropriate kind of social narrative

Table 9

Types of social narratives.⁴⁰

Type of social narrative	Description of the social narratives
Social Stories™	<ul style="list-style-type: none"> describe social situations aim to provide the student with relevant guidelines, explanations of the feelings and thoughts of others in the social situation describe of appropriate behaviour expectations
Power Cards	<ul style="list-style-type: none"> provide a short scenario in the first person provide rules that help the learner understand the social situation focused on the interest of the student, thus serving as motivation

STEP 3: We write a social narrative

Each social narrative consists of three parts:

1. the title and introduction of the narrative,
2. the story itself, and
3. the conclusion of the narrative
(see Table 10 for more detail)⁴¹.

TIP

We need to pay a special attention to a title and front page of a social narrative.

We need to consider what is motivating for the student. Why would the student wish to engage with the social narrative?

What will they like about the title, what image will interest them and trigger their motivation to read the social narrative?

Table 10

Writing a social narrative.⁴²

1	Title and introduction of the social narrative	Clearly identifies the topic.
2	The narrative (story itself)	It provides the reader enough detail about the situation and provides answers to the questions: <ul style="list-style-type: none"> Where? (the context of the story) What? (important facts) Who? (relevant people) When? (time related information) How? (core activities or behaviours) Why? (justification)
3	End of the narrative	Summarises and consolidates the information provided.

In compiling this narrative, there are specific rules we need to follow:

- Observe the ratio of at least 2 descriptive sentences for every directive sentence (see Table 11 for more information about type of sentences).
- Make the narrative more descriptive than directive.
- Use positive, supportive sentences.
- Write a narrative in the first person.
- Involve the student in creating the content if possible.

- Add images that can help the student to improve their understanding of the text.
- Make sure the social narrative explains what is going on, demonstrates the feelings that the student might have, shows feelings of others, their behaviour, and offers the student the model of response.

Table 11

Types of sentences used in social stories.⁴³

Types of sentences	What to include in the social narrative	Examples
Descriptive	Facts Sentences that describe facts..	“My name is ____.” “Clean hands help people stay healthy.”
	Perspective sentences Sentences that describe the thoughts and feelings of the student and others in the narrative.	“My teacher will like it if I listen carefully.” “A lot of people want to learn.” “I feel happy and excited because going to kindergarten can be fun.” “My mom will be proud of me.”
	Cooperative sentences Sentences that describe what others can do to help the student if help is needed.	“If I feel upset, my teacher can help me by____.” “When I feel sad, my teacher can help me by patting me on the back.”
	Affirmative sentences Sentences that emphasise a shared cultural value or opinion or reassure individuals.	“It’s alright.” “It’s good to be polite.”
Directive provide suggestions for behaviour or response	- identify possible reactions	“If I need a break, I can tell the teacher or put the break card on my desk and go to the lazy bag.” “If I need a break, I can say to the teacher: “Please, I need to rest.”” “I can say hello.” “I can ask: “May I borrow a toy?””
	- gently direct behaviour	“I will try to...”

STEP 4: Just as important as the content of a social narrative is the way it is processed

Make sure the text, font and visuals are appropriate and engaging for the student.⁴⁴

- Is the font large enough to be easily read?
- Do we adhere to the principles of Easy Read communication when needed?
- Are there too many words on the page?
- Do we use vocabulary that the student understands?
- Is the social narrative reasonably long?
- Does the social narrative not contain too many recommendations and descriptions of expected behaviour? (This could cause the student’s distress, and a feeling that they cannot achieve the expected behaviour).
- Are we using enough visual aids?

TIP

You can learn how to create an accessible text in the booklet “Information for everyone” available here: <https://www.inclusion-europe.eu/easy-to-read-standards-guidelines/>

- Are the visual aids engaging and accessible?
- Are the colours too aggressive for sensory sensitive students?
- Do the colours of the images distract attention from the key message?

STEP 5: Choose a good time, place and activity to use the social narrative

Make sure the text, font and visuals are appropriate and engaging for the student.

Ideally, a social narrative should be read prior to the identified social situation. If this is not possible, read the social narrative at convenient times. Read the social narrative frequently. Read the narrative in a quiet and undisturbed environment.



Phase 5 SELECT EVIDENCE-BASED PRACTICES

STEP 1: Involve the student

- Introduce a social narrative to the student.
- Explain to the student what the social narrative is about and what is important about it.
- Depending on the needs of the student, the student can read the social narrative independently or with an adult.
- After reading the narrative, check for comprehension. For any incorrect responses, reread the section of the narrative related to the question.
- Consider using role plays to provide the student with an opportunity to practice the target skill or behaviour.
- Create an opportunity for the student to participate in the identified social situation.

Table 12

What (not) to do when implementing social narratives.⁴⁵

What NOT to do	What to do
Do not deny the student access to their social narrative. The student needs their social narrative to be always available to them in different contexts (e.g., school, home, playground) and in contact with different people (e.g., peers, teachers, family). Social narratives can be good reminders for the student.	Print and laminate the social narratives to be used as many times as the student wants in different situations and with different people.
Do not limit yourself to one format of a social narrative (e.g., only electronic version or only printed version). On the contrary, use them in different forms and sizes. Adjust the format to the student's needs and abilities.	The student can bring social narratives in a bag, pocket, on a pendant, etc.
Do not use social narratives available on the internet without adapting them to the needs and preferences of the student. Not every social narrative is adequate for every child and every situation. Do not forget that this evidence-based practice is highly individualised.	Feel free to use the social narrative models available on the internet to build your own, suitable for the student and their needs.
Avoid negative statements at the beginning of the story. For example, "Sometimes I'm very tired in class, overworked, or I'm bored by the class. "	Begin the social narrative with positive statements. For example: "I want to be a good friend. School can be fun. The statements should motivate the student."

Be consistent with the font size and avoid using italics and bold text. For example, do not use this font: "Sometimes it helps to keep my fingers busy, so I can use the TOOLS from the basket in classroom."	Follow the rules of Easy Read text when needed. For example, students with intellectual disabilities may have difficulty understanding standard writing and prefer Easy Read text.
Social story is not a simply described, for example, Czech tradition: "On Nicholas Day, an angel, a devil and saint Nicholas visit children. Nicholas gives presents to children."	Let's not mistake a social story for an understandable and simple situation description. Part of the social story includes descriptions of behaviour, emotions, expectations and model response suggestions.



Phase 6 **MONITOR IMPLEMENTATION**

● **STEP 1: Monitoring**

Team members (teacher assistant, teachers, parents) monitor the target behaviours during the identified social situation.

- If the student shows progress in performing the target behaviour or skill, we will continue using the social narrative.
- We can gradually include new target skills and behaviours in the social narrative and present them to the student.

● **STEP 2: Make the appropriate adjustments**

If progress in performing the target behaviour or skill is not occurring, ask yourself the following questions:

- Was the target skill or behaviour well defined?
- Is the skill or behaviour measurable and observable?
- Was the social narrative used as intended? (For example, did we follow the rule that we need to use at least 2 descriptive sentences and one directive sentence?)
- Did we consider the needs of the student in relation to their age and skills? (For example, is the number of words on the page adequate? Do we use photos/symbols that the student understands?)
- Was the narrative written from the student's point of view?
- Did the student understand the social narrative?
- Was the social narrative read before the identified social situation?

● **STEP 3: Choose another evidence-based practice**

If we have adjusted the social narrative based on the identified shortcomings and the student still does not show any progress, consider choosing another evidence-based practice.



CASE STUDY: Mark

Background

Mark attends a Czech mainstream primary school. This case study was developed in collaboration with Mark's parents and Mark's educational team, using also recommendations made by the school counselling centre. Names used in the case study are pseudonyms. Mark was supported at school by a teacher, a teacher assistant and a school special educator. This team was methodologically guided by the ERASMUS+ team in implementing the evidence-based practice.

Who is Mark

Mark is nine years old male student on the autism spectrum. He attends a mainstream primary school. Mark has good communication skills (e.g., he can verbally express his thoughts and communicate them to other people). Mark can read the written text well but has difficulty understanding the text. Mark enjoys arts-based activities, as he likes to create things. He also likes to play with building blocks, to play computer games and he enjoys reading encyclopaedias. Mark has a friend at school, and they visit each other.

At school, it is important for Mark to be accepted by his classmates. Furthermore, he does not want to be different from them. He wants to fit in. And he does not like to fail.

Learning at school is often difficult for him. Mark gets tired easily. He disturbs his classmates and teachers when he experiences sensory overload in the classroom. He tends to draw attention to himself. Overall, he is noisier. Mark often makes comments about his classmates and the classroom overall. Sometimes he has a temper tantrum and rolls on the floor.

Recommendations made by Mark's school counselling centre

The school counselling centre recommended Level 3 support measures (DSM-5, 2013)⁴⁶. The centre also recommended that a teacher assistant helps the class teacher in supporting Mark, focusing on developing his social, communication and emotional skills. Here is an excerpt from the counselling centre's recommendations:

"Explain social situations or illustrate them. In descriptive language, describe to him objectively and without emotion what happened and how he reacted, how it is possible to react next time so that no one is angry, etc. ... I recommend that you consider including social skills training."



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

The initial stimulus for working with Mark, as formulated by the educational team, was vague: "Mark has disruptive behaviour." As a result, the school team had to further unpack, specify, and essentially describe how Mark's behaviour manifests itself. The term "disruption" was subjective, as every school staff member had different views on what disruptive behaviour is. In other words, what is disruptive for one teacher, may not be disruptive at all to another teacher or teacher assistant.

The specific behaviours that the school team identified were: "Mark makes noises, rolls on the floor and lies on his classmates."

The next step was to observe how often and for how long such behaviour occurs. Data were collected by direct observation, and the teacher assistant recorded the behaviour. The situation was discussed with people who knew Mark, including his teachers and mother.

The team then considered the following question: “What is the target skill that we want to achieve with Mark’s intervention”? This was formulated in the form of a SMART goal.

Mark’s SMART Goal

After reading the social narrative, Mark will manage to **limit shouting and whispering to his classmates** to a maximum of two interruptions per day **for a period of one month.**

Specific **Measurable** **Achievable** **Relevant** **Time Bond**



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

The AFIRM⁴⁷ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.



Phase 3 SELECT EVIDENCE-BASED PRACTICES

The team looked for a suitable evidence-based practice, supporting the achievement of social-emotional outcomes, for a nine-year-old student on the autism spectrum. They referred to the *Select an evidence-based practices* module on AFIRM⁴⁸.

Table 13

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).⁴⁹

Questions and considerations	Applied to Mark
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes











Phase 4 PREPARE FOR IMPLEMENTATION






A special education teacher and teacher assistant participated in training on social narratives. They went through an online training module on AFIRM and received online methodological guidance from ERASMUS+ team, so that they

could consult the creation of the social narrative, as well as its implementation.

In the social narrative, the team only worked with support mechanisms that Mark wanted and knew how to use. Although there was a “relaxation room” in the school, which would be an ideal place for Mark to calm down, it was not used in the social narrative, as Mark did not want it.

This is Mark’s social narrative: **I want to be a good classmate!**

	<p>I like going to school. I have friends here. I want to learn new things. I want to be a good classmate to others.</p>
	<p>Sometimes I’m tired in class. I can’t concentrate or the class bores me.</p>
	<p>When that happens, I interrupt my classmates. I make different sounds. I roll on the floor. I say rude words. I break the rules.</p>
	<p>As a result, my classmates can’t concentrate. They are mad at me, because they want to learn.</p>
	<p>The teacher is also unhappy, that I am interrupting her during the class.</p>
	<p>But I want my classmates to feel good. I don’t want anyone to be sad because of me.</p>
	<p>I’ll let the teacher know when I need support.</p>
	<p>I will ask the teacher if I can draw a picture. That calms me dow.</p>

	<p>I will sit alone so as not to disturb others. I will leave the circle on the bench to rest.</p>
	<p>When I'm very hungry, I ask if I can have a snack.</p>
	<p>I'll keep my fingers busy with gadgets.</p>
	<p>If I think about something else that would help me, I'll tell the teacher. She understands me and wants to help me.</p>
	<p>I'm not interrupting now. My classmates like me and I'm happy that I will learn new things at school.</p>



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

How was Mark involved?

The social narrative was always read at the beginning of the day. Mark read the social narrative with an adult, at home with his mother and at school with his teacher assistant. He read the narrative privately outside the classroom.

After reading the social narrative, he was asked the following questions:

- Who is a good classmate?
- What can I do not to disturb my classmates?
- Who would like to help me not to disturb my classmates?

All teachers and teacher assistants in the school who worked with Mark were introduced to the social narrative and its use. They consulted together on the use and, if necessary, modified it.

Mark's first reaction was not a positive one. Sometimes it can be difficult for a student to know how other people may see him. Mark was supported by his mother to read the social narrative and work towards his goals.

Mark struggled to participate in establishing his goal. He felt frustrated when he did not achieve this goal. It was essential to find out what would motivate Mark to change his behaviours. The educational team thus used one of the evidence-based practices: reinforcement.

It was very important for Mark's mum that motivation to change behaviour came from Mark. The educational team observed Mark and concluded that social reward (e.g., mum's or teacher's smile) is not much of a motivation to him. As Mark was not ready at the time to collaborate on establishing his goal, the educational team decided to assist Mark with external motivation in the form of token economy. Mark was collecting tokens to collect minutes he could spend on playing his favourite computer game. He assessed every day, with a support of his teacher assistant, how successful he had been in achieving his goal. He noted success in a form of stickers. As a result, Mark could play Minecraft on the weekend, if he completed his goal that week.



Phase 6 **MONITOR IMPLEMENTATION**

When monitoring the implementation of the social narrative, in the beginning, the educational team focused on instances when Mark failed to follow the recommendations included in the social narrative, and as a result, he lost time he could spend playing Minecraft. This demotivated Mark. Mark was angry and very frustrated. In fact, in the first week of monitoring the implementation, Mark's behaviours worsened, and he even hit his teacher. The educational team concluded that the reinforcement was poorly set. Instead, Mark needed positive reinforcement. Thus, it was decided that Mark and the educational team will only focus on successes for which Mark will be rewarded. The educational team designed a new table where they wrote down in a positive way what they expected from Mark. For example: "I spoke politely without swearing.", "I calmed down without getting angry and didn't hit anyone.", "I paid attention to what the teacher was saying.". Mark was happy to stamp the smileys.

However, even after 12 days, Mark's attitude towards the social narrative has not changed. He rejected it. Therefore, the educational team concluded that this evidence-based practice would not be suitable for Mark. Mark, however, began to engage when reinforcement and visual support were used. These became alternative evidence-based practices that the educational team used.



CASE STUDY: Ellen

Background

Ellen attends a Czech mainstream kindergarten. This case study was developed in collaboration with Ellen's parents and Ellen's educational team. Names used in the case study are pseudonyms. Ellen was supported at school by a teacher, a teacher assistant and a school special educator. This team was methodologically guided by the ERASMUS+ team in implementing the evidence-based practice.

Who is Ellen

Ellen is a four-year-old girl with cerebral palsy and ADHD. She also exhibits autistic traits, however, she has not yet been diagnosed with autism. Ellen is often confused and insecure in social situations. Her communication skills are age appropriate. She likes to establish contacts with children and adults and leads conversations on topics that interest her, for example about phones or cars.



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

The educational team identified and described the target behaviours. The next step was to observe how often and for how long this behaviour occurred. Teacher assistant collected data recording these in a simple table. The summary was:

Ellen yells, pinches, bites, or slaps other children and the teacher assistant. It usually happens in her effort to obtain a toy or object, once or twice a day.

The educational team also discussed the target behaviours with Ellen's mother and other teachers. Together they search for causes of Ellen's behaviour. They aimed to identify what would motivate Ellen to collaborate on a social narrative. Ellen's mother directed the educational team to Ellen's desire to be a pre-schooler. The educational team included Ellen in the goal setting. The teacher talked to Ellen about her dream of being a pre-schooler, i.e., why it is important to her. Ellen shared that she is looking forward to turning five years of age. The teacher told Ellen that being a pre-schooler also means mastering the school rules.

The educational team reflected on the following question: "What is the target skill that we want to achieve with Ellen's intervention?". Together with Ellen, the answer was formulated into the following smart goal.

Ellen's SMART Goal

One day a week, during a conflict about sharing toys with classmates, I can use a social story to take a deep breath and exhale to calm down or ask an adult for help. I will do work towards this goal for a term.

Specific

Measurable

Achievable

Relevant

Time Bond



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

The AFIRM⁵⁰ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.



Phase 3 SELECT EVIDENCE-BASED PRACTICES PŘÍSTUP

The team looked for a suitable evidence-based practice, supporting the achievement of social-emotional outcomes, for a nine-year-old student on the autism spectrum. They referred to the *Select an evidence-based practices* module on AFIRM.⁵¹

Table 14

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).⁵²

Questions and considerations	Applied to Ellen
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes









Phase 4 PREPARE FOR IMPLEMENTATION



A special education teacher and teacher assistant participated in training on social narratives. They went through an online training module on AFIRM and received online methodological guidance from the ERASMUS+ team, so that they could consult the creation of the social narrative, as well as its implementation.

Once the educational team had gathered enough information, they began drafting a social narrative. Ellen was not reading yet. In kindergarten, however, she was learning global reading method, which is why the educational team chose this type of font in the story. Ellen and her assistant created an opening image for her social narrative, which increased Ellen's motivation to read the social narrative.

This is Ellen's social narrative:

	<p>I CAN BE A KIND PRE-SCHOOLER.</p>
	<p>I LIKE TO PLAY WITH TOYS AND FRIENDS IN KINDERGARTEN.</p>
	<p>SOMETIMES I WANT TO PLAY WITH A TOY THAT MY FRIEND IS PLAYING WITH. WHEN HE PLAYS, I WANT TO TAKE THE TOY FROM HIM, HIT HIM OR BITE HIM.</p>
	<p>MY FRIENDS ARE UPSET IF I HIT OR BITE THEM.</p>
	<p>WHEN I WANT A TOY THAT SOMEONE IS PLAYING WITH, I ASK THEM IF I CAN BORROW THE TOY. I CAN SAY: "CAN I BORROW THIS TOY, PLEASE?" OR "CAN I PLAY WITH YOU?"</p>
	<p>FIRST, I STOP AND THINK WHAT A KIND PRE-SCHOOLER WOULD DO. A KIND PRE-SCHOOLER WOULD ASK NICELY. I WILL TRY TO BE A KIND PRE-SCHOOLER!</p>

	<p>BORROWING TOYS CAN BE FUN. WE CAN PLAY TOGETHER.</p>
	<p>WE CAN TAKE TURNS WHEN PLAYING WITH THE TOY, FIRST MY FRIEND AND THEN ME. WHEN I WANT TO PLAY WITH A TOY THAT A FRIEND HAS I CAN SAY: "CAN I PLAY WITH THIS TOY NOW, PLEASE?"</p>
	<p>WHEN I ASK A FRIEND TO LEND ME A TOY, I MAY HAVE TO WAIT FOR MY TURN.</p>
	<p>SOMETIMES WHEN FRIENDS ARE PLAYING WITH A TOY THAT I WANT, AND THEY DON'T WANT TO LEND IT TO ME, I'M ANGRY.</p>
	<p>MY FRIENDS ARE SAD, WHEN I HIT THEM OR BITE THEM.</p>
	<p>I CAN TRY TO DO IT DIFFERENTLY INSTEAD. I CAN STOP.</p>
	<p>I CAN BREATHE IN AND BREATHE OUT.</p>
	<p>I LIKE GOING TO KINDERGARTEN AND PLAYING WITH TOYS, FRIENDS AND ADULTS.</p>

	<p>WHEN IT'S TOO HARD FOR ME I CAN ASK AN ADULT FOR HELP. I CAN SAY: "WOULD YOU HELP ME, PLEASE?"</p>
	<p>EVERYONE IS HAPPY WHEN I AM A KIND PRE-SCHOOLER.</p>



Phase 5 **IMPLEMENT EVIDENCE-BASED PRACTICE**

How was Ellen involved?

Ellen's social narrative was always read at the beginning of the day. Ellen read the narrative with a kindergarten teacher assistant. They read the narrative privately outside of class.

After reading the social narrative, Ellen was asked to answer the following questions

- Who is the best classmate?
- What can I do if I want to borrow a toy?
- What can help me if I don't know what to do?

All teachers and teacher assistants in the kindergarten who worked with Ellen were introduced to the social narrative and its use. Ellen was excited by the narrative and enjoyed reading it very much. As a reinforcement, a social award always took place the next morning. This type of award worked for Ellen, as she was not interested in material rewards.



Phase 6 **MONITOR IMPLEMENTATION**

The educational team began to monitor Ellen's progress in meeting the expected behaviours. After reading the social narrative for the first time, Ellen repeated to herself in class: "I know I have to wait for the toy." Monitoring took place for fourteen days, during which time the number of identified target behaviours significantly decreased (e.g., biting). After two weeks, the educational team continuously focused on strengthening other social skills, as Ellen began to show less interest in the social narrative she knew by heart.

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● VISUAL SUPPORTS (VS)⁵³



Description of the evidence-based practice

Visual supports concrete cues that provide information about an activity, routine or expectation and/or support skill demonstration. Examples of visual supports include pictures, written words, visual schedules, visual boundaries, labels, maps, activity schedules, work systems, visual cues, timelines and scripts.⁵⁴

Who are visual narratives for?

Visual supports are an evidence-based practice proven effective for students:

- on the autism spectrum,
- with intellectual disabilities,
- with communication difficulties,
- with behavioural difficulties,
- from different language background.

Table 15 outlines the outcomes and student ages for which visual supports are an evidence-based practice.

Table 15

Outcomes and student ages for which visual supports are an evidence-based practice.⁵⁵

Early intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
No studies	Social	Social	Social	Social
	Communication	Communication	Communication	
	Cognitive			
	Behaviour	Behaviour	Behaviour	
	School-Readiness	School-Readiness	School-Readiness	
	Play	Play	Play	
		Motor		
		Adaptive	Adaptive	
		Academic	Academic	

Visual supports across the six phases of implementation



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

Possible areas suitable for using visual supports include:

- increase independence,
- minimise teacher and adult support (e.g., prompts and reinforcement),
- increase predictability,
- reduce inappropriate behaviours associated with a task or transition,
- increase understanding of expected task or activity to complete,
- maximise understanding of environment,
- decrease distractions,
- reduce self-injurious behaviours,
- increase social skills,
- increase understanding of behavioural expectations.

Reminder for before you start

To make sure you have selected the most appropriate evidence-based practice, you need to ask yourself the following questions:

- Have you identified the target behaviour or skill?
- Have you collected baseline data through direct observation and other means?
- Have you established a SMART goal?
- Does the team supporting the student know how to tell when the target behaviour or skill is mastered?

If the answer to any of these questions is “no”, review the process of selecting an appropriate evidence-based practice.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

Source of information reliable databases:

- [AFIRM Module – *Selecting an evidence-based practice*](#)⁵⁶
- [What Works Clearinghouse](#)⁵⁷
- [The National Clearinghouse on Autism Evidence & Practice](#)⁵⁸



Phase 3 SELECT EVIDENCE-BASED PRACTICES

Source of information:

The *Select an evidence-based practices* module on AFIRM⁵⁹ will help you to determine the best evidence-based practice to implement with your student.

Table 16

Key questions and considerations for selecting an evidence-based practice.⁶⁰

Questions and considerations:	Applied to your student
Has this evidence-based practice been proven to be effective for this age group?	
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	



Phase 4 PREPARE FOR IMPLEMENTATION

STEP 1: How to find out what visual support will be suitable for the student

As per Table 17, there are three types of visual supports.

Table. 17

Types of visual supports.⁶¹

Type of visual supports	Description	Questions to consider: Ask yourself the following questions to help you choose the right type of visual support. If you answer yes to any of the questions below, visual support might be helpful to use with the student.
Visual boundaries	Arranging the environment in a systematic way (e.g., clearly marked areas designated for specific activities) Visual border (e.g., covering materials unnecessary for performing the skill)	<ul style="list-style-type: none"> Does the student have any difficulty with staying in one place? Does the student know what they should be working on? Does the student ever leave a location because of feeling frustrated? Does the student ever have any difficulty with entering others' workspace and/or making use of others' work or personal materials?

Visual schedules	<p>Schedule of the student's day at school</p> <p>Support between activities</p> <p>Timetable</p>	<ul style="list-style-type: none"> • Does the student struggle with moving from one area to the next? • Does the student forget what they were asked to do next? • Does the student exhibit disruptive/ inappropriate behaviour when transitioning? • Does the student get anxious or worried about what is happening next in the day?
Visual cues	<p>Visual way to organise an activity</p> <p>Visual display, diagram, or outline</p> <p>Visual representation of choices a student can make (aiming at increased independence)</p> <p>Visual instructions (graphic organiser, diagrams, labels, etc.)</p>	<ul style="list-style-type: none"> • Does the activity, event, or concept cause anxiety for the student? • Is adult support required for the student to be successful with the activity, event, or concept? • Does the activity, event, or concept cause frustration for the student? • Is the activity, event, or concept difficult for the student to understand when only verbal information is provided?

STEP 2: Design of visual supports for the student

Visual boundaries

- To prepare visual boundaries, we need to determine whether we need to define new boundaries or if the boundaries are already present.
- Creating or redefining boundaries can provide the student with additional information about where a particular area in the classroom begins or ends, what activities they are expected to do in a specific area or setting, or more information about where they should be during a specific time of a day.
- When creating boundaries, use natural boundaries, objects, and furniture to clearly designate the boundary area.

Visual cues

- Find out what information needs to be presented visually.
- Find out in what form you will present the information.
- Information can be presented in the form of objects, photographs, drawings, picture symbols, words, phrases or sentences, or a combination of some of the mentioned formats.
- The level of representation should meet the individual needs of the student.

Visual schedules

- The following six items need to be decided when creating visual schedules.

1. Form of representation

- objects that will be used in an activity (e.g., functional objects),
- objects that are symbolic of an activity (e.g., representational objects, such as photographs, drawings, picture symbols, words, phrases, or sentences),
- combination of the any of the forms above.

2. Length and presentation format

One of the things we need to consider is the length appropriate for the student.

When determining the length of the schedule, we need to consider whether the student has anxiety about upcoming activities. Then we can determine if the length of the schedule reduces or increases this anxiety.

Some students find it helpful to see all the events for an entire day, while others find this overwhelming and stressful.

Below are some further considerations:

- how many items signifying upcoming transitions will be used,
- how will these items be sorted (left-to-right or top-to-bottom),
- technology-based schedules (e.g., Pictello, iPrompts, First/Then schedule).

3. Method of manipulating the schedule

- The student carries an object that will be used in the upcoming activity.
- The student carries an object or visual cue that represents an upcoming area and then matches the object or visual cue to a pocket, basket, or envelope in the represented location.
- The student turns over the visual schedule cue or places the cue in a “finished” location when the activity is completed.
- The student marks the visual cue on the schedule as completed.

Students might benefit from carrying the schedule cue with them to the designated location and then matching the cue to a pocket or basket with the identical cue. Carrying the cue often helps remind students where they are going as they transition. Then matching the item helps the student know they are in the correct location.

4. Location of the schedule

- A stationary schedule in a central location (e.g., on a wall, shelf, desk).
- A portable schedule that a student can carry across locations (e.g., clipboard, notebook, handheld device).
- Schedule information brought to the student.

Students who are new to schedule use, have difficulty with transitions, and/or have a limited attention span will likely benefit from having an adult bring schedule information to them. As a student becomes more skilled with using a schedule, we may decide to place the schedule in a central location. For students who transition across several locations a portable schedule would be useful.

5. Method of initiating the schedule use

- Staff can bring the schedule to the student.
- The student comes to the schedule using a visual transition cue.

If the schedule is placed in a central location or if the schedule is portable, a visual cue is needed to let the student know it is time to use the schedule and move to a different location.

6. Other equipment

- colour coding (if multiple students are using schedules),
- time (e.g., adjust the time of using visual support),
- alignment with school bell (e.g., it may be appropriate to combine the visual schedule with the school bell or the class break),
- motivational components (e.g., pictures of favourite characters),
- behavioural cues (e.g., reminders of behavioural expectations).

STEP 3: Prepare visual support for the student.

Before the student arrives, make sure visual boundaries are in place and all visual cues and schedules are ready.



Phase 5 **IMPLEMENT EVIDENCE-BASED PRACTICE**

● **STEP 1: Involve the student**

The process of teaching how to use a visual support varies based upon the type of visual supports.

Visual boundaries

- Introduce the student to the established boundary and point out the important boundaries and tasks completed in that area.
- Use modelling to teach the learner to stay within the boundary.
- Use reinforcement when the student stays within a boundary.
- Use corrective feedback when the student does not stay within the boundary.

Visual cues

- Show the student the developed visual cue.
- Stand behind the student when prompting the use of the visual cue to make sure the student is looking at the visual information and not at the adult.
- Use concise, relevant words/terms while teaching the visual cue.
- Assist student in participating in the activity/event with the visual cue.

Visual schedules

- Stand behind the student when prompting use of the visual schedule.
- Place schedule information in student's hand.
- Use concise, relevant words/terms (identify location to which the student is transitioning).
- Assist the student in getting to the designated activity/location and prompt the student to place schedule materials in appropriate location.
- Ensure that the student remains in a scheduled location until prompted to use the schedule to transition.
- Repeat the steps above until the student can complete the sequence independently across activities/locations.

● **STEP 2: Make sure everyone uses visual supports in the same way**

- Visual supports should be consistent and appropriate.
- The use of visual supports is suitable for teachers, teacher assistants, social workers, health professionals and parents.
- Everyone working with the student needs to be consistent with rules regarding the use of visual supports.

For more tips, see Table 18.

Table 18

What (not) to do when using visual supports.⁶²

What NOT to do	What to do
Do not introduce all types of visual supports to the student at once without first gradually adapting them.	It can sometimes be helpful to use more than one type of visual support, but always introduce visual supports gradually. Start with one symbol and then build up a collection.
Do not apply one student's visual support to another student (not every student will need the same type or the same content of visual support).	Create different types of visual support for each student. Visual supports are very personal and what works for one student may not work for another. Use the student's special interest (e.g., make a visual timetable in the shape of a rocket).
Do not keep visual support in hidden and distant places.	Ensure that visual supports are easy to find.
Don't be inconsistent about: <ol style="list-style-type: none"> 1. the type of visual support you offer the student, 2. where the support is available, and 3. who they can use it with. 	If using pictures, once you choose a type or style (for example, line drawings), use it consistently. Ask family members, friends, teachers or support workers to use the same visual supports consistently.



Phase 6 **MONITOR IMPLEMENTATION**

STEP 1: **Monitoring**

Team members (teacher assistant, teachers, parents) monitor target behaviours when using visual support.

If the student shows progress in performing the target behaviour or skill, continue using the visual support.

STEP 2: **Make the appropriate adjustments**

If progress in performing the target behaviour or skill is not occurring, ask yourself the following questions:

- Was the target skill or behaviour well defined?
- Is the skill or behaviour measurable and observable?
- Is the skill too difficult and needs to be broken down into smaller steps?
- Have we devoted enough time to using this evidence-based practice?
- Were visual supports used with fidelity?
- Are visual boundaries clear? (Does the student need additional boundaries?)
- Is the form of representation appropriate for the student? (For example, do we use photos/symbols that the student understands?)
- Do adults need to provide more support for the student when using the visual support?

TIP

Visual need to be accessible and clear. It is also advisable to think through the choice of a picture, a photo or a symbol.

For example, if we want to provide a student with visual support to improve their reading skills, we select a photo number 1, which describes the activity well. We select pictures that are age-appropriate for a student.



appropriate photo



inappropriate photo

● STEP 3: Choose another evidence-based practice

If we have adjusted the visual support based on the identified shortcomings and the student still does not show any progress, consider choosing another evidence-based practice.



CASE STUDY: James

Background

This case study was developed in collaboration with James's parents and the special kindergarten's educational team. Names used in the case study are pseudonyms. James was supported by a teacher, a teacher assistant and a school special educator at his kindergarten. The ERASMUS+ team methodologically guided this team in implementing the evidence-based practice.

Who is James

James is a 6-year-old student attending Kindergarten at a special primary school in Prague. He has a diagnosis of autism and intellectual disability. He enjoys coming to school each day, he is well liked by his teachers and classmates and has made many friends. James can communicate verbally and loves to draw and colour. He wants to do the right thing at school and enjoys receiving positive reinforcement from his teachers. James wants to be "a good boy". This is the first time that James has attended a formal education setting, and at times he has found it difficult to adjust to the expectations of school. He can become flustered and distressed when he is unclear about what is coming next in the school day, or if something unpredictable or out of the ordinary happened. Transitioning to break times and back to the classroom has been a challenge for James. When he becomes overwhelmed or frustrated, he can display aggressive behaviours towards others and his teacher, and be destructive within the classroom, such as flipping over tables, throwing chairs, and destroying classroom displays. Once James becomes frustrated or overwhelmed, he finds it very difficult to self-regulate. This can be very dangerous for James, his classmates, and teachers. It is also very disruptive to the class, as these behaviours impact their day at school and disrupt everyone's learning. James's teachers and parents want to reduce these behaviours and ensure that James has a more positive experience at school.

Recommendations for James

All stakeholders (classroom teacher, James's parents, and teacher assistant) agree that James should be supported by creating a more predictable classroom schedule and learning environment. They believe that by making James's time at school predictable, he will be less likely to become frustrated and overwhelmed and, as a result, less likely to present with dangerous and disruptive behaviours. Additionally, all stakeholders agree that James needs support to regulate his emotions when he does become frustrated or overwhelmed to prevent those feelings from hurting himself or others.



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

Baseline data was collected by the classroom teacher and the teacher assistant through observations. They were focused on identifying what triggered James to become frustrated or overwhelmed throughout the school day. The classroom teacher and teacher assistant tracked James's behaviour in the classroom and on the playground for 2 weeks.

Baseline data demonstrated:

- James comes into school happy and excited to learn.
- James would become frustrated when something unexpected or out of the ordinary happened in the school day
- Once James became frustrated, he found it hard to self-regulate and this would often lead to him displaying aggressive behaviours.

This baseline data was shared with all stakeholders. They reflected on this data and decided on two goals for James, one short term and one long term.

James's SMART Goal

By the end of the school term, James will be able to transition from one activity to another successfully every time, after the implementation of visual support (visual schedules).

Specific

Measurable

Achievable

Relevant

Time Bond

James's Long-term SMART Goal

By the end of the school term, James will be able to identify the feelings "I am overwhelmed" or "I am frustrated" by pointing to the picture that represents how he is feeling, 50% of the time, after the implementation of visual support (visual cues).



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

The AFIRM⁶³ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.



Phase 3 SELECT EVIDENCE-BASED PRACTICES

The classroom teacher and teacher assistant looked for a suitable evidence-based practice that would help to create a more predictable school environment. Visual supports (visual schedules) was selected as an appropriate intervention as it has been proven to be affective in improving behaviour in students of James's age. They referred to the *Select an evidence-based practices* module on AFIRM.⁶⁴

Table 19

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).⁶⁵

Questions and considerations	Applied to James's case study
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes



Phase 4 PREPARE FOR IMPLEMENTATION

The classroom teacher and teacher assistant participated in training on Visual Support. They went through an online training module on a AFIRM⁶⁶ and received online methodological guidance from ERASMUS+ team, so that they could consult the creation of the Visual Support plan, as well as its implementation.

The classroom teacher and teacher assistant decided on creating a few resources for James that could be implemented as part of the Visual Supports intervention. They used an online resource called twinkl to find appropriate resources to support James to meet his SMART goals.

These included:

	<p>Picture 1: Visual schedule: Classroom Daily Timetable⁶⁷</p> <p>Visual schedule for the day, visuals for each activity would be consistently used, this would be displayed at the front of the classroom. The classroom teacher would go through the schedule at the beginning of each day and would revisit it as they moved to different activities throughout the day.</p>
	<p>Picture 2: Visual cue: First, Next, Reward chart⁶⁸</p> <p>First and Then visual schedule that would use the say visuals and break down the schedule of the day to two simple steps. This would be placed on James' desk. After James has completed the two steps he would be reinforced by a reward of his choosing (a token economy system that is already used within the classroom).</p>
	<p>Picture 3: Visual cue: "I feel..." desk display.⁶⁹</p> <p>Visual cues, pictures of emotions which would be displayed at the front of the classroom and on James' desk.</p>



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

STEP 1: Involve the student

James was taught how the visual schedule and visual cue worked.

Visual Schedule

- The classroom teacher and teacher assistant modelled using the visual schedule each morning and throughout the school day. James would be prompted by the teacher or teacher assistant “What are we doing after lunch”, he would then be prompted to look at the visual schedule at the front of the classroom and to locate the lunch visual and then the visual that represented the task that comes after.

Visual Cue

- The classroom teacher and teacher assistant modelled using the visual cue each time James sat at his desk. For example, during activities such as “Writing and Fine motor skills” the session would be broken down into two steps using the “First, Then” visual cues. “First: tracing sheet, Then: Playdoh letters”. This would be displayed on James’s desk. When James would complete the task he would be prompted “What are we doing next?” so James would refer to his schedule. Once he completed both tasks, James would get a reward of his choosing.

● STEP 2: Make sure everyone uses visual supports in the same way

James’s parents were taught how to use the visual schedule and the visual cue. The classroom teacher and teacher assistant encouraged James’s parents to use these interventions at home.



Phase 6 **MONITOR IMPLEMENTATION**

Throughout the intervention process, James’s classroom teacher and teacher assistant collected data. This data was used to identify if there were any changes in James’s behaviour, with the focus on reducing feelings of frustration. The data collected was used to determine whether James had successfully completed the short-term goal and was used to determine future goals.

Data Collection and Evaluation

Data was collected by James’s classroom teacher and teacher assistant through observations:

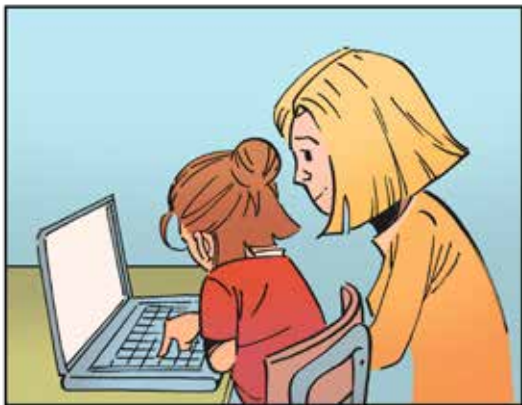
- There was a reduction in the frequency of James becoming overwhelmed or frustrated during the day.
- James had fewer displays of aggressive behaviour.
- With prompting, James was able to identify that he was feeling frustrated less than 50% of the time.
- James would independently refer back to the visual schedule throughout the day.
- James responded positively to going through the daily schedule at the beginning of each day and after break times.

Based on the data collected by James’s classroom teacher, it is evident that the intervention for James was mostly successful, but James had not yet reached his SMART goal. In a meeting with all stakeholders (James’s parents, teacher and teacher assistant) it was decided that they needed to adjust the timeframe for James’s goal. This decision was made because he was starting to become independent with understanding what was coming up throughout the day (as he would refer to the visual schedule without prompting), so the intervention was having some success, but for James to successfully transition throughout the day with no behavioural issues, the team felt that the intervention needed to be implemented for another term.

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● TECHNOLOGY-AIDED INSTRUCTION AND INTERVENTION (TAII)⁷⁰



Description of the evidence-based practice

Technology-aided instruction and intervention refers to instruction or intervention in which technology is the central feature supporting the acquisition of an educational goal.

Technology interventions are defined as “any electronic item, equipment, application, or virtual network that is used intentionally to increase/maintain, and/or improve daily living, work/productivity, and recreation/leisure capabilities”.⁷¹

Some of the forms of technology included in the definition are smart phones, tablets, laptops, desktop computers, speech-generating devices, interactive whiteboards, software for computers, and the internet.

Who is TAI for?

Technology-aided instruction and intervention is an evidence-based practice proven effective for students:

- on the autism spectrum.

Table 20 outlines the outcomes and student ages for which technology-aided instruction and intervention are an evidence-based practice.

Table 20

Outcomes and student ages for which technology-aided instruction and intervention are an evidence-based practice.⁷²

Early intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
No studies	Social	Social	Social	Social
	Communication	Communication	Communication	Communication
		Joint Attention	Joint Attention	Joint Attention
		Behaviour	Behaviour	Behaviour
	School-Readiness	School-Readiness	School-Readiness	School-Readiness
	Cognitive			
				Motor
				Adaptive
			Vocational	Vocational
	Academic		Academic	Academic

Technology-aided Instruction and Intervention (TAII) across the six phases of implementation



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

Possible areas suitable for using TAI include:

- improvement in spelling,
- vocabulary acquisition,
- learning motivation,
- communication with devices,
- completing tasks,
- developing social skills, and
- reduce social demands.

Reminder for before you start

To make sure you have selected the most appropriate evidence-based practice, you need to ask yourself the following questions:

- Have you identified the target behaviour or skill?
- Have you collected baseline data through direct observation and other means?
- Have you established a SMART goal?
- Does the team supporting the student know how to tell when the target behaviour or skill is mastered?

If the answer to any of these questions is “no”, review the process of selecting an appropriate evidence-based practice.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

Source of information reliable databases:

- [AFIRM Module – *Selecting an evidence-based practice*](#)⁷³
- [What Works Clearinghouse](#)⁷⁴
- [The National Clearinghouse on Autism Evidence & Practice](#)⁷⁵



Phase 3 SELECT EVIDENCE-BASED PRACTICES

Source of information:

The *Select an evidence-based practices* module on AFIRM⁷⁶ will help you to determine the best evidence-based practice to implement with your student.

Table 21

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014)⁷⁷.

Questions and considerations	Applied to student
Has this evidence-based practice been proven to be effective for this age group?	
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	



Phase 4 **PREPARE FOR IMPLEMENTATION**

Below we explain the initial steps and considerations involved when using TAI as an intervention for a student.

● **STEP 1: Consider what technology will be suitable for the student**

Firstly, we need to conduct a technology assessment for a student. TAI can be used for a variety of skills or/and behaviours. Before deciding to use TAI with a student, we use the TAI Planning Worksheet as a guide.

● **STEP 2: Discuss technology priorities with the student and their family**

We always need to involve the student with special education needs and their family. Involved the student.

We consider the following:

- What types of technology does the student use at home?
- How does the student behave while using technology at home?
- What types of technology does the student prefer?

● **STEP 3: Identify available technology resources**

We can list available technology in the classroom, in the school, and at home.

We need to find out:

- What technology devices are available in the classroom?
- What technological devices are available in the school?

- What technological devices does the student use at home? (Available technology at home is important because some students bring their own technology to school).
- If there are no such possibilities, we need to think about whether we can turn to some external financial source for support (e.g., a foundation).

● **STEP 4: Review policies/rules concerning the use of technology**

What are the school policies regarding the use of technology in the classroom?

We need to be familiar with these policies.

Thus, before we start using TAI with a student, we need to align the student's TAI plan with the school policies.

● **STEP 5: Prepare equipment**

At this stage we consider what additional equipment may be needed to support the student's use of the selected technology.

For example:

- Will the student need any visual support?
- Will the student need a step-by-step procedure for using the technology?

● **STEP 6: Inform and train relevant team members to support the student**

We need to ensure that all team members who support the student know how to use the selected device so they can support its use across diverse settings. We may need to provide written instructions or a video demonstrating how the device should be used. We also need to include the student's family in this process so that they can assist the student at home.

● **STEP 7: Schedule times to use the selected TAI**

Scheduling times for using the selected device depends on students' needs. If a student uses a speech-generating device, the device should be accessible in all classes and settings.



Phase 5 **IMPLEMENT EVIDENCE-BASED PRACTICE**

● **STEP 1: Teach the student how to use the selected TAI**

It is very important to ensure that the student knows how to use the chosen technology for the identified goal. Some students can work better with new technology, and others may need more time to get used to it. It is important for

students to learn how to operate the device themselves. That is why it is good to give each student the necessary time to study.

● STEP 2: Review the rules of the TAI appropriate use with the student

You will need to review the class/school/local and government rules and policies regarding technology use as appropriate. For example, if a student uses an application on a mobile device, consider using the guided access feature in the accessibility settings to lock the student into the application or an app lock application to prevent unauthorised access to specific applications.

● STEP 3: Provide prompting and reinforcement, if needed, for using the selected TAI

You may want to plan how you will prompt the student to use the selected TAI.

You may also need to use reinforcement for the appropriate use of the TAI.

● STEP 4: Ensure the technology is used consistently and across all relevant settings

You may want to observe how the technology is used in different settings or get feedback from others on its use. Some more advice is provided in Table 22.

Table 22

What (not) to do when using the selected TAI.⁷⁸

What NOT to do	What to do
Technology should not be used to supplement social interactions.	Use TAI to generalise student's social contexts.
Do not apply same technology/aids to every student. Not all technology supports are effective for all students in every context.	Consider student characteristics. For example, the student may enjoys using technology or prefers visual presentation of information.
Don't miss the basics like turning your device on and off, charging the battery, and properly opening, closing, and switching between programs.	Consider activity for which the technology will be used. Consider technology features, ease of use, and reliability. Consider context in which the technology will be used (e.g., home, school, work).



Phase 6 **MONITOR IMPLEMENTATION**

● STEP 1: Monitoring

At this stage, the team members (e.g., teacher assistants, teachers, parents) monitor target behaviours while the student is using the selected TAI.

If the student shows progress in performing the target behaviour or skill, we will continue using the selected TAI. We can also gradually include new target skills and behaviours.

We also need to collect data on the student's progress and analyse the data. Data collection sheets are a useful tool of a data collection. Such sheets may include a sampling collection sheet focused on how often technology is used for its intended purpose, or an anecdotal notes data collection sheet to help gather data across settings from other team members. In most cases, all data sheets may be helpful to determine if any adjustments need to be made. Depending on the specific technology used, other types of data collection may be needed.

● STEP 2: Make the appropriate adjustments

If progress in performing the target behaviour or skill is not occurring, we should reflect on the following questions:

- Was the target skill or behaviour well defined?
- Was the skill or behaviour measurable and observable?
- Was the skill or behaviour too difficult for the student?
- Was the selected TAI used with fidelity?
- Was the student motivated by technology use?
- Was the selected technology tool appropriate for the selected goal?
- Was the selected technology tool too difficult for the student to use?
- Were all team members using/supporting TAI in a consistent manner?

● STEP 3: Choose another evidence-based practice

If we have adjusted the selected TAI based on the identified shortcomings and the student still does not show any progress, consider choosing another evidence-based practice.



CASE STUDY: Maja

Background

This case study was developed in collaboration with Maja's parents and Maja's primary educational team. Names used in the case study are pseudonyms. Maja was supported at school by a teacher, a teacher assistant and a school special educator. The ERASMUS+ team methodologically guided this team in implementing the evidence-based practice.

Who is Maja

Maja is a 12 year old female and is currently in Year 6, attending a mainstream public school in Beograd (Serbia). She is due to transition into high school next year. Her family migrated to Serbia from Turkey before she was born. They speak limited Serbian and are unable to support her learning at home. Her parents and teachers want to prepare her for transitioning to high school by increasing her independence within the classroom and reducing the use of a teacher assistant who assists her with writing. Maja is engaged in class and particularly enjoys history and current events. She is on the autism spectrum and has cerebral palsy, has limited use of her arms and legs and has difficulties with her fine motor skills. Although both a laptop and a computer have been available for her use in the classroom, Maja has avoided using them. Her parents also indicated that they did not want Maja to use these devices as they would highlight her disability, and they desire for her to be 'as normal' to her classmates as possible. Therefore, she has persisted with handwriting work in class throughout her schooling. Due to Maja's challenges with fine motor skills, her handwriting is slow and mostly illegible, resulting in her writing not following correct structure or grammar and not being able to communicate her understanding. Furthermore, she has expressed feeling frustrated as many of her ideas are lost due to her significantly protracted writing pace. Her parents are now recognising that her grades are not reflecting her intellect and want her to have different options for writing. Maja is confident verbally and is able to express herself clearly. She has a large group of friends, and her peers are patient and kind towards her, always being encouraging and willing to help.

Recommendations for Maja

All stakeholders (classroom teacher, Maja's parents, and teacher assistant) agree that Maja should be taught and encouraged to use an iPad with specific functions (speech-to-text and predictive text) when engaging in any writing task. This is in the hope that Maja will be supported to gain more independence, break her habit of learnt helplessness and improve her writing in a way that reflects her ability.



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

Baseline data was collected through teacher observations for a one-week period. The classroom teacher recorded whether Maja chose to use the iPad or handwriting to complete classwork in each lesson.

Baseline data demonstrated:

- Maja naturally goes to write with pen and paper when asked to complete classwork.
- Maja is reluctant to use the iPad.
- Maja requires prompting to complete classwork.
- Maja responds positively to encouragement to use iPad.
- Maja appears to be more willing to use the iPad when peers are using them as well.
- Maja seems more willing to read and edit her work when she uses the iPad compared to when she writes by hand.

This baseline data was shared with all stakeholders. They reflected on this data and decided on a goal for what they wanted to see Maja do.

Maja's SMART Goal

By the end of the term, Maja will write up to 1½ pages for each writing task on an iPad (utilising the speech-to-text and predictive text functions) after TAI has been implemented.

Specific

Measurable

Achievable

Relevant

Time Bond

Maja's long-term SMART Goal

By the end of the year, Maya will use the iPad (utilising the speech-to-text and predictive text functions) to replace writing by hand to complete 100% of class work.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

The AFIRM⁷⁹ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.



Phase 3 SELECT EVIDENCE-BASED PRACTICES

The classroom teacher and teacher assistant looked for a suitable evidence-based practice supporting the achievement of improving independent writing skills for a 12-year-old with autism and difficulties in fine motor skills. TAI was selected as an appropriate intervention as it has been proven to be effective in improving academic skills for students of her age. They referred to the *Select an evidence-based practices* module on AFIRM⁸⁰.

Table 23

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014)⁸¹.

Questions and considerations	Applied to Maja
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes



Phase 4 **PREPARE FOR IMPLEMENTATION**

The classroom teacher and teacher assistant participated in training on TAI. They went through an online training module on AFIRM⁸² and received online methodological guidance from the ERASMUS+ team, so that they could consult the creation of the TAI plan, as well as its implementation.

The school bought Maja an iPad, speech-to-text and predictive text functions were uploaded onto the iPad by the classroom teacher. The classroom teacher and teacher assistant then reflected on the additional modifications that they would need to prepare for to ensure that the implementation of TAI would be successful.



Phase 5 **IMPLEMENT EVIDENCE-BASED PRACTICE**

After collecting baseline data for Maja's use of the iPad, the intervention was implemented the following week. The intervention involved direct teacher instruction, teacher modelling, teacher adaptations of lesson plans, organisation of classroom environment and assessments, specific teaching strategies such as reinforcement and peer teaching, and a flexible and adaptive approach to meet Maja's needs as they arose.

● **STEP 1: Teach the student how to use the selected TAI**

Maja was taught to use the speech-to-text function first, as this was the most similar to how she was taught to utilise the support of the teacher assistant (as the teacher assistant would write whilst Maya spoke her answers aloud). This was done by chunking writing tasks into smaller steps until she mastered using the speech-to-text function.

Firstly, the teacher assistant had Maja work with a few friends in a small group. They all took turns practising speaking into the iPad. Maja and her friends enjoyed working on this as they started to see that they could talk much faster than they could write, which meant they could get their ideas onto paper faster and more efficiently.

Secondly, Maja's class was given a creative writing prompt of a few pictures to develop character profiles for their upcoming class project. Maja worked independently to develop her character profiles. She was the first student in the class to finish the task. The classroom teacher asked her: "What do you do once we finish our work?". Maya was able to respond: "We need to edit our writing and see how we can improve." This was the first time Maja had time to edit her work. She felt great satisfaction for completing her task and being finished before her peers. This was considered to be a great personal achievement.

After the success of using the speech-to-text function to complete her character profile, Maja was eager to move on to the next step of her project. The following day the classroom teacher printed off independent worksheets (with a checklist) for all the students. Maja was then able to work independently at her own pace. This was a great improvement from being reliant on adults for prompting.

● **STEP 2: Review the rules of the TAI appropriate use with the student**

The school has a flexible policy for using technology within the classroom, as the school has access to a range of devices. It was discussed with Maja that the iPad was to be used for any class work but could not be taken to the playground. She was provided with a safe-keeping space in the classroom's storeroom where she could leave the

iPad between break periods and charge it overnight. She became very responsible for making sure her device was charged and locked up.

● STEP 3: Provide prompting and reinforcement, if needed, for using the selected TAI

There were several prompts that were used, including verbal reminders and visuals which were placed on Maja's desk. It did not take long for Maja to work out when she could use the iPad and for what tasks.

Maja was reinforced mainly through intrinsic reinforcement. She was very quick to realise that this intervention made classwork much easier for her. She enjoyed completing tasks on time (and often faster than her peers). The teacher and teacher assistant would verbally praise Maja and reinforce how independent she was. The classroom teacher started to give her more responsibility because she had demonstrated that she was responsible for taking care of her iPad she was given the school role of iPad monitor. This role was a popular school role amongst her peers. Maja and the other iPad monitors were in charge of making sure that all of the school iPads were charged in the school library.

● STEP 4: Provide prompting and reinforcement, if needed, for using the selected TAI

Maja was learning which apps and iPad functions would work for different tasks. She could now take the iPad to her science classes (in a different room) and use the speech-to-text function whilst in this class. Because Maja is still in primary school, science class is the only lesson she takes not in her room. This was good practice for her transition to high school the following year.



Phase 6 **MONITOR IMPLEMENTATION**

Throughout the intervention process, Maja's classroom teacher collected data. This data was used to identify if there were any changes in Maja's use of the speech-to-text function on the iPad for writing and completing classwork. The data collected was used to determine whether Maja had successfully completed the short-term goal and was used to determine future goals.

Data Collection and Evaluation

Data was collected by Maja's classroom teacher through observations:

- Maja was first reluctant to use the iPad to replace writing by hand.
- Maja increased her use of the iPad to complete classwork gradually each week.
- Maja decreased writing by hand to complete classwork gradually each week.
- By the end of the intervention, Maja was solely using iPad to replace writing by hand when completing classwork.
- Maja responded positively to reinforcement from the classroom teacher to use the iPad.
- Maja responded positively to peers using iPad in conjunction with her use.
- By the end of the intervention, Maja was revising and editing her completed work and independently moving on to the next task.

Based on the data collected by Maja's classroom teacher, it is evident that the intervention for Maja was successful. There was a significant increase in her use of the iPad to replace handwriting. Maja is progressing in the direction of meeting the long-term goal of being independent within the classroom prior to entering high school. For Maja's success to be maintained, the intervention team must organise meetings with Maja's future high school and support the transition process.

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● PROMPTING (PP)⁸³



Description of the evidence-based practice

Prompting (PP) procedures are supports given to students to assist them in using a targeted skill or behaviour. Prompting can include verbal, gestural, visual, or physical assistance and redirection. Prompting is used with students to assist them in acquiring or engaging in a targeted behaviour or skill. Prompts are given by an adult or peer before or as a student attempt to use a skill.⁸⁴ There are different degrees of prompting that should be used based on the needs of students. For example, some students will require hand-over-hand full physical prompting to write their names, whereas other students will need gestural and verbal prompting to write their names. This is to be decided on a student-by-student basis

and reflective of the level of support an individual student needs. Prompting is often used in conjunction with other evidence-based practices, including time delay and reinforcement. Additionally, prompting is used as part of protocols within other evidence-based practices such as social skills training, discrete trial teaching, and video modelling. Thus, prompting procedures are considered foundational to the use of many other evidence-based practices.

Who is prompting for?

Prompting is an evidence-based practice proven to be effective for students:

- on the autism spectrum,
- with intellectual disabilities.

Table 24 outlines the outcomes and student ages for which prompting is an evidence-based practice.

Table 24

Outcomes and student ages for which prompting is an evidence-based practice.⁸⁵

Early intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	Young adults (15-22)
	Social	Social	Social	
	Communication	Communication	Communication	
	Joint attention	Joint attention		
		Behaviour		Behaviour
	School-Readiness		School-Readiness	School-Readiness
	Cognitive			
Play	Play	Play		
	Motor	Motor		
	Adaptive/ self-help			Adaptive/ self-help
				Vocational
	Academic/ Pre-academic	Academic/ Pre-academic	Academic/ Pre-academic	Academic/ Pre-academic

Prompting across the six phases of implementation



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

Examples of target skills or behaviours suitable for implementing prompting include⁸⁶:

- pointing to objects,
- remaining “on task”,
- writing name,
- asking questions,
- raising hand in a class,
- completing math problems,
- sight-word recognition,
- interacting with peers,
- daily living skills (i.e., sort laundry for washing),
- reciprocal conversations.

Reminder for before you start

To make sure you have selected the most appropriate evidence-based practice, you need to ask yourself the following questions:

- Have you identified the target behaviour or skill?
- Have you collected baseline data through direct observation and other means?
- Have you established a SMART goal?
- Does the team supporting the student know how to tell when the target behaviour or skill is mastered

If the answer to any of these questions is “no”, review the process of selecting an appropriate evidence-based practice.

There are several types of prompts as outlined in Table 25.

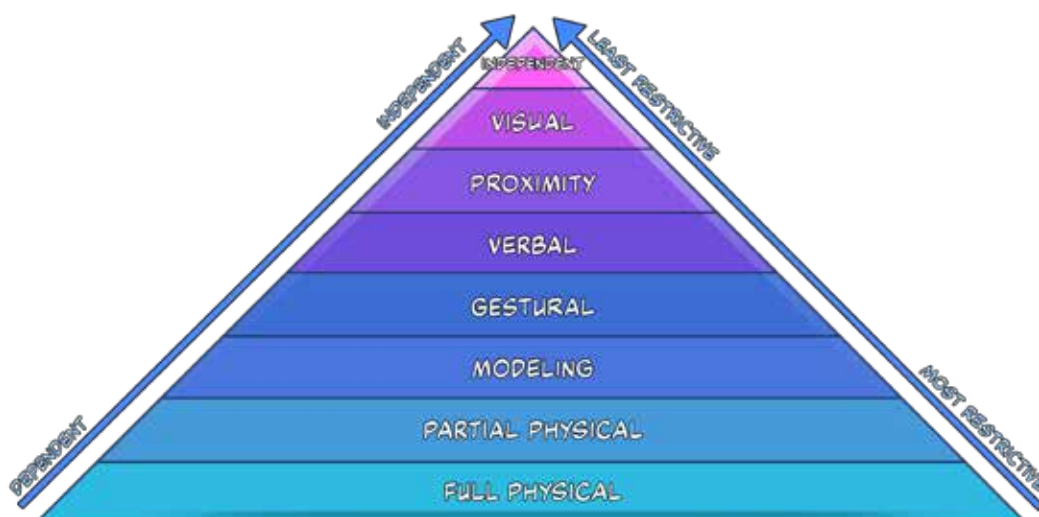


Table 25

Types of prompts. Adapted from Mosk and Bucher (1984).⁸⁷

Physical Prompt	Full Physical Prompt	• We physically assist the student to raise their hand when they need to ask a question in the class.
	Partial Physical Prompt	• By gently touching the student's elbow, we direct their hand to rise.
Gestural Prompt		• We point, reach, or nod, to give information about the correct response.
Verbal Prompt	Direct verbal prompt	• We give the following instruction to a student: "Open the book to page 25", "Draw a triangle".
	Indirect verbal prompt	• We provide a verbal clue that includes an initial sound. For example, for a student to start reading the word "fruit", the teacher makes the sound "fff".
Visual Prompt		• We use videos, cards, and visual schedules.
Model prompt		• We demonstrate the target skill. For example, we show to a student how to brush their teeth as an incentive to brush their teeth.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

Source of information reliable databases:

- [AFIRM Module – *Selecting an evidence-based practice*](#)⁸⁸
- [What Works Clearinghouse](#)⁸⁹
- [The National Clearinghouse on Autism Evidence & Practice](#)⁹⁰



Phase 3 SELECT EVIDENCE-BASED PRACTICES

Source of information:

The *Select an evidence-based practices* module on AFIRM⁹¹ will help you to determine the best evidence-based practice to implement with your student.

Table 26

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).⁹²

Questions and considerations	Applied to student
Has this evidence-based practice been proven to be effective for this age group?	
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	



Phase 4 PREPARE FOR IMPLEMENTATION

STEP 1: Choose the target skill

First, we need to identify the observable and measurable target skill or behaviour (see Table 27).

Table 27

Types of skills.⁹³

Type of skill	Description of skill	Examples of skills
Simple (discrete) skill	A stand-alone task that requires a single response and is relatively short in duration.	<ul style="list-style-type: none"> • Greeting • Reading of words • Naming pictures
Complex (chained) skill	A chained task that requires several individual activities to be sequenced to create a more complex skill.	<ul style="list-style-type: none"> • Dressing up • Hand washing • Teeth brushing • Washing laundry

TIP

Peter, a student on the autism spectrum, is eight years old. He does not raise his hands to communicate with the teacher. The teacher would like to teach Peter to raise his hand before he requests something from the teacher (e.g., to go to the toilet after eating a snack). If this is our target skill, we can say it is a discrete skill.

STEP 2: Select the prompting procedure to use

There are three prompting procedures: least-to-most, graduated guidance, and simultaneous prompting. In this Methodology Guide we will only describe the first one: least-to-most prompting.

Least-to-most prompting: A prompt hierarchy with at least three levels used to teach a new skill. At the independent level, the student is given the opportunity to respond without prompts. The remaining, intermediate levels include prompts that proceed from least to most assistance. The last level is the dependant prompt, which is a prompt that ensures the student will respond correctly. This procedure can be used in discrete and chained skills.

STEP 3: Identify the target stimulus

Identify the target stimulus which is an event or thing that cues the student to engage in the target behaviour. If we set the stimulus well, we will increase the student's independence, thereby reducing their dependence on the teacher's instructions and their incentives. Examples of stimuli can be:

- school bell as an incentive to move to another class,
- reading a text is an incentive to answer questions about what has been read.

STEP 4: Select cues or task directions

Cues and task directions help students identify the target stimulus and then engage in the target response.

- Make sure that the cue is clear, complete, specific, and aimed at the student's skill and interest level so that the student understands what they are expected to do during a particular task or activity.

TIP

In Peter's case study, a cue can be a teacher saying: "Peter, raise your hand if you want to ask me to go to the toilet."

STEP 5: Select reinforcers

To increase the likelihood that the student will use the target skill or behaviour again in the future, it is advisable to select reinforcers that are appropriate for the student and target skill or behaviour. Reinforcers should be as natural as possible and related to a particular activity. Some of the reinforcers can be a preferred activity, verbal praise, preferred objects, and games, or a food-related activity.

STEP 6: Follow unique planning steps for selected prompting procedure

Planning steps for the least-to-most procedure are outlined below⁹⁴, including Table 28.

1. Select the number of levels in the hierarchy. Please remember that the least-to-most prompting procedure requires a minimum of three prompt levels – the independent level (no prompts are used), intermediate level(s) and the last level uses a dependant prompt that ensures the learner responds correctly and uses the target skill.
2. Select the types of prompts to be used.
3. Sequence prompts from least-to-most assistance (organise the selected prompts from least to most intrusive. The independent level is the first level of the prompt hierarchy and includes the target stimulus and perhaps a cue or task direction. For subsequent levels, educational professionals provide prompts with more assistance.)
4. Determine the length of the response interval. The response interval is the amount of time the student has after each level of the prompting hierarchy to respond. Response intervals are usually only a few seconds (3-5 seconds).

Table 28

Planning steps for least-to-most procedure. Adapted from Glumbić, et al. (2018)⁹⁵.

Level	Prompt type	Examples
Independent performance level, no prompts. (Peter performs the target skill without support.)	No prompts	The teacher does not use any prompts.
Medium level (prompt level one)	Verbal prompt	The teacher says: "Peter, raise your hand if you want to ask me to go to the bathroom."
Medium level (prompt level two)	Verbal prompt and partial modelling	The teacher says: "Peter, raise your hand if you want to ask me to go to the bathroom" while pretending to raise his hand.
Dependant prompt (Support is provided to ensure that Peter uses the target skill correctly.)	Verbal and physical prompt	The teacher says: "Peter, raise your hand if you want to ask me to go to the toilet" while gently guiding the student's elbow so his hand is raised.



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

Follow the steps for using the least-to-most prompting procedure (see also Table 20):

1. Establish student's attention, deliver stimulus, and provide the cue. Once the teacher and teacher assistant has gained the student's attention, the cue or task direction is presented to let the student know what they are expected to do. In Peter's case study, the teacher can look Peter in the eyes, call him by name, say "snack is over".
2. Wait for the student to respond. In the planning step, the length of the response interval was determined. Wait for the designated response interval before providing increased support. In Peter's case study, the teacher waits 3-5 seconds before providing more intensive support.
3. Respond to student's attempts. Teachers and teacher assistants respond to the student when they use the target skill correctly, incorrectly, or when they do not attempt to use the skill at all. If the student responds correctly, the teacher or teacher assistant provide reinforcement. If the student responds incorrectly, the teacher or teacher assistant interrupt the incorrect response and provide the first next new stimulus in the hierarchy. If the student does not respond at all, the teacher or teacher assistant provide incentives following the hierarchy.

TIP

Peter did not raise his hand and went to the toilet on his own initiative. The teacher or teacher assistant stopped him, returned him to his desk and said: "Peter, raise your hand if you want to ask me to go to the toilet" while providing a partial physical prompting to direct Peter to raise his hand.

Table 29

What (not) to do when using prompting. Adapted from Neitzel and Wolery (2009).⁹⁶

What NOT to do	What to do
Don't decrease the level of prompt too slowly, as that may lead to dependence.	<p>Plan how you will reduce the support, and for how many seconds you will react again. It is recommended you wait for at least 5 seconds before providing any prompts. Give your students a chance to respond on their own before you provide the prompting again.</p> <p>The key is to observe how the student responds to the prompts and fade them accordingly. Gradually try each prompt and record their responses.</p> <p>Once it has been established that a prompt has been used, work on fading the prompt as quickly as possible. When using a physical prompt, start using a faded physical prompt. This will look like guiding the child by their forearms, elbows, or shoulders.</p>
Don't always use the same prompts (same type and same intensity).	<p>A wide variety of prompts enables special education classroom staff to choose the combination that is most effective for each individual student.</p> <p>You can use any number of prompt combinations. You can use:</p> <ul style="list-style-type: none"> • different types of prompts, e.g., gestural and full physical; • different variations of the same type of prompt, e.g., partial physical prompts followed by full physical prompts. <p>You choose prompt types based upon: a) the student's personal characteristics, b) the student's abilities and skills.</p>
Don't be in too much of a rush to give prompts.	<p>Give the next prompt in the hierarchy and wait for the response if the student doesn't respond. If you don't use enough wait time, you may be providing more prompts than needed. Remember, rushing through prompts reduces opportunities for the student to respond.</p>



Phase 6 **MONITOR IMPLEMENTATION**

● **STEP 1: Monitoring**

Team members (teacher assistants, teachers, parent) monitor target behaviours during the prompting.

Data must be collected to determine: (i) the student's progress, and (ii) the next steps.

- If the student shows progress in performing the target behaviour or skill, continue using the prompting.
- Prompting could be used to address new target skills or behaviours for the student.

● **STEP 2: Make the appropriate adjustments.**

If progress in performing the target behaviour or skill is not occurring, we reflect on the following questions:

- Is the target skill or behaviour well defined?
- Is the selected prompting procedure appropriate for addressing the target skill or behaviour?
- Is the skill or behaviour measurable and observable?
- Is the skill realistic, does it need to be broken down into smaller steps?
- Has enough time been devoted to using this strategy?
- Was prompting used with fidelity?
- Are reinforcers used that are motivating to the student? Can this be adjusted?
- Does the response interval have an appropriate length?
- Are teachers and teacher assistants responding to the student's attempts appropriately?

● **STEP 3: Choose another evidence-based practice**

If teacher and teacher assistant have adjusted the promoting based on the identified shortcomings and the student still does not show any progress, consider choosing another evidence-based practice.



CASE STUDY: Peter

Background Information about this Case Study

This case study was developed in collaboration with Peter's parents and Peter's educational team from a Serbian special primary school. Names used in the case study are pseudonyms. Peter was supported at school by a special education teacher and teacher assistant. This team was methodologically guided by the ERASMUS+ team in implementing the evidence-based practice.

Who is Peter?

Peter is a seven-years old male student and attends a special primary school. He can communicate through speech (uses simple sentences of two and three words). In the classroom, he always sits in his place (his chair is marked with his picture and written name). He likes listening to music and watching YouTube videos. Peter likes to be verbally praised. He likes to be good at something. He doesn't like criticism and he doesn't like being told that he makes mistakes. He likes it when his special education teacher (Ana) prepares a visual schedule for him so he knows what to expect throughout the day and the lesson. Peter likes predictability. During the school break between classes, he usually walks around the yard and likes to touch the ground, grass, and plants, to hold various objects he comes across. Peter's parents are very concerned about their son's difficulty with self-help and daily living skills. In particular, they would like him to do a better job of washing his hands. Peter often skips important steps during these tasks and doesn't spend enough time washing his hands. Because of his parents' concerns, Ana wants to address self-help and daily living skills at school. After collaborating with all stakeholders (Peter's parents, and teacher assistant), Ana has decided that the first target skill will be to teach Peter how to wash his hands thoroughly before lunch.

Recommendations for Peter

All stakeholders (parents, special education teacher, and teacher assistant) made the agreement that the teacher assistant assists the special education teacher in supporting Peter, focusing on developing washing hands thoroughly. Here is an excerpt from the agreement:

"We will identify the target steps inside washing hands and illustrate them (e.g., using a visual schedule). We will use different types of prompts to teach Peter to wash his hands. We will use something that would help Peter wash his hands longer and more thoroughly, for example a timer..."



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

The initial stimulus for working with Peter was vague: "Peter does not wash his hands thoroughly." As a result, all stakeholders (parents, teacher, and teacher assistant) had to further unpack, specify, and describe how Peter's behaviour when washing his hands. The specific behaviours identified were:

"Peter often skips important steps during hand washing and doesn't spend enough time washing his hands (for example, he turns on the water, does not apply soap; after wetting his hands for 2-3, he does not dry his hands and does not turn off the water)."

The next step was to observe how often and for how long such behaviour occurs. Data was collected through direct observation, with the teacher assistant recording Peter's behaviour.

All stakeholders then considered the following question: "What is the target skill that we want to achieve with Peter's intervention?" This was formulated in the form of a SMART goal (that is, we identified the target skill, in this case it was chained skill).

Peter's SMART Goal

By the end of the school term (10 weeks) Peter will be able to independently wash his hands each day before lunch for 20 seconds respecting all the steps involved.

Specific

Measurable

Achievable

Relevant

Time Bond

**Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES**

The AFIRM⁹⁷ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.

**Phase 3 SELECT EVIDENCE-BASED PRACTICES**

Ana and the personal assistant looked for a suitable evidence-based practice supporting the achievement of self-help skills (washing hands) for a seven-year-old student on the autism spectrum. Ana and the teacher assistant decided to use prompting. Prompting has three procedures. Graduated guidance procedure is used for chained skills (skills comprised of several behaviours sequenced together to form a more complex skill), which is why it was selected by the teaching team. They referred to the *Select an evidence-based practices* module on AFIRM⁹⁸.

Table 30

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014)⁹⁹.

Questions and considerations	Applied to Peter
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes

**Phase 4 PREPARE FOR IMPLEMENTATION**

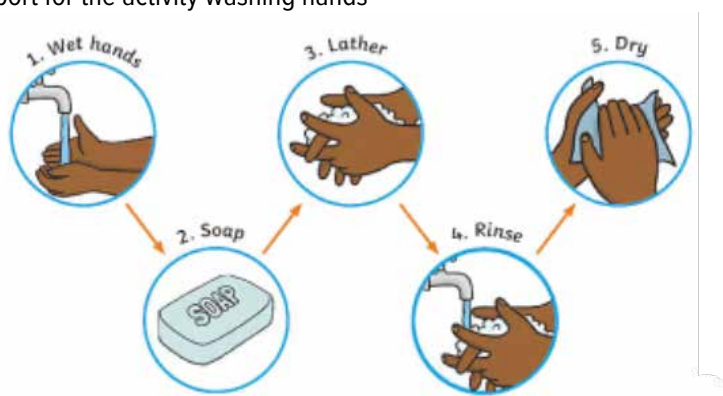
A special education teacher and teacher assistant participated in training on prompting. They went through an online training module on AFIRM¹⁰⁰ and received online methodological guidance from ERASMUS+ team, so that they could consult the creation of the prompting plan, as well as its implementation.

Before implementing graduated guidance with prompting, Ana, the special education teacher first identifies the target behaviours that make up the chained skill. She does so by completing the chain of skills at her home and writing them down as he goes. The following steps were identified:

1. Turn on the water.
2. Apply soap.
3. Scrub hands.
4. Rinse hands.
5. Turn off.
6. Dry hands.

The special educator visualised the steps of the activity and created visual support for the activity while using a timer for 20 seconds (see Picture 1).

Picture 1: Visual support for the activity washing hands¹⁰¹



Ana also creates the following visual support (schedule) for the activity. She hopes that this will give Peter additional visual and written support to wash his hands more independently.



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

How was Peter involved?

It was difficult for Peter to participate in developing his SMART goal. He felt frustrated when he heard that he was doing something wrong. It was important to find a motivation for him to change his behaviour.

Ana then selects reinforcers that can be given to Peter after he washes his hands successfully. She decides that verbal praise is the best reinforcer for this activity because it is the most natural and has motivated Peter in the past. Ana also determines that the dependant prompt to be used with all steps in the chain will be full physical assistance. That is, if Peter does not respond to less intensive prompts (e.g., gestural, verbal) when trying to complete a step in the chain, Ana or another adult will physically support Peter to complete the skill. Ana feels that a response interval of 4 seconds will be a sufficient amount of time to wait before providing Peter with more assistance when trying to complete each step. As Peter begins using the skill associated with a particular step (e.g., turning on the faucet, getting soap), Ana (or teacher assistant) will immediately remove the prompt so that Peter can complete the task independently and not become dependent upon adults to finish the task. Ana also has decided to set a timer for 20 seconds as soon as Peter starts rubbing his hands together. She hopes that this will help Peter wash his hands more thoroughly and independently. With the planning complete, Ana decides to begin teaching the skill the following day before lunch.

Before lunch, the next day, Ana and teacher assistant gave Peter the picture card (visual schedule) with the instruction, “Wash hands” on it. As he hands the card to Peter, Ana says, “Wash hands, Peter.” Peter takes the card, but does not move. Teacher assistant waits 4 seconds and then says, “Peter, it’s time to wash your hands.” Teacher assistant also points to the bathroom and gently directs Peter in the direction of the bathroom. Peter then begins walking toward the bathroom with the picture card in his hand. Teacher assistant follows Peter into the bathroom and waits for him to begin the chained task of washing his hands. After about 4 seconds, Peter still has not started washing his hands. At this point, teacher assistant provides an increased prompt (pointing to the first picture on the picture card) to encourage Peter to start the first step in the chain. For example, teacher assistant uses verbal and gestural prompting to help Peter begin the first step. She says, “Turn water on, Peter” while pointing to the faucet on the sink. Then he waits 4 more seconds to see if Peter turns the water on without additional prompting. When he doesn’t, teacher assistant uses full physical prompting (i.e., hand-over-hand) to help Peter get started. As Peter begins to complete this step independently, teacher assistant immediately stops using the prompt. After Peter turns the water on, teacher assistant waits to see if Peter will begin the second step independently. When he doesn’t, teacher assistant repeats the prompting procedures by providing and withdrawing prompting as needed. This process is repeated for each of the steps in the chain.



Phase 6 **MONITOR IMPLEMENTATION**

To monitor Peter’s progress, Ana and the teacher assistant collect data as Peter is engaged in the activity. For example, they record the number of chains completed:

1. correctly without prompts,
2. correctly with prompts, and
3. correctly, but with resistance.

As Peter becomes more proficient at starting and completing each step independently, the teacher assistant decreases the response interval as well as her distance from Peter during the hand-washing activity. Ana also provides training and support to Peter’s parents so that they can begin implementing the activity at home with consistency to increase Peter’s generalisation of the target skill.

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● REINFORCEMENT (R)¹⁰²



Description of the evidence-based practice

Reinforcement is used to reinforce the appropriate behaviour of the student and to permanently improve the student's behaviour. Reinforcement is also an important element in learning new skills. It is one of the key evidence-based practices, because it is often used together with other evidence-based practices.

Many activities are not interesting for some students; therefore, it is important to create another motivational system with which we can influence the student's behaviour. Rewarding has a fundamental influence on the student's activity.¹⁰³ Reinforcement/motivation for a student can be, for example, positive attention from an adult, praise, a sticker, time playing with a favourite toy, or free time after completing a task. Such motivation increases the likelihood that a targeted student's behaviour or skill will be repeated. There are different types of rewards.¹⁰⁴

Who is reinforcement for?

Research has proven reinforcements to be effective for:

- all students (with or without disability).

Table 31 outlines the outcomes and student ages for which reinforcements are an evidence-based practice.

Table 31

Outcomes and student ages for which reinforcements are an evidence-based practice.¹⁰⁵

Early intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
Communication	Communication	Communication	Communication	Communication
	Social	Social	Social	Social
Joint Attention	Joint Attention			Joint Attention
	Play		Play	Play
		Cognitive		
	School-Readiness	School-Readiness		
		Academic/Pre-academic		
	Adaptive	Adaptive	Adaptive	Adaptive
	Behaviour	Behaviour	Behaviour	Behaviour
			Vocational	Vocational

Reinforcement across the six phases of implementation



Phase 1 IDENTIFY SKILL OR BEHAVIOUR¹⁰⁶

Possible areas suitable for using reinforcement include:

- increasing communication,
- increasing joint attention,
- increasing social skills,
- increasing practical skills,
- teaching appropriate behavioural skills,
- playing appropriately with materials,
- playing with peers,
- increasing social interactions,
- initiating requests,
- initiating comments,
- increasing appropriate responses,
- decreasing problematic behaviours, and
- increasing on-task behaviour.

Reminder for before you start

To make sure you have selected the most appropriate evidence-based practice, you need to ask yourself the following questions:

- Have you identified the target behaviour or skill?
- Have you collected baseline data through direct observation and other means?
- Have you established a SMART goal?
- Does the team supporting the student know how to tell when the target behaviour or skill is mastered?

If the answer to any of these questions is “no”, review the process of selecting an appropriate evidence-based practice.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

Source of information reliable databases:

- [AFIRM Module – *Selecting an evidence-based practice*](#)¹⁰⁷
- [What Works Clearinghouse](#)¹⁰⁸
- [The National Clearinghouse on Autism Evidence & Practice](#)¹⁰⁹



Phase 3 SELECT EVIDENCE-BASED PRACTICES

Source of information:

The *Select an evidence-based practices* module on AFIRM¹¹⁰ will help you to determine the best evidence-based practice to implement with your student.

Table 32

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).¹¹¹

Questions and considerations:	Applied to student
Has this evidence-based practice been proven to be effective for this age group?	
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	



Phase 4 PREPARE FOR IMPLEMENTATION

STEP 1: Select a suitable type of reinforcement

Table 33 outlines the types of reinforcements. There are two basic types of reinforcement: positive and negative reinforcement.

Table 33

Type of Reinforcement.¹¹²

Type of Reinforcement	Description	Example
Positive Reinforcement	Involves providing a reward or other positive consequence for the desired behaviour. The student is given a sticker, they successfully complete a task or behaviour that is being reinforced.	Improving social skills – the teacher gives a sticker to the student every time when the student puts the toy back in the box. Improving writing skills – the teacher gives a tangible reinforcement to the student every time when the students write a complete sentence.

Negative Reinforcement	Occurs when something unpleasant or uncomfortable is removed or taken away in order to increase the likelihood of the desired behaviour. This type should be used in conjunction with positive reinforcement and not as the only strategy.	E.g., an alarm clock that wakes the student up and makes them get up with its unpleasant sound. Elimination of unpleasant obligation after the desired behaviour.
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STEP 2: Select the appropriate reinforcers

Choose the appropriate type of reinforcement/reward.

Many different types of reinforcement can be used for positive reinforcement.

Table 34 introduces four key types of reinforcement.

Table 34

Four key types of reinforcement.¹¹³

Type	Description	Example
Social reinforcers	<p>Social reinforcers are various positive interactions that students receive for appropriate behaviour to reinforce that behaviour.</p> <p>Verbal praise is one of the simplest and most effective forms of reinforcers. A teacher or parent praise a student when they demonstrate a desired behaviour, such as completing a task, following directions, or showing good social skills.</p> <p>Social reinforcers, especially clear and specific verbal praise, should always be tried before other positive reinforcers are used. This is because verbal praise is the most natural type of reward in the school environment.</p>	<p>Verbal praise: "Good job, you raised your hand and waited to be called."</p> <p>Facial expressions: e.g., a smile.</p> <p>Proximity: e.g., sitting next to the teacher.</p> <p>Chair arrangement: e.g., sitting alone, sitting next to a favourite classmate.</p>
Activity reinforcers	In general, activities that are directly related to a student's learning goals (e.g., practicing math skills on a computer) are preferable to those that are purely recreational (e.g., playing a computer game that has nothing to do with education).	Games, extra time spent on a favourite activity of the student.
Tangible reinforcers	Tangible reinforcers are prizes or other items that students can earn as symbols of achievement. The student receives a token for a desired behaviour and can later exchange it for a prize or privilege.	<p>Sticker or stamp for completing a task or for a specific behaviour.</p> <p>Small prizes for completing a task or for a specific behaviour can also be small toys that are a form of positive reinforcers.</p> <p>Tokens such as small plastic or wooden crisps or coins can be used.</p>
Primary reinforcers	Primary reinforcers are food or other items related to human needs that a student finds rewarding. They are much more basic than other reinforcers. Although primary reinforcers might be occasionally use as a special treat, generally they should be used only if a student does not understand other types of rewards, or if other types of rewards are not effective.	Primary reinforcers used in school might be a piece of candy, a drink or a piece of fruit.

STEP 3: Choose a reinforcement method

It is possible to use a double method of reinforcement. Either the reward can be given immediately after the completion of the activity, or the reward follows only after the completion of several activities (please see Table 35).

Table 35Methods of reinforcement.¹¹⁴

Method of reinforcement	Description
Instant reinforcement	The reward is given to the student immediately after completing the activity.
Token economy	The student collects tokens, the number of which is determined in advance, and they collect the desired number of tokens, they receive a favourite thing or engage in a favourite activity. This involves delaying the reward so that the student can cooperate for a certain period of time.

TIP

Verbal praise is the most natural form of reward. For praise to be effective, it needs to be specific. Examples of vague, non-specific praise include: "Good job" and "Excellent". An example of specific praise is a sentence like "You are great at raising your hand when you want to ask something".

STEP 4: Setting the criteria for reinforcement

Set criteria for reinforcement. We usually start with reinforcement by immediately following the behaviour. We need to define exactly which form of behaviour the student needs to exhibit when we select the type of reinforcement. Make sure that the target skill or behaviour clearly describes the context (when), the target skill or behaviour to be performed (what), and how the team will know when the skill or behaviour is mastered (how).

We need to explain to the student the set criteria.

TIP

Behaviour has to be specific and measurable.

The teacher assistant says to Janez: "Janez, I've noticed that you keep talking when other people are talking, and that you find it difficult to wait for the teacher to call you. When you want to say something, first raise your hand and wait for the teacher to call you by name."

STEP 5: Prepare supporting materials

Different supporting materials will be needed for each reinforcement procedure:

Positive reinforcement:

- Create a reinforcer menu for student to select a desired object, activity, or food.

Token economy:

- Identify tokens that are attractive, easy to carry, easy to dispense, and are age and developmentally appropriate for the student.
- Set up a system for exchanging tokens that includes "a bank" to keep track of tokens, a time and place for purchasing reinforcers.



Phase 5 **IMPLEMENT EVIDENCE-BASED PRACTICE**

● **STEP 1: Involve the student**

We need to explain to the student what are the criteria for the desired behaviour. The student needs know what kind of reinforcement and reinforcers will be given when desired behaviour happens (more information is in Table 36).

Positive reinforcement

Explain to the student what behaviour we expect and what reward they will get if they achieve their aim. We reward the student immediately after completing a certain activity. We need to make sure that the student does not have free access to the reward before they complete an activity or perform the desired behaviour.

If the student is rewarded materially or in the form of an activity, always include social reinforcement (e.g., praise, smile).

Token economy

We need explain to the student what the expected behaviour or fulfilment of a certain activity is. And introduce him to the reward system. We go through with the student how many tokens they need collect in order to get a reward (a favourite thing or activity). We reward the student immediately after completing a certain activity and repeat why he got the token.

Table 36

What (not) to do when using reinforcement.¹¹⁵

What NOT to do	What to do
If we always use the same reward for a student, after a while the student may lose interest in the reward.	We always monitor the student's interests, and based on this, we adapt the rewards so that they are still functional.
A student who repeatedly fails to meet the requirements and is also negatively perceived and assessed by the teachers and teacher assistants can worsen the manifestations of the challenging behaviour.	If the student repeatedly does not fulfil the set requirements, then we will explain why. We positively motivate for the student.
Rewards lose their effectiveness when the same motivation is used too often.	We offer the student more rewards to choose from.



Phase 6 **MONITOR IMPLEMENTATION**

Team members (teacher assistant, teachers, parents) monitor target behaviours during the observation by measuring and recording. Using the same data collection forms allow team members to track the student's use of the target skill or behaviour before, during, and after reinforcement is implemented.

If the student is showing progress based upon collected data, then we continue to use reinforcement.

● STEP 1: Monitoring

We make changes, if necessary, in the light of the student's progress. The number of reinforcers can be reduced by changing the schedule of reinforcements as appropriate. If the student does not express the desired behaviour and thus does not receive the reinforcer, the behaviour is too demanding. We should design smaller steps or increase the level of support. We should review the collected data with team members and adjust reinforcement.

● STEP 2: Make the appropriate adjustment

If progress in performing the target behaviour or skill is not occurring, ask yourself the following questions:

- Is the target skill or behaviour well defined?
- Is the skill or behaviour measurable and observable?
- Is the skill or behaviour too difficult for the student?
- Is the reinforcement used with fidelity?
- Are there too many or too few reinforcers?
- Are all team members using reinforcement in a consistent manner?
- Was the reinforcement sufficiently motivating for the student (e.g., the student does not respond to social praise, but reinforcement in the form of an activity will be motivating for them)?
- Is reinforcement occurring at a sufficient level to maintain the behaviour or target skill?
- Has the student lost any interest in the reward?

● STEP 3: Choose another evidence-based practice

If we have adjusted the reinforcement based on the identified shortcomings and the student still does not show any progress, consider choosing another evidence-based practice.



CASE STUDY Adam

Background

This case study was developed in collaboration with Adam's teacher and teacher assistant, also using recommendations made by the school counselling centre. Names used in the case study are pseudonyms. Adam was supported at school by a teacher, a teacher assistant and a school special educator. This team was methodologically guided by the ERASMUS+ team in implementing the evidence-based practice.

Who is Adam

Adam is six years old male student on the autism spectrum. Adam attends Year 1 in a mainstream primary school. Adam communicates with a teacher assistant; he talks mostly about dinosaurs. Adam's communication skills are age-adequate (e.g., he can verbally express his thoughts and communicate them to other people). Adam prefers a quiet and calm environment. He is reserved in contact with his classmates. He likes to sit at a desk by himself at the end of the class. Adam likes to spend time with his activities; for example, he can spend a long time looking at books about dinosaurs.



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

The educational team specified and described the behaviours they wanted to target. Adam did not want to work on his schoolwork. He left the assigned work and did not want to return to finish his schoolwork. Sometimes he yelled at the teacher assistant, or he ran away from the classroom when the teacher assistant tried to get him to complete his schoolwork. The next step was to observe how often and for how long this behaviour occurred. Data were collected by direct observation; the teacher's assistant recorded behaviour in a simple form.

- Adam does not complete the task that the teacher gives him during the day.

The educational team asked themselves the following question: "What is the target skill that we want to achieve with Adam's intervention?" The answer was formulated in the following smart goal.

Adam's SMART Goal

During a school day, Adam manages to complete at least three assigned tasks. He will do this each day of the week after the reinforcement intervention has been implemented.

Specific

Measurable

Achievable

Relevant

Time Bond



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

The AFIRM¹⁶ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.



Phase 3 SELECT EVIDENCE-BASED PRACTICES

The team looked for a suitable evidence-based practice, supporting the ability to complete a schoolwork, for a six-year-old student on the autism spectrum. They referred to the *Select an evidence-based practices* module on AFIRM¹¹⁷.

Table 37

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).¹¹⁸

Questions and considerations:	Applied to Adam
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes



Phase 4 PREPARE FOR IMPLEMENTATION

A special education teacher, a special educator and teacher assistant participated in training on reinforcement. They went through an online training module on AFIRM and received online methodological guidance from ERASMUS+ team, so that they could consult reinforcement, as well as its implementation.

The educational team was looking for a suitable way to motivate Adam. They started by choosing the type of reward and a suitable incentive system. A social reward, a smile or praise for Adam did not work. Adam didn't even understand the grading system. The educational team asked themselves the question, what would be attractive to Adam? The teaching team knew that Adam needed his reward immediately. Adam liked sweets, but the educational team did not want to use this because Adam was overweight. Thus, they looked for another attractive reward. In the end, they decided to take advantage of Adam's interest in dinosaurs. A picture of a dinosaur was prepared for Adam for each day, which the assistant cut into the number of pieces that equalled the number of tasks that Adam had to complete that day. The teacher first prepared short tasks that she assumed were manageable for Adam.



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

How was Adam involved?

In the morning, the teacher assistant introduced Adam to the reward he would get when he completes his work task. Adam learned that after each task, he would get part of a dinosaur picture that he could assemble and take home at the end of the day. Adam quickly understood the reward system and wanted to start working.



Phase 6 **MONITOR IMPLEMENTATION**

The educational team began monitoring Adam's ability to complete the tasks immediately after reinforcement was introduced. Adam started to complete his schoolwork and the number of unfinished activities decreased.

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● TASK ANALYSIS (TA)¹¹⁹



Description of the evidence-based practice

Task Analysis (TA) is the process of breaking down a complex or 'chained' behavioural skill into smaller components in order to teach it. Students on the autism spectrum have often difficulties with learning new skills or behaviours, especially when these behaviours are complex or have multiple components. Task analysis can be used to help break down and teach these chained behaviours. The student will gradually become more

independent when using the target skill or behaviour. Other practices, such as reinforcement, video modelling, or time delay, could be used to facilitate learning of the smaller steps.¹²⁰

Who is task analysis for?

Task analysis is an evidence-based practice proven effective for students:

- all students (with or without disability).

Table 38 outlines the outcomes and student ages for which task analysis is an evidence-based practice.

Table 38

Outcomes and student ages for which task analysis is an evidence-based practice.¹²¹

Early intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
	Communication	Communication	Communication	
		Social		
	Joint Attention		Joint Attention	
			Play	
		Academic/Pre-academic	Academic/Pre-academic	
	Adaptive/Self-help	Adaptive/Self-help		
		Vocational	Vocational	Vocational
		Motor		

Reinforcement across the six phases of implementation



Phase 1 IDENTIFY SKILL OR BEHAVIOUR¹²²

Possible areas suitable for using visual supports include:

- increasing and improving language and communication skills,
- increasing social skills,
- increasing desired behaviour,
- improving self-care/functional skills (e.g., brushing teeth, flossing),

- improving motor skills (e.g., cycling, swimming, throwing a ball),
- improving academic skills (e.g., completing work tasks, reading),
- improving daily living skills (e.g., making a sandwich, laundry, grocery shopping), and
- improving organisational skills (e.g., packing a school bag).

Reminder for before you start

To make sure you have selected the most appropriate evidence-based practice, you need to ask yourself the following questions:

- Have you identified the target behaviour or skill?
- Have you collected baseline data through direct observation and other means?
- Have you established a SMART goal?
- Does the team supporting the student know how to tell when the target behaviour or skill is mastered

If the answer to any of these questions is “no”, review the process of selecting an appropriate evidence-based practice.



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

Source of information reliable databases:

- [AFIRM Module – *Selecting an evidence-based practice*](#)¹²³
- [What Works Clearinghouse](#)¹²⁴
- [The National Clearinghouse on Autism Evidence & Practice](#)¹²⁵



Phase 3 SELECT EVIDENCE-BASED PRACTICES

Source of information:

The *Select an evidence-based practices* module on AFIRM¹²⁶ will help you to determine the best evidence-based practice to implement with your student.

Table 39

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).¹²⁷

Questions and considerations:	Applied to student
Has this evidence-based practice been proven to be effective for this age group?	
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	



Phase 4 **PREPARE FOR IMPLEMENTATION**

● **STEP 1: Identifying the student's pre-requisite skills**

Review the collected data to determine if the student has the pre-requisite skills needed for the target skill or behaviour. If the student does not have the pre-requisite skills, these skills will either need to be incorporated into the steps of the task analysis or taught before proceeding with the task analysis.

● **STEP 2: Identifying the target skill or behaviour¹²⁸**

Break down a target skill or behaviour into smaller steps by:

- Watching someone competent in completing the target skill or behaviour. As the student completes the task, write down each step.
- Asking an expert in the target skill or behaviour to record each of the steps.
- Completing the task, yourself and record each of the steps.

● **STEP 3: Check if task is broken into smaller steps accurately**

Check to determine if the steps are accurate by performing the target skill or behaviour again, following each of the steps. Make sure:

- Is each step a discrete behaviour?
- Are the steps manageable for the student?
- Are the steps described accurately for the student's needs?

● **STEP 4: Select appropriate task analysis procedure**

In this step, we need to decide what procedure we will use for chaining the identified steps. Chaining means combining the skills that the student has learned in small steps into a final whole. There is: forward chaining, backward chaining, or total task chaining.

TIP

If we have taught the student to say independently the words “I”, “want”, and “drink”, we can move to the chaining method, in which the student learns to connect these words into a sentence. Firstly, the student learns “I want” and later will progress to “I want a drink”.

● **STEP 5: Select an appropriate method to teach the task analysis steps**

To teach the determined individual steps, we need to select additional evidence-based practices. Prompting, time delay, and reinforcement are commonly used practices to teach the smaller steps.

We also need to think through how to present the individual steps to the student. For the student to learn the individual steps, we can present these using pictures, text or videos.

TIP

Develop presentation materials of the individual task analysis steps.

Consider the strengths and needs of the student to determine how the task analysis steps should be presented to the student. The task analysis steps can be presented with pictures, text, or video.



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

● STEP 1: We progress according to the selected method of teaching the targeted behaviour/ skill.

As part of the chaining, the individual steps determined by the task analysis are systematically taught. We refer to the step that we are focusing on at that moment as a training step. Depending on how the training steps are approached, we distinguish three key types of chaining, as outlined in Table 40.

Table 40

Types of chaining.¹²⁹

Total Task Chaining	Forward Chaining	Backwards Chaining
<p>Training step is each sequence step. Thus, learning thus takes place throughout the training, not just within one selected step. The target behaviour is divided into several steps, which are then practiced separately and gradually.</p>	<p>First, the teacher teaches the student first step. After mastering it, the student performs it independently, and the next step becomes a training step. With this type of chaining, reinforcement comes after the training step is completed. The skill is taught repeatedly until the student is independent in its entire breadth.</p>	<p>The teacher guides the student through all the steps to complete the task. Learning starts from the last step in the chain. When the student independently manages the last step, the previous step becomes a training step.</p> <p>This is how we proceed with all steps of the task chain until the student is able to independently perform the entire skill.</p>
<ul style="list-style-type: none"> • We teach the student on the basis of an incentive for each step and reinforce its execution with a reward. • Finally, we weaken the instructions, prompts, and reinforcements of each step until there is one united instruction at the beginning of the chain and one reward at the end. 	<ul style="list-style-type: none"> • We teach the student on the basis of an incentive for each step and reinforce its execution with a reward. • Finally, we weaken the instructions, prompts, and reinforcements of each step until there is one united instruction at the beginning of the chain and one reward at the end 	<ul style="list-style-type: none"> • We provide assistance to the student in completing all individual initial steps. • We encourage the student to take the last step. • If the student needs it, we will provide them with visual support to demonstrate what the step should look like. • After completing the step, we reward the student.



Phase 6 **MONITOR IMPLEMENTATION**

● **STEP 1: Monitoring**

Team members (teacher assistant, teachers, parents) monitor target behaviours during the task analysis.

- If the student shows progress in performing the target behaviour or skill, continue using the task analysis.
- Consider using task analysis to address new target skills or behaviours with the student.

● **STEP 2: Make the appropriate adjustments**

If progress in performing the target behaviour or skill is not occurring, ask yourself the following questions:

- Is the target skill or behaviour well defined?
- Is the skill or behaviour measurable and observable?
- Is the skill or behaviour too difficult for the student?
- Does the student have the pre-requisite skills needed to learn the skill or behaviour?
- Is the task completely analysed?
- Is an appropriate teaching method selected to teach the individual steps of the task analysis?
- Is task analysis used with fidelity as per the implementation checklist?
- Is the student prompted to perform the individual steps?

● **STEP 3: Choose another evidence-based practice**

If we have adjusted the task analysis based on the identified shortcomings and the student still does not show any progress, consider choosing another evidence-based practice.



CASE STUDY: Maša

Background

This case study was developed in collaboration with Maša's teacher and teacher assistant. Names used in the case study are pseudonyms. Maša was supported at her Ljubljana special school by a teacher and a teacher assistant. This team was methodologically guided by the ERASMUS+ team in implementing the evidence-based practice.

Who is Maša?

Maša is a seven-years old girl who attends a special school in Ljubjana (Slovenia). She is on the autism spectrum and has intellectual disability. She can understand small direct sentences and can use two to three words long sentences to verbally communicate. Maša loves picture books and art class, but has difficulty with her fine motor skills, which can make drawing frustrating. Maša has some trouble with her daily living skills, such as dressing herself for school each day. This can be challenging for Maša as she has difficulties with her fine motor skills and following things that have more than a few steps. Maša likes to be independent and wants to do things for herself. After a meeting at school between Maša's parents, the classroom teacher and teacher assistant it was decided that a suitable goal for Maša would be to support her to learn the skills of putting on and taking off her jacket (including the buttons). Ultimately, they want Maša to be able to do this task independently, meanwhile the short-term goal is for Maša to have support to complete this task.



Phase 1 IDENTIFY SKILL OR BEHAVIOUR

In the collaborative meeting between Maša's parents, the classroom teacher and teacher assistant it was established that the skills they would focus on would be to teach Maša to put on her jacket and do up her buttons.

Maša's SMART Goal

By the end of the school term, Maša will learn the steps it takes to put on her jacket and do up the buttons. She will attempt to do this at the end of each school day. This task can be supported by some assistance from an adult.

Specific

Measurable

Achievable

Relevant

Time Bond



Phase 2 INVESTIGATE EVIDENCE-BASED PRACTICES

The AFIRM¹³⁰ online database was used to explore suitable evidence-based practices. It is a free database based on rigorous international research.



Phase 3 **SELECT EVIDENCE-BASED PRACTICES**

The classroom teacher and teacher assistant investigated a suitable evidence-based practice supporting the achievement of daily-living skills (putting on a jacket and doing up the buttons) for a seven-year-old student on the autism spectrum. The classroom teacher and teacher assistant decided to use task analysis. They referred to the *Select an evidence-based practices* module on AFIRM¹³¹.

Table 41

Key questions and considerations for selecting an evidence-based practice. Adapted from Torres et al. (2014).¹³²

Questions and considerations:	Applied to Maša
Has this evidence-based practice been proven to be effective for this age group?	Yes
Has this evidence-based practice been proven to be effective to address the skill or behaviour you are targeting?	Yes
Is this evidence-based practice in line with the characteristics of the student (language skills, interests, learning needs)?	Yes
Is this evidence-based practice able to be effectively implemented in your environment (time allocation, access to resources, staff training and understanding of evidence-based practice)?	Yes



Phase 4 **PREPARE FOR IMPLEMENTATION**

STEP 1: Identifying the student's pre-requisite skills

The classroom teacher and teacher assistant participated in training on task analysis. They went through an online training module on AFIRM¹³³ and received online methodological guidance from the ERASMUS+ team so that they could consult the creation of the task analysis plan, as well as its implementation.

It was identified from data collection that Maša has the pre-requisite skills needed for the target skill. Because Maša has difficulties with her fine motor skills, her parents were recommended buying her a new jacket with only 3 big buttons, making the task simpler and more realistic to master. Maja went with her mother to buy a new jacket; she enjoyed being able to pick it out.

STEP 2: Identifying the target skill or behaviour

The task was broken down into small steps. The classroom teacher took a video of the teacher assistant to make sure they would accurately break down the task.

STEP 3: Check if the task is broken into smaller steps accurately

The teacher and teacher assistant determined the critical steps; each step represents a discrete behaviour. These instructions were based on the buttons being on the right side of the jacket, and the button holes being on the left, which is what Maša's jacket looks like.

Steps (see the picture 1):

1. **Pinch the button** with your right thumb and index finger.
2. Grasp the fabric with your left thumb and your left index finger and **find the buttonhole** by pushing the thumb slightly into the buttonhole.
3. **Push the button** until you hit your thumb, and you know you have found the buttonhole.
4. Slide the button in the hole until your left thumb, and index finger can **grab**.
5. **Pull** the fabric with your right index finger and thumb at the same time until the button pops through.

The teachers then took photos of the teacher assistant doing each of the steps and made visual support for Maša. Maša loves picture books, and they thought this teaching strategy would support Maša in learning new skill.

Picture 1: The steps of button fastening.



STEP 4: Select appropriate task analysis procedure

It was decided that Maša's goal to put on her jacket was an example of total task chaining.



Phase 5 IMPLEMENT EVIDENCE-BASED PRACTICE

Maša participated in her SMART goal meeting and went with her mother to buy a new jacket for this task, so she was looking forward to learning how to “do it herself”. This was a great first step, as she was motivated to learn.

The classroom teacher had selected reinforcers for Maša after she had completed the task of putting on her jacket and doing up the buttons. They decided that verbal praise and a token economy were the best reinforcers for this activity because verbal praise was the most natural, and they already had a token economy system set up for Maša in the classroom. The teacher and teacher assistant decided that using task analysis in conjunction with a visual schedule and prompting would be the best for teaching Maša the skills. The prompting would be reduced quickly once Maša could start doing each of the steps.

At the end of the first day, when Maša was ready to leave school to go home, they started the implementation of the task analysis. The teacher assistant had Maša's jacket and the visual schedule. “Maša put on your jacket,” said the teacher assistant. Maša put her arm in one sleeve and needed some assistance with the other, and the teacher assistant helped Maša put her arms through the jacket sleeves. “Maša, pinch the button with your right thumb and index finger”, said the teacher assistant while pointing to the first picture. Maša followed the instructions. “Grasp the fabric with your left thumb and your left index finger and find the buttonhole by pushing the thumb slightly into the buttonhole.” Maša was able to find the buttonhole, and she was reinforced verbally by the teacher assistant. “Push the button until you hit your thumb, and you know you have found the buttonhole”, said the teacher assistant whilst pointing to the corresponding picture on the visual schedule. Maša said “I found it” with a big smile. “Slide the button in the hole until your left thumb and index finger can grab it.” This was the step that Maša had difficulty with. The teacher assistant used full physical prompting in the form of hand-over-hand to finish this step. “Now, we will pull the fabric with your right index finger and thumb at the same time until the button pops through.” The teacher assistant completed the last step. Maša was then reinforced with a token (a sticker) for her token economy. This was a great first day of the intervention.

It seemed that Maša was having difficulty pulling the button through the buttonhole. The teacher created an activity that replicated this task. Maša practised the activity the next day. This was repeated throughout the week.

They repeated these steps each day until Maša no longer needed the teacher assistant's prompting, and Maša was able to independently put on her jacket and do up her buttons.



Phase 6 **MONITOR IMPLEMENTATION**

To monitor Maša's progress, the classroom teacher and the teacher assistant collect data as Maša's is engaged in the activity. For example, they record the number of chains completed:

1. correctly without prompts,
2. correctly with prompts, and
3. correctly, but with resistance.

As Maša becomes more proficient at starting and completing each step independently, the teacher assistant decreases the full physical prompting. The classroom teacher also provides training and support to Maša's parents so that they can begin implementing the activity at home with consistency to increase Maša's generalisation of the target skill.

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RECOMMENDED RESOURCES

ONLINE LEARNING MODULES

Resources	Description
Autism Focused Intervention Resources and Modules (AFIRM). (2023). <i>Resources</i> . Retrieved from https://afirm.fpg.unc.edu/resource-search	This AFIRM learning module is a free professional development resource. By going to this page you can access learning modules and resources that are specific to individual evidence-based practices.
Autism Focused Intervention Resources and Modules (AFIRM). (2023). <i>Selecting an EBP</i> . Retrieved from https://afirm.fpg.unc.edu/selecting-ebp	This AFIRM learning module is a free professional development resource. The Selecting an EBP module teaches you about the important steps and considerations to make, which will inform you on selecting an appropriate evidence-based practice for your student.
The IRIS Center. (2014). <i>Autism spectrum disorder: An overview for educators</i> . Retrieved from http://iris.peabody.vanderbilt.edu/module/asd1/	This IRIS learning module is a free professional development resource. In completing this module you will learn about autism and how to adapt and modify your teaching practice to best support students on the autism spectrum.
The IRIS Center. (2016). <i>Autism spectrum disorder (part 2): Evidence-based practices</i> . Retrieved from http://iris.peabody.vanderbilt.edu/module/asd2/	This IRIS learning module is a free professional development resource. In completing this module you will learn about autism and how to adapt and modify your teaching practice to best support students on the autism spectrum.
The IRIS Center. (2014). <i>Evidence-based practices (part 1): identifying and selecting a practice or program</i> . Retrieved from https://iris.peabody.vanderbilt.edu/module/ebp_01/#content	This IRIS learning module is a free professional development resource. In completing this module you will learn about evidence-based practices, what they are, how to implement and monitor them.
The IRIS Center. (2014). <i>Evidence-based practices (part 2): Implementing a practice or program with fidelity</i> . Retrieved from https://iris.peabody.vanderbilt.edu/module/ebp_02/	This IRIS learning module is a free professional development resource. In completing this module you will learn about evidence-based practices, what they are, how to implement and monitor them.
The IRIS Center. (2019). <i>IEPs: developing high-quality individualized education programs</i> . Retrieved from https://iris.peabody.vanderbilt.edu/module/iep01/cresource/resources/p12/#content	This IRIS learning module is a free professional development resource. In completing this module you will learn about the importance of individual education plans, steps to follow, how to write them, who should be involved and how to collaborate with other stakeholders.

WEBSITES

Resources	Description
Autism Focused Intervention Resources and Modules (AFIRM). (2023). <i>Resources</i> . Retrieved from https://afirm.fpg.unc.edu/resource-search	The AFIRM website is free to access. It provides educators with resources on individual evidence-based practices, step-by-step planning and implementation guides and other resources to help educators to select, implement and monitor evidence-based practices with their students.
The National Clearinghouse on Autism Evidence and Practice (NCAEP). (n.d). <i>EBP database</i> . Retrieved from http://ncaep.fpg.unc.edu/	This database is free to access. It provides comprehensive information about individual evidence-based practices and the research base for them.
U.S Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, What Works Clearinghouse. (2023). <i>IES: WWC: What works clearinghouse</i> . Retrieved from http://ies.ed.gov/ncee/wwc	This database is free to access. It provides comprehensive information about individual evidence-based practices and the research base for them.

OPEN ACCESS ARTICLES

Resources	Description
Estrapala, S., & Reed, D. K. (2020). <i>Goal-setting instruction: a step-by-step guide for high school students</i> . <i>Intervention in School and Clinic</i> , 55(5), 286–293. https://doi.org/10.1177/1053451219881717	This guide outlines the importance of establishing clear, definable, and achievable learning goals for your students. This article outlines clear objectives for teachers and students, and scaffold examples of how to write goals for student learning plans.
Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yücesoy-Özkan, S., & Savage, M. N. (2020). <i>Evidence-based practices for children, youth, and young adults with autism</i> . In FPG Child Development Institute. FPG Child Development Institute. https://cidd.unc.edu/Registry/news/docs/EBPReport2020.pdf	This evidence-based practice guide is a revised and updated version of the 2014 edition by Wong and colleagues. This guide provides information about the importance of evidence-based practices and the research base to support these practices.
Wong, C., Odom, S. L., Hume, K., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., and Schult, T. R. (2014) <i>Evidence-based practices for children, youth and young adults with autism spectrum disorder</i> . Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group. https://autism.unt.edu/sites/default/files/2014-EBP-Report%20(NPDC).pdf	This guide provide information about the importance of evidence-based practices and the research base to support these practices.

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