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Autism Focused Intervention Resources & Modules

Task Analysis (TA)
---EBP Brief Packet---

This overview brief will support your use of the evidence-based practice: Task Analysis.

Components of the EBP Brief Packet...

This evidence-based practice overview on Task Analysis (TA) includes the following components:

1. **Overview:** A quick summary of salient features of the practice, including what it is, who it can be used with, what skills it has been used with, settings for instruction.
2. **Evidence-base:** The *TA Evidence-base* details the NPCD criteria for inclusion as an evidence-based practice, and the specific studies that meet the criteria for this practice.
3. **Step-by-Step Guide:** Use the *TA Step-by-Step Practice Guide* as an outline for how to plan for, use, and monitor TA. Each step includes a brief description as a helpful reminder while learning the process.
4. **Implementation Checklist:** Use the *TA Implementation Checklist* to determine if the practice is being implemented as intended.
5. **Data Collection Sheets:** Use the data collection sheets as a method collect and analyze data to determine if progress is being made for a learner with ASD.
6. **Tip Sheet for Professionals:** Use the *TA Tip Sheet for Professionals* as a supplemental resource to help provide basic information about the practice to professionals working with the learner with ASD.
7. **Parent Guide:** Use the *TA Parent Guide* to help parents or family members understand basic information about the practice being used with their child.
8. **Additional Resources:** Use the *Additional Resources* to learn more about the practice.
9. **CEC Standards:** A list of *CEC Standards* that apply specifically to TA.
10. **Module References:** A list of numerical References utilized for the TA module.

Suggested citation:

Sam, A., & AFIRM Team. (2015). *Task analysis*. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorder, FPG Child Development Center, University of North Carolina. Retrieved from http://afirm.fpg.unc.edu/task-analysis

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What is Task Analysis?

Learners with ASD often struggle with learning new skills or behaviors, especially when these behaviors are complex or have multiple components. Task analysis (TA) can be used to help break down and teach these chained behaviors.[1] Chained behaviors are behaviors or skills which consist of multiple steps such as tying shoes, grocery shopping, writing a paper, or cooking. Once chained behaviors are broken into smaller steps, team members work with the learner to systematically teach the individual steps. As the learner masters the individual steps, the learner will gradually become more independent using the target skill or behavior.

Evidence-base

Based upon the recent review, task analysis meets the evidence-based practice criteria with 6 single case design studies. The practice has been effective with learners in elementary (6-11 years) and middle school (12-14 years). Evidence-based practices (EBP) and studies included in the 2014 EBP report detailed how task analysis can be used effectively to address: social, motor, adaptive, communication, joint attention, and academic outcomes.

How is TA Being Used?

Task analysis can be used by a variety of professionals, including teachers, special educators, therapists, paraprofessionals, and early interventionists in educational and community-based environments. Parents and family members also can use task analysis in the home.

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---Evidence-base for Task Analysis---

The National Professional Development Center on ASD has adopted the following criteria to determine if a practice is evidence-based. The EBP Report provides more information about the review process (Wong et al., 2014).

Efficacy must be established through high quality, peer-reviewed research in scientific journals using:

- randomized or quasi-experimental design studies (two high quality experimental or quasi-experimental group design studies),
- single-subject design studies (three different investigators or research groups must have conducted five high quality single subject design studies), or
- combination of evidence [one high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies)].

--OVERVIEW--

Task analysis (TA) is a foundational practice used to teach target skills and increase desired behavior. Task analysis meets the evidence-based practice criteria with 6 single case design studies. The practice has been effective with learners in elementary (6-11 years) to middle school (12-14 years). Studies included in the 2014 EBP report detailed how task analysis can be used effectively to address: communication, joint attention, motor, adaptive, social, and academic outcomes.

In the table below, the outcomes identified by the evidence base are shown by age of participants.

Early Intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
No studies	No studies	Social		No studies
		Communication	Communication	
			Joint Attention	
		Motor		
		Adaptive		
			Academic	

Early intervention (0-2 years)

No studies

Preschool (3-5 years)

No studies

Elementary (6-11 years)

Morse, T. E., & Schuster, J. W. (2000). Teaching elementary students with moderate intellectual disabilities how to shop for groceries. *Exceptional Children, 66*(2), 273-288.

Parker, D., & Kamps, D. (2011). Effects of task analysis and self-monitoring for children with autism in multiple social settings. *Focus on Autism and Other Developmental Disabilities, 26*(3), 131-142. doi: 10.1177/1088357610376945

Tekin-Iftar, E., & Birkan, B. (2010). Small group instruction for students with autism: General case Training and observational learning. *The Journal of Special Education, 44*(1), 50-63. doi: 10.1177/0022466908325219

Yılmaz, I., Birkan, B., Konukman, F., & Erkan, M. (2005). Using a constant time delay procedure to teach aquatic play skills to children with autism. *Education and Training in Developmental Disabilities, 40*(2), 171-182.

Yılmaz, I., Konukman, F., Birkan, B., Ozen, A., Yanardagù, M., & Camursoy, I. (2010). Effects of constant time delay procedure on the Halliwick's method of swimming rotation skills for children with autism. *Education and Training in Autism and Developmental Disabilities*, 124.

Middle (12-14 years)

Browder, D. M., Trela, K., & Jimenez, B. (2007). Training teachers to follow a task analysis to engage middle school students with moderate and severe developmental disabilities in grade-appropriate literature. *Focus on Autism and Other Developmental Disabilities, 22*(4), 206-219. doi: 10.1177/10883576070220040301

High (15-22 years)

No Studies

Task Analysis (TA)
---Step-by-Step Guide---

This practice guide outlines how to plan for, use, and monitor the task analysis practice.

Keep in mind that the three task analysis procedures are:
- Forward chaining
- Backward chaining
- Total task presentation

While each procedure is different, the practice guide is applicable to all. When unique features are tied to a specific procedure, we will identify them through examples or cautions.

BEFORE YOU START…

Each of the following points is important to address so that you can be sure the selected EBP is likely to address the learning needs of your student.

Have you found out more information about. . .?

☐ Identified the behavior…

☐ Collected baseline data through direct observation…

☐ Established a goal or outcome that clearly states when the behavior will occur, what the target skill is, and how the team will know when the skill is mastered…

If the answer to any of these is "no," review the process of how to select an EBP.

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Now you are ready to start...

Step 1: TA Planning

The planning step explains how to identify the components of the target skill or behavior, select an appropriate task analysis procedure, and determine methods for teaching steps of the task analysis.

1.1 Determine if learner has prerequisite skills needed to learn target skill/behavior

Review collected data to determine if the learner has the perquisite skills needed for the target skill or behavior. If the learner does not have the prerequisite skills, these skills will either need to be incorporated into the steps of the task analysis or taught before proceeding with the task analysis.

1.2 Identify the components of the target skill/behavior

Break down a target skill or behavior into smaller steps by:
- Watching someone competent in completing the target skill/behavior complete the task. As the person completes the task, write down each step.
- Asking an expert in the target skill or behavior to record each of the steps.
- Completing the task yourself and record each of the steps.

1.3 Check if task is completely analyzed

Check to determine if the steps are accurate by performing the target skill or behavior again and following each of the steps. Make sure:
- Each step is a discrete behavior,
- The steps are manageable for the learner, and
- The steps are described accurately for the learner's needs.

1.4 Select appropriate task analysis procedure

Team members will decide what procedure they will use for chaining the identified steps: forward chaining, backward chaining, or total task.

1.5 Select appropriate method for teaching steps of the TA

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

1.6 Develop presentation materials of the steps

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

Step 2: Using TA

This step describes the process of using each of the task analysis procedures.

2.1 Follow the unique steps for backward chaining.

When backward chaining is used to teach a target skill or behavior, the steps identified in the task analysis will be taught in reverse order beginning with the final step. Follow the steps outlined below:

- Provide assistance to learner with completing the initial identified steps.
- Prompt learner to perform the final step. Remember, to select the prompting procedure (least-to-most prompting, graduated guidance, or simultaneous prompting) that would best assist the learner in understanding what is expected. Also, be sure to use visual supports if appropriate.
- Reinforce the leaner for completing the final step.
- When the final step is mastered, the previous step is added one at a time.

📄 Use the **Graduated Guidance Response Diagram** to guide your response to learner's attempts.

📄 Use the **Least-to-Most Response Diagram** to guide your response to learner's attempts.

📄 Use the **Simultaneous Prompting Response Diagram** to guide your response to learner's attempts

2.2 Follow the unique steps for forward chaining

When forward chaining is used, an adult begins by teaching the first step in the chain. As each step is mastered, the next step in the task analysis is then taught. Follow the steps outlined below:

- Prompt the learner to perform the first step identified in the task analysis. Use the selected prompting procedure (least-to-most prompting, graduated guidance, or simultaneous prompting). Be sure to use any additional created materials such as a video for video modeling or visual directions that could assist the learner in performing the skill/behavior.
- When learner completes the step, reinforce the learner with social praise and a tangible reinforcer if appropriate.
- After the first step is completed, guide the learner through the remaining steps.
- When the first step is mastered, the next step in the task analysis is added one at a time.

2.3 Follow the unique steps for total task presentation

For total task presentation, the learner is taught the entire task including each individual step until the chain is mastered. Follow the steps outlined below:

- Use a prompting procedure (least-to-most prompting, graduated guidance, or simultaneous prompting) and visual supports or video modeling to assist the learner in performing each step of the task analysis.
- Reinforce the learner for completing each step. Be sure to save the most effective reinforcer for the final step when the entire skill/behavior has been performed.
- Fade reinforcers as quickly as possible.

Step 3: Monitoring TA

The following process describes how the use of task analysis can be monitored and how to adjust your plan based on the data.

3.1 Collect data on target behaviors

Collect data on target skills and behaviors. Be sure to include the level of support needed for each of the steps identified for the task analysis.

 *Use the **TA Progress Monitoring Form** to collect data.*

3.2 Determine next steps based on learner progress

If the learner with ASD is showing progress with task analysis based upon collected data, then continue to use this practice with the learner. Consider using task analysis to address new target skills or behaviors with the learner.

If the learner is not showing progress, ask yourself the following questions:
- Is the target skill or behavior will defined?
- Is the target skill or behavior measurable and observable?
- Does the learner have the prerequisite skills needed to learn the skill/behavior?
- Was the task completely analyzed?
- Was an appropriate teaching method selected to teach the individual steps of the task analysis?
- Was task analysis used with fidelity based upon the implementation checklist?
- Was the learner prompted to perform the individual step?

If these issues have been addressed and the learner with ASD continues not to show progress, consider selecting a different evidence-based practice to use with the learner with ASD.

Task Analysis (TA)
---Implementation Checklist---

Observation	1	2	3	4
Date				
Observer's Initials				
Step 1: Planning				
1.1 Determine if learner has prerequisite skills needed to learn target skill/behavior				
1.2 Identify the components of the target skill/behavior				
1.3 Check if task is completely analyzed				
1.4 Select appropriate task analysis procedure				
1.5 Select appropriate method for teaching steps of task analysis				
1.6 Develop presentation materials of the steps				
Step 2: Using				
Backward Chaining:				
☐ Provide assistance with initial steps				
☐ Prompt learner to perform final step				
☐ Reinforce learner for completing final step				
☐ When final step mastered, previous step is added one at a time				
Forward Chaining:				
☐ Prompt learner to perform first identified step				
☐ Reinforce learner for completing step				
☐ Guide learner through remaining steps				
☐ When first step is mastered, the next step is added one at a time				
Total Task Presentation:				
☐ Prompt learner to perform first identified step				
☐ Reinforce learner for completing step				
☐ Apply most effective reinforcer at completion of task				
☐ Fade reinforcers as quickly as possible				
Step 3: Monitoring				
3.1 Collect data on target behaviors				
3.2 Determine next steps based on learner progress				

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---Progress Monitoring Form---

Learner's Name: _____   **Date/Time:** _____

Observer(s): _____

Target Behavior: _____

_____

Task Analysis Procedure: _____

Additional EBPs: _____

Steps	Dates				
	_ _ / _ _	_ _ / _ _	_ _ / _ _	_ _ / _ _	_ _ / _ _

I=Independent; IS=Independent with support (visual support, video modeling, social narrative); VP=Verbal Prompt; VSP = Visual Support Prompt; MP = Model Prompt; PP= Physical Prompt; GP = Gesture Prompt 0=error

Anecdotal Notes:

Date	Observer Initials	Target Skill/Behavior, Comments, and Plans for Next Steps

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Task Analysis (TA)
---Tip Sheet for Professionals---

Task analysis...

- is a foundational evidence-based practice for children and youth with autism spectrum disorder (ASD) from 6-14 years old that can be implemented in multiple settings.
- breaks complex target skills or behaviors into smaller steps. Team members then work with a learner to systematically teach the individual steps.

Why Use?

- Complex target skills and behaviors can be difficult for learners with ASD to process.
- Task analysis helps learners gradually acquire smaller, more manageable steps of the complex target skill or behavior.
- Task analysis is a cost-effect method which requires minimal resources and can be used in multiple settings.

Outcomes

- The evidence-base for TA supports the use of this practice to address the outcomes below:

Early Intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
No studies	No studies	Social		No studies
		Communication	Communication	
			Joint Attention	
		Motor		
		Adaptive		
			Academic	

TIPS:

- Determine if the learner has the prerequisite skills needed for the target skill or behavior.

- Complete the task yourself or watch someone competent complete the task to identify the smaller steps or components of the target skill or behavior.

- Select additional evidence-based practices that can be used to teach the identified individual steps of the target skill or behavior.

- steps based on learner progress.

Task Analysis (TA)
---Tip Sheet for Professionals---

Task Analysis
TA

This tip sheet was designed as a supplemental resource to help provide basic information about the practice.

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STEPS FOR IMPLEMENTING

1. Plan

- Determine if learner has prerequisite skills needed to learn target skill/behavior.
- Identify the components of the target skill/behavior.
- Check if task is completely analyzed.
- Select appropriate task analysis procedure.
- Select appropriate method for teaching steps of the TA.
- Develop presentation materials of the steps.

2. Use

- Follow steps of identified task analysis procedure:
    - Follow unique steps for backward chaining.
    - Follow unique steps for forward chaining.
    - Follow unique steps for total task presentation.

3. Monitor

- Collect data on target behaviors
- Determine next steps based on learner

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Task Analysis (TA)
---Parent's Guide---

This parent introduction to TA was designed as a supplemental resource to help answer basic questions about this practice.

To find out more about how TA is used with your child, speak with:

_____

For more information visit:
www.afirm.fpg.unc.edu

This introduction provides basic information about task analysis.

What is TA?
- Task analysis is an evidence-based practice for children and youth with autism spectrum disorder (ASD) from 6 to 14 years old.
- Task analysis breaks down a complex behavior (for example: cooking, getting dressed, or writing a paper) into smaller steps for the learners to gradually acquire.

Why use TA with my child?
- Learners with ASD often struggle with learning new skills or behaviors. Task analysis helps a learner become more independent by teaching each individual step of a target skill or behavior.
- Research studies have shown that task analysis has been used effectively with elementary and middle school learners to address the following outcomes: social, motor, adaptive, communication, joint attention, and academic.

What activities can I do at home?
- Break apart difficult activities into smaller steps and work on the smaller steps one at a time with your child.
    - For example: if your child is learning how to brush teeth independently, begin by helping your child learn how to put toothpaste on the toothbrush. Gradually add additional steps, such as turning on water or brushing the bottom row of teeth.
- When your child successfully completes a smaller step of an activity, provide reinforcement by saying, "good job" or providing time with a favorite toy.

---Additional Resources---

Articles:

Carter, M., & Kemp, C. R. (1996). Strategies for Task Analysis in Special Education, *Educational Psychology, 16*(2), 155-170, doi: 10.1080/0144341960160205

Courtade, G., Browder, D., Spooner, F., & DiBiase, W. (2010). Training teachers to use an inquiry-based task analysis to teach science to students with moderate and severe disabilities. *Education and Training in Autism and Developmental Disabilities, 45*(3), 378-399.

Parker, D., & Kamps, D. (2010). Effects of task analysis and self-monitoring for children with Autism in multiple social settings. *Focus on Autism and Other Developmental Disabilities, 26*(3), 131-142. doi: 10.1177/1088357610376945

Websites:

Austin, K. (2012). *Task analysis: Teaching multistep skills made easy*. Virginia Department of Education's Training & Technical Assistance Center. Retrieved on December 21, 2015 from: http://www.ttacnews.vcu.edu/2012/08/task-analysis-teaching-multistep-skills-made-easy/

Autism Training Solutions. (2014). *Chaining and Task Analysis: An Autism Teaching Strategies Video*. Retrieved on December 21, 2015 from: https://www.youtube.com/watch?v=wMVZQICUhAk

Mims, P. (n. d.). *Task Analysis: Modules Addressing Special Education and Teacher Education.* Retrieved on December 21, 2015 from: http://mast.ecu.edu/modules/ta/concept/

Pratt, C. (2015). *Applied Behavior Analysis: The Role of Task Analysis and Chaining.* Indiana Resource Center for Autism. Retrieved on December 21, 2015 from: http://www.iidc.indiana.edu/pages/Applied-Behavior-Analysis

Autism Focused Intervention Resources & Modules

Check out these resources to support your use of task analysis.

For more information visit:
www.afirm.fpg.unc.edu

Task Analysis CEC Standards

Autism Focused Intervention Resources & Modules

The CEC Standards that apply to all 27 evidence-based practices can be found on our website at: http://afirm.fpg.unc.edu/learn-afirm

Below are CEC Standards that apply specifically to Task Analysis (TA) module.

Standard	Description
Initial Preparation Standard 2: Learning Environments	
DDA2.S1	Plan instruction for independent functional life skills and adaptive behavior
Initial Preparation Standard 3: Curricular Content Knowledge	
DDA3 S3	Plan instruction for independent functional life skills and adaptive behavior
Initial Preparation Standard 5: Instructional Planning & Strategies	
ISCI 5 S4	Use task analysis

Standard	Description
Advanced Preparation Standard 3: Programs, Services, and Outcomes	
SEDAS3.K4	Activities and techniques for developing independent living skills.

For more information visit:
www.afirm.fpg.unc.edu

---Module References---

1. Carter, M., & Kemp, C. R. (1996). Strategies for task analysis in special education, *Educational Psychology, 16*(2), 155-170, doi: 10.1080/0144341960160205

2. Parker, D., & Kamps, D. (2010). Effects of task analysis and self-monitoring for children with autism in multiple social settings, *Focus on Autism and Other Developmental Disabilities, 26*(3), 131-142, doi: 10.1177/1088357610376945

3. Wong, C., Odom, S. L., Hume, K. Cox, A. W., Fettig, A., Kucharczyk, S., Schultz, T. R. (2014). *Evidence-based practices for children, youth, and young adults with autism spectrum disorder*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group.
   http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/2014-EBP-Report.pdf

4. Yilmaz, I., & Birkan, B. (2005). Using a constant time delay procedure to teach aquatic play skills to children with autism. *Education and Training in Developmental Disabilities, 40*(2), 171-182.

5. Pratt, C. (2015). *Applied behavior analysis: The role of task analysis and chaining.* Indiana Resource Center for Autism. Retrieved October 22, 2015 from: http://www.iidc.indiana.edu/pages/Applied-Behavior-Analysis

6. Morse, T., & Schuster, J. W. (2000). Teaching elementary students with moderate intellectual disabilities how to shop for groceries. *Exceptional Children, 66*(2), 273-288.

7. Tekin-Iftar, E., & Birkan, B. (2010). Small group instruction for students with Autism: General case training and observational learning. *Journal of Special Education, 44*(1), 50-53. doi: 10.1177/0022466908325219

8. Yilmaz, I., Konukman, F., Birkan, B., Ozen, A., Yanardag, M., & Camursoy, I. (2010). Effects of constant time delay procedure on the Halliwick's method of swimming rotation skills for children with autism. *Education and Training in Autism and Developmental Disabilities, 45*(1), 124-135.