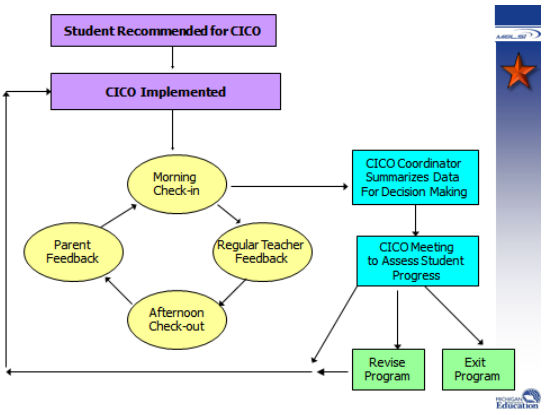
Handout #7
Examples of Evidence-Based Behavior Interventions

Handout 3: Examples of Evidence-Based Interventions is a part of the following module:

National Center on Intensive Intervention (February, 2014). *Designing and Delivering Intensive Intervention in Behavior.* Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Intensive Intervention. Retrieved from http://www.intensiveintervention.org/resource/designing-and-delivering-intensive-intervention-behavior-dbi-training-series-module-8

Handout 3: Examples of Evidence-Based Interventions

Example 1: Check In Check Out[1]



Check In Check Out (CICO) is commonly used because of the research base supporting the positive impact for students. It is an excellent intervention when the function of behavior is attention based. It is also a quick and easy intervention that requires minimal amounts of time before and after school and provides predictability and structure to a student's day. It increases the frequency of positive adult contact for a student that is structured to encourage, motivate, and support the student.

CICO is an intervention with many names: You may know it as the Behavior Education Program; Check, Connect, and Expect; and Hello, Update, Goodbye (HUG).

For whom should CICO be used?

- Students engaging in problem behaviors that are not dangerous or severe (externalizing behaviors)
- Less than 15 percent of students
- Students with multiple referrals (two to five major referrals)
- Students who receive several minor referrals
- Students who receive referrals in multiple settings
- Students who find adult attention rewarding or reinforcing

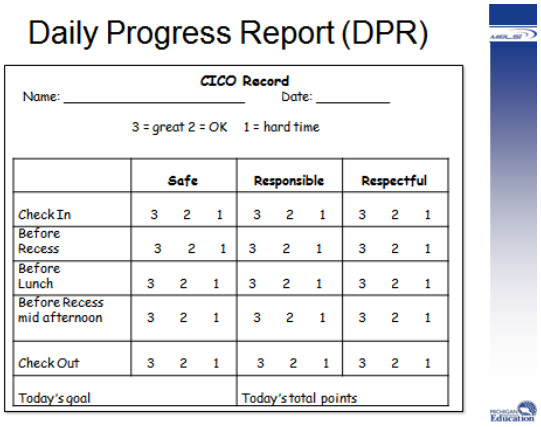
What are the characteristics of CICO?

- Students receive feedback from teacher several times per day (point rating)
- Increased feedback on behavior

[1] See also http://miblsi.cenmi.org/.

- Increased praise
- Increased teacher contact

A Daily Progress Report is used to monitor actions.



Daily Progress Report (DPR)

CICO Record

Name: _____ Date: _____

3 = great 2 = OK 1 = hard time

	Safe	Responsible	Respectful
Check In	3 2 1	3 2 1	3 2 1
Before Recess	3 2 1	3 2 1	3 2 1
Before Lunch	3 2 1	3 2 1	3 2 1
Before Recess mid afternoon	3 2 1	3 2 1	3 2 1
Check Out	3 2 1	3 2 1	3 2 1
Today's goal		Today's total points	

What critical components must be implemented for CICO to be successful?

- Core elements of CICO
  - Focus on teaching
  - Check-in check-out system
  - Daily classroom report card
  - Home-school partnership
  - Collaborative team-based process
- Collaborative team-based process
  - A team of individuals reviews a student's progress on a regular basis.
  - Data are collected on an ongoing basis.
  - Data are used to make decisions about the intervention's success (or lack thereof).

Why does CICO work?

- Improved structure
  - Prompts throughout the day for correct behavior
  - System for linking a student with at least one adult
- Increase in contingent feedback
  - Feedback occurs more often and is tied to student behavior
  - Inappropriate behavior less likely to be rewarded or reinforced
- Elevated reward or reinforcement for appropriate behavior
  - Adult and peer attention

- Linking school and home support
- Organized to morph into a self-management system

Example 2: Non-contingent Reinforcement[2]

Brief Description:

Understanding that students will engage in problem behaviors if they are reinforced, one strategy to minimize the utility of the behavior is to saturate the environment with the reinforcer **prior** to the demonstration of disruptive behavior. To understand why this intervention would be effective, think about a student who desires teacher attention and who has found that calling out in class consistently results in the teacher focusing attention on him or her (albeit, not in a positive manner). A non-contingent reinforcement (NCR) intervention directs the teacher to provide the student with attention (in this case, a more positive version) prior to the student "asking" with the problem behavior. As such, the student has no need to be disruptive and will hopefully, in time, prefer positive attention on a leaner schedule than negative attention on a more consistent schedule. This handout presents a fixed time NCR delivery with extinction and schedule thinning as this version of NCR was found to have a well-established evidence base by Carr and colleagues (2008).

Function of Intervention:

NCR is a powerful method to reduce attention-seeking problem behavior. NCR involves giving a student access to a reinforcer frequently enough so that he or she is no longer motivated to exhibit disruptive behavior to obtain that same reinforcer. A classic example of NCR is a teacher placing a student on his or her lap during group instruction, such that a student has no motivation to seek the teacher's attention while the teacher is conducting, for example, story time with the class. Carr et al. (2008) empirically demonstrated the effectiveness of such NCR interventions. In addition to being effective in reducing problem behavior, NCR interventions have the distinct advantage of reducing problem behavior with less of a chance of an extinction burst period. Because a student is already receiving as much of the reinforcer as he or she could want, there is no brief increase in disruption that commonly follows treatments that involve withholding reinforcement from the student. There is a rich literature base on the use of NCR.

Two cautions are worth noting:

- When thinning the NCR schedule (i.e., reducing the amount of reinforcement a student gets), disruptive behavior may re-occur, necessitating the use of extinction procedures.
- Reinforcer substitution may occur, meaning the student may continue to exhibit disruptive behavior to obtain other reinforcers.

[2] Correspondence concerning NCR should be addressed to T. Chris Riley-Tillman, Ph.D., at the University of Missouri (e-mail: rileytillmant@missouri.edu).

Procedures:

- Identify the reinforcer for the inappropriate behavior (e.g., verbal praise or escape). This may be a hypothesis that teams develop.
- Develop a fixed schedule to apply NCR for the target student. The goal of this step is to develop an initial schedule that is likely to catch the student before he or she engages in the problem behavior, thereby making the disruptive behavior unnecessary.
- Adapt the schedule based on the student's age, the student's developmental level, and the severity of the behavior problem. For young students or those with severe behavior problems, the initial NCR schedule will need to be very dense (e.g., once every 30 seconds). For higher functioning students with more mainstream behavior difficulties, the NCR schedule can be less ambitious (e.g., once every 15 minutes). Implementers can easily determine how dense it should be by examining the frequency of disruptive behavior that is followed by reinforcement in the classroom at baseline and ensuring that the schedule is more frequent at first. For example, if talking out occurs, on average, once every five minutes in the classroom, then NCR should be delivered in less than five-minute intervals.
- When initially applying NCR, do not refer to the problem behavior or note that the student is behaving inappropriately because the goal is to focus attention on neutral or positive behavior, not the problem behavior.
- After the NCR schedule has been initiated, do not respond to the target problem behavior if and when it occurs (to focus attention on the positive or natural behavior).
- After a number of intervention days or sessions (for more severe cases) of applying NCR (e.g., five days or 20–25 sessions) and there is a marked reduction in the problem behavior, start to thin out the reinforcement schedule. Thinning the schedule means reducing the frequency with which the student is provided reinforcement when NCR is in effect. It is important to make gradual adjustments to the schedule to minimize the chances of a burst in disruptive behavior. When thinning the schedule, the problem behavior will likely re-occur. When it does, research suggests that withholding reinforcement (i.e., extinction) or delivering a mild consequence, such as response cost, can effectively mitigate the reoccurrence. The value of NCR is that the extinction period is often less pronounced because the disruption has been reduced to zero levels.

What critical components must be implemented for NCR to be successful?

- An essential step is successful identification of an appropriate reinforcer for the problem behavior. NCR will not work if the function of disruption is unknown.
- An initial NCR schedule that minimizes the likelihood that the student will need to engage in the problem behavior to get the desired reinforcement.
- A fading process that is gradual enough to minimize the degree to which the student reengages in the problem behavior.
- This strategy is not the same as simply providing reinforcers on a very dense schedule. Reinforcers also do not generally apply across situations.
- Problem behavior is ignored after the NCR schedule is initiated.

References

Carr, J. E., Severtson, J.M., & Lepper, T. L. (2008). Noncontingent reinforcement is an empirically supported treatment for problem behavior exhibited by individuals with developmental disabilities. *Research in Developmental Disabilities, 30,* 44-57.

EBI Example 3: Antecedent Modification[3]

Brief Description:

When a student wants to escape a non-preferred activity, antecedents are altered to increase task engagement. Antecedent-based procedures can be used to decrease inappropriate behaviors or increase appropriate behaviors.

A common reason for social behavior failure is that inappropriate behavior removes a student from something he or she does not want to do (negative reinforcement).

What "Common Problems" Does This Address?

A student may act inappropriately when given a task. This intervention also can be applied to students who are given tasks that are too hard or too punishing who have engaged in an escape pattern to avoid the task when the task stimulus was presented.

How can a student escape a task that they cannot be do?

- The teacher provides an activity with an operationally similar task requirement at the student's skill level.
- The teacher introduces an activity that is more preferred and meaningful to the student at the student's current skill level.
- The teacher provides an activity that could be bridged into more functional and educational activities.

How can a student escape a task that he or she prefers not to do?

- The student receives reinforcement (e.g., teacher attention) contingent on task engagement.
- When the student exhibits inappropriate behaviors, the teacher does not provide attention. Some attention for desired or natural behavior must be concurrently used in this case.

What critical components must be implemented for the desired intervention to work?

- An appropriate task demand based on the student's current skill level

[3] The information on antecedent modification was developed as a class project at East Carolina University. Correspondence concerning this information should be addressed to T. Chris Riley-Tillman, Ph.D., at the University of Missouri (e-mail:rileytillmant@missouri.edu).

- What is reinforcing for the student is understood

What two critical assumptions are needed?

- There is the assumption that teacher attention and antecedent changes are reinforcing enough to have a student engage in a task and decrease escape behaviors. In addition, there is the assumption that the student finds the environment reinforcing and that the time-out is punishing.
- The current instructional level of the student is fully understood so that the task that the student is being asked to do is not punishing.

The effectiveness of these two components of lowering task difficulty and positive reinforcement has a substantial literature base, including Dunlap, Kern-Dunlap, Clarke, and Robbins (1991); Ervin et al. (2000); and Clarke, Worchester, Dunlap, Murray, and Bradley-Klug (2002).

Example 4: Instructional Match[4]

Brief Description

The purpose of instructional match is to improve instruction through an accurate assessment of a student's current instructional level and the selection of appropriately matched curricula and materials to the student's current level and ability. A student's prior knowledge, the difficulty of the learning task, and the pace of instruction differ; therefore, instruction must be tailored to the individual student to generate an instructional match.

What "common problems" does this address?

A mismatch between student skills and the level of difficulty of academic tasks can create significant problems for a student. By using instructional-based assessment, teachers can move toward enhanced instruction and student learning. The extent of the match between student ability and the difficulty of instructional materials affects student productivity, performance, and attention. When teachers adapt instruction, students can make significant academic progress. Students will be most successful when taught at their instructional level.

How is instructional match performed?

- Gather more information about a student's abilities to clarify the problem, which will help with goal setting to increase student success.
- Analyze the demands and the learning conditions of classroom tasks and determine if the difficulty level and the grade-level materials are appropriate for the student. Consider how the student relates to and approaches the learning materials and tasks.
- To assess the degree to which there is an appropriate instructional match, first identify the student's current level of skill development using the appropriate curriculum-based

[4] The information on instructional match was developed as a class project at East Carolina University. Correspondence concerning this information should be addressed to T. Chris Riley-Tillman, Ph.D., at the University of Missouri (e-mail:rileytillmant@missouri.edu). The student lead developer of the instructional match intervention brief was Amanda Bostian.

measurement (CBM) or curriculum-based assessment (CBA) for the skill area. CBA is better for information on teaching or instructional planning (deciding what curricular level best meets a student's needs). CBM is used to identify what a student has and has not mastered. Using this information, it will be possible to match instruction to a student's current skill level. Give the student a variety of probes with varying difficulties to define various skills that students should master and identify a balance between instruction that is too difficult and instruction that is too easy for the student (i.e., the student's instructional level).

- Match tasks to current student ability by matching the materials to the student's instructional, not frustration or mastery, level.
- Assign tasks that are relevant to educational goals and use the instructional hierarchy (i.e., acquisition, fluency, generalization, and adaptation) to link the current stage of skill development with appropriate teaching techniques.
- Ensure high student academic success by choosing a specific academic EBI to implement with the student in the classroom.
- Conduct progress monitoring to document student academic performance and analyze the performance data at regular intervals, approximately once a week.
- Based on the student's response to instruction, the intervention may be changed or modified as needed.

Critical components that must be implemented for intervention to be successful:

- This intervention requires that you accurately assess a student's current level of ability and implement a curriculum and teaching materials that are on the student's instructional level. The educational demands/difficulty of the task and the student's skills must match to ensure high student success rates. Interventions should be delivered in any setting where the teacher is differentiating instruction.
- Ensure that the curriculum-based probes are appropriate for the area of concern and that the student's abilities and instructional level are correctly assessed. Make sure to address any environmental factors that may impact student learning.

What materials are needed?

- An array of appropriate CBM/CBA probes for the area of concern
- A variety of instructional materials with varying levels of difficulty
- Progress monitoring charts

Using Curriculum-Based Measurement and Assessment for Identifying an Appropriate Instructional Match (Adapted From Braden [2003])

There are three levels of instructional match in CBM/CBA:

- The *frustration level* (i.e., tasks are too difficult and student becomes frustrated; the student is disengaged from the task and lacks understanding to obtain and maintain the skill set)
- The *instructional level* (i.e., the student is engaged in tasks and the demands of the task balance task difficulty, but the student still requires some guidance or the task may become frustrating)
- The *mastery level* (i.e., tasks are very easy for the student to complete independently, the student is fluent in the skill and makes few or no mistakes, and the skill comes "naturally" to him or her).

For example, a reading passage in which a student correctly reads 92 percent or fewer words is considered to be reading at the frustration level for that reading level; a fourth-grade student completing mathematics worksheets at a rate of 19 or less correct digits per minute is considered to be at the frustration level.

Academic Skill: Reading

- Proportion of known words in passage:
  - Independent level:
    - 0 percent to 92 percent (frustration level)
    - 93 percent to 96 percent (instructional level)
    - 97 percent to 100 percent (mastery level)
  - Supported level:
    - 0 percent to 69 percent (frustration level)
    - 70 percent to 85 percent (instructional level)
    - 86 percent to 100 percent (mastery level)
- Rate of oral reading: independent level
  - First and second grade:
    - 0–39 words per minute or more than four errors per minute (frustration level)
    - 40–60 words per minute and four or fewer errors per minute (instructional level)
    - More than 60 words per minute and four or fewer errors per minute (mastery level)
  - Third through sixth grade:
    - 0–69 words per minute or more than six errors per minute (frustration level)
    - 70–100 words per minute and six or fewer errors per minute (instructional level)
    - More than 100 words per minute and six or fewer errors per minute (mastery level)

Academic Skill: Mathematics

- Proportion of correct problems: supported level:
  - 0 percent to 74 percent (frustration level)
  - 75 percent to 90 percent (instructional level)
  - 91 percent to 100 percent (mastery level)
- Digits correct per minute: supported level (first through third grade)
  - 0–9 (frustration level)
  - 10–19 (instructional level)
  - 20 or more (mastery level)
- Digits correct per minute: independent level (fourth grade and up)
  - 0–19 (frustration level)
  - 20–39 (instructional level)
  - 40 and more (mastery level)

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