Integrating Assistive Technology into the Problem-Solving Process
An AT Process Framework for Schools

What's the problem?

What activity or task is difficult to do?

Integrating AT into the Problem-Solving Process

Is it working?

Why is it occurring?

Consider AT

Choose & Trial AT

What are we going to do about it?

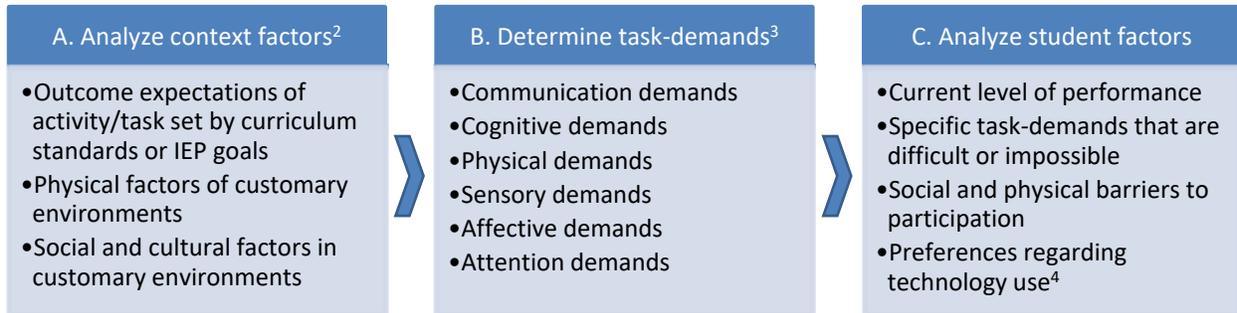Monitor Progress

Implement AT

JHU AT Cycle[1]

Integrating Assistive Technology into the Problem-Solving Process
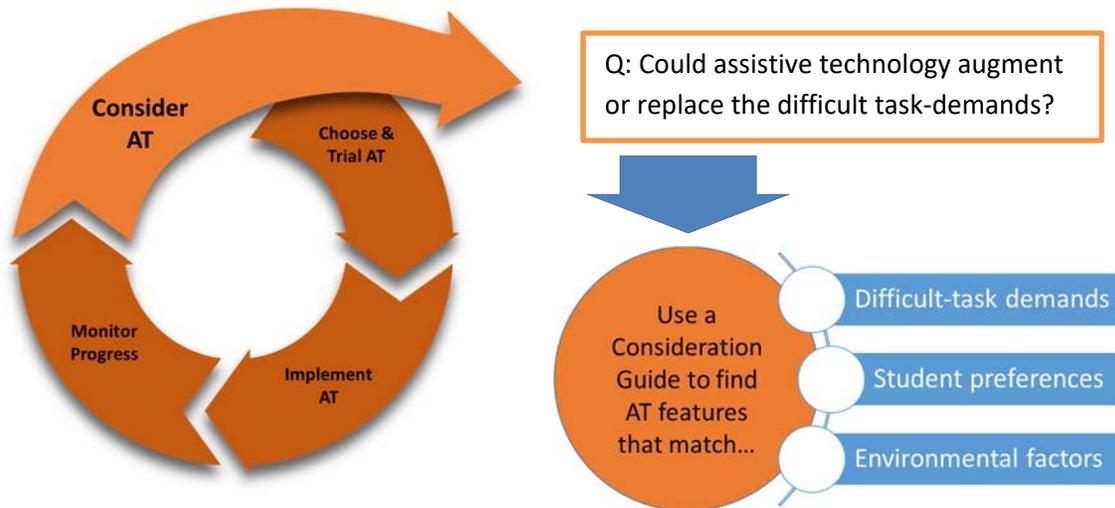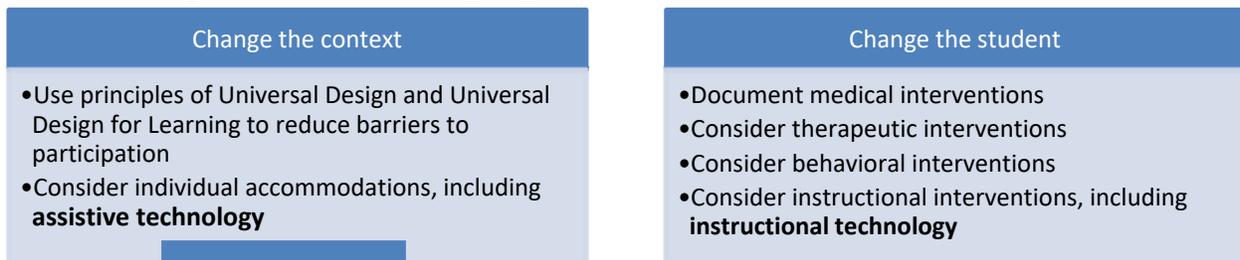## An AT Process Framework for Schools

1. Problem identification: What's the problem?

What activity or task is difficult to perform at expected levels?

2. Problem analysis: Why is it occurring?

A. Analyze context factors[2]	B. Determine task-demands[3]	C. Analyze student factors
•Outcome expectations of activity/task set by curriculum standards or IEP goals •Physical factors of customary environments •Social and cultural factors in customary environments	•Communication demands •Cognitive demands •Physical demands •Sensory demands •Affective demands •Attention demands	•Current level of performance •Specific task-demands that are difficult or impossible •Social and physical barriers to participation •Preferences regarding technology use[4]

3. Plan development: What are we going to do about it?

Change the context	Change the student
•Use principles of Universal Design and Universal Design for Learning to reduce barriers to participation •Consider individual accommodations, including **assistive technology**	•Document medical interventions •Consider therapeutic interventions •Consider behavioral interventions •Consider instructional interventions, including **instructional technology**

Consider AT → Choose & Trial AT → Implement AT → Monitor Progress

Q: Could assistive technology augment or replace the difficult task-demands?

Use a Consideration Guide to find AT features that match…
- Difficult-task demands
- Student preferences
- Environmental factors

Possible answers:
1. **No**: Instruction, therapy, and no-tech accommodations will be sufficient for student to meet expectations or AT features cannot augment or replace the difficult task-demands
2. **Yes**: AT is already effectively being used. Continue to IMPLEMENT and MONITOR PROGRESS
3. **Maybe**: Data is needed to determine effectiveness. CHOOSE & TRIAL AT.

3b. Choose and Trial AT

❶ **Choose specific solutions:** Find specific access settings or brand-name tools that provide the necessary AT features. Compare pros/cons of similar access settings or tools. Consider the skills and abilities needed to functionally use the access settings or tools (*tool-demands*).

❷ **Obtain specific tools:** Contact AT coordinator or use AT loan library/AT vendor.

❸ **Setup tools and provide initial training:** Customize tool as needed. Teach student how to use tools or access settings (*operational skills*). Have student practice using tools or access settings to do the activity/task (*functional skills*) before collecting test-drive assessment data.

❹ **Test-drive assessment:** Collect task-performance data with use of AT tool.

❺ **Determine effectiveness of AT:** Compare task outcomes *without* using the tool (pre) to same task outcomes *with* the tool (post). Factor in student preferences and barriers or facilitators in the customary environments.

3c. Implement AT:

❻ **Create an implementation plan** to maximize opportunity for use, identify team member responsibilities and set criteria for successful outcomes.

❼ **Continue to provide training*** to increase the cluster of skills that contribute to successful use of AT tools.[5]

Operational skills: How the tool works (*e.g. how to turn it on*)
Functional skills: How to do the task with the tool (*e.g. how to write with it*)
Strategic skills: Which tool is appropriate for which task (*build toolbelt*[6])
Social skills: How to navigate the social impact of using the tool (*e.g. curious peers*)

* IDEA 2004 requires training for student, staff, and, if appropriate, the student's family.[7]

❽ **Customize** AT tools or access features as needed to increase effectiveness.

❾ **Support regular use** of AT in customary environments.

4. Progress Monitoring: Is it working?

❿ Assess long-term effectiveness of AT in student's customary environment. Monitor use and reassess AT effectiveness at least annually using pre/post comparison data.

YES: If data shows that AT does improve activity or task performance and student is using it regularly, document the AT or access features as an integral part of student's educational plan (IEP, 504, etc.).

NO: If data shows that AT does not improve activity or task performance and/or student is not using it regularly, consider the following:

- Does the student, staff, or parent need more training?
- Has the student been given adequate support and opportunity to implement the AT?
- Are technical or practical problems creating an implementation barrier?
- Should a similar product with the same required AT features be tried instead?
- Should the team conclude that AT is not needed?
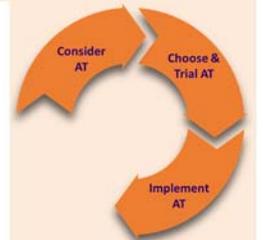
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[3] Erickson, K. & Koppenhaver, D. (2007). Children with disabilities: Reading and writing the Four-Blocks way. Greensboro, NC: Carson-Dellosa Publishing. LLC.

[4] Scherer, M., Craddock, G., Mackeogh, T. (2011). *The relationship of personal factors and subjective well-being to the use of assistive technology devices*. Disability and rehabilitation, 33(10): 811-817.

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