Flashcard Drill & Practice (D&P): Intervention Overview

Target Behavior

Flashcard Drill & Practice (D&P) has been used extensively in educational settings and provides opportunities for students to acquire and practice discrete skills. Examples of such skills include letter naming, letter sound-correspondence, number identification, and sight words. In this intervention, students repeatedly practice target skills (e.g., sight words, letters, numbers) from selected materials several times until accurate responding is reached. Flashcard practice consists of the teacher showing a flashcard, eliciting a response, and providing performance feedback. Daily use of this intervention has been shown to result in increased accuracy. Although on the surface flashcard practice appears to be a simple intervention, student learning rates depend on many factors. A crucial part of a successful flashcard D&P intervention is the use of formative assessment methods to continually adapt and alter aspects of the flashcard practice intervention.

Materials

Target Skill Assessment record form, Intervention record form, flashcards, stopwatch, clipboard, pencil, graph (optional), rewards (optional)

Target Skill Assessment Procedures

1. Define the scope of what skills need to be taught (e.g., numbers 1-20, all uppercase letters, first 100 literacy first sight words). Obtain flashcards that account for the target skill (see pre-made flashcard sets on the OTISS website (www.otiss.org) or the OTISS training module for creating flashcards).

2. Prior to starting the flashcard D&P intervention, assess the student to determine known and unknown items from the targeted set. Items are defined as known when the student can accurately respond within 2 seconds and items are unknown if the student cannot accurately respond within 2 seconds. This will result in two groups of flashcards (known and unknown).

   a. The teacher will use these data to determine what skills the student has and what skills the student needs to acquire. During the target skill assessment, identify unknown items by marking an "X" on a corresponding record sheet containing the items that make up the target skill set.

3. Assess each of the items included in the Target Skill Assessment three times. Assessments should be separated by time, meaning an interval of 30 minutes to a day.

4. After the third Target Skill Assessment, fill in the "Unknown Item Bank" column on the Target Skill Assessment record form. Items marked as unknown at least two out of three days should be marked with an "X." The unknown items in this column will contain the items that need to be taught.

Intervention Procedures

Pre-Intervention Assessment

1. The teacher will begin the Flashcard D&P Intervention by administering a Pre-Intervention Assessment. The teacher should select the Intervention record form that corresponds to the previously administered Target Skill Assessment. For skills including an excess of 30 items, limit the Pre-Intervention Assessment to a manageable set of items, usually somewhere between 20-30 items per set (for an example see the OTISS website with the literacy first sight words). As the student masters items fold in previously unknown items.

2. Assess the student to determine known and unknown items on the Intervention record form. Items are defined as known when the student can accurately respond within 2 seconds and items are unknown if the student cannot accurately respond within 2 seconds. This will result in two groups of flashcards (known and unknown).

    a. The teacher will use these data to determine what skills the student has and what skills the student needs to acquire. Identify unknown items by marking an "X" on the Intervention record form in the "Pre" column for that day.

3. Using the unknown items marked with an "X" in the "Pre" column on the Intervention Record Form, select and highlight 8 unknown items to start the flashcard D&P intervention. Once an item is mastered (student responds accurately within 2 seconds across three days during the Pre-Intervention Assessment) the item is considered known and is replaced in the intervention by another unknown item.

Intervention Cycles

1. The teacher will begin the flashcard D&P intervention using the 8 items selected during the Pre-Intervention Assessment. Given the items are unknown, begin by providing an accurate model to prevent inaccurate responding or guessing and to promote accurate responding. Specifically, the teacher should hold up the flashcard and say, "This (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" Once the student correctly responds, provide verbal praise and go to the next item.

2. After the student has accurately responded to each item. The teacher should hold up the flashcard and wait for 2 seconds for the student to respond. If the student says the correct answer within 2 seconds provide praise and move to the next item. If the student says an incorrect response or fails to respond within the 2 second time duration provide feedback by pointing to the item and saying the correct response, "This (letter/sound/number/word) is _____." and then prompt the student to try again, "What (letter/sound/number/word) is this?" Repeat this until the student gives the correct response. Once the correct response is given provide the student with verbal praise and go to the next item.

3. Repeat step 2 for the set of eight items a minimum of five cycles. The duration of the intervention session and the number of cycles through the item set will depend on factors such as allotted time, student fatigue, and attention. After three days of the intervention the opportunity to replace taught items with unknown items will begin.

Post-Intervention Assessment

1. The intervention ends with a Post-Intervention Assessment that is identical to the Pre-Intervention Assessment administered at the beginning of the session. The teacher should again use the Intervention Record form that corresponds to the previously administered Target Skill Assessment. This form will be the same one used in the Pre-Intervention Assessment.

2. Assess the student to determine known and unknown items on the Intervention record form. Items are defined as known when the student can accurately respond within 2 seconds and items are unknown if the student cannot accurately respond within 2 seconds. This will result in two groups of flashcards (known and unknown).

    a. Record unknown items by marking an "X" on the Intervention record form in the "Post" column for that day.

3. If using self-graphing have the student graph performance and describe progress. This can be done both within session (comparing number of known items from first trial to final trial) and across session (comparing number of known items from first trial from that day to the previous day). For more information of self-graphing see the MIND: Self-Graphing module.

Flashcard Drill & Practice: Student Training Protocol

Use this to train students in the Flashcard Drill & Practice procedures. It is meant to ensure adherence to treatment and should be used the first few times when you are administering this intervention or when you feel the student needs a refresher.

1. Introduce the intervention, "We are meeting so we can work to improve your (skill). You will identify some (letters/sounds/numbers/words) on flashcards. Sometimes I will say the (letter/sound/number/word) first, then ask you to repeat me, and sometimes I will ask you to say the (letters/sounds/numbers/words) without my help. You will say the (letters/sounds/numbers/words) on the flashcards several times. Are there any questions?"

2. For an unknown item, hold up a flashcard and say, "This (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" If the student correctly responds, praise and move to the next flashcard. If the student responds incorrectly, provide corrective feedback and repeat model and prompt saying, "No, the (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" Repeat until student correctly responds. Record student responding.

   a. If revisiting a known item hold up the flashcard and say, "What (letter/sound/number/word) is this?" If the student correctly responds, praise and move to the next flashcard. If the student responds incorrectly, provide corrective feedback and present a model and prompt saying, "The (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" Repeat until student correctly responds. Record student responding.

3. Tell the student, "Now you should know all the items on the flashcards. You are going to read all the flashcards ___ (e.g., 5) more times. I want you to do your best to say all the (letters/sounds/numbers/words) correctly."

4. After the final flashcard trial say to the student, "Good job, now let's compare your final flashcard trial to your first. It looks like you increased __ (letters/sounds/numbers/words) read correctly today, great job. We will be charting how well you did the first time you said the (letters/sounds/numbers/words) on the flashcards and compare it to the last time you said them to see how much you improved. This will also let us compare how you are doing from day to day and week to week."

5. Summarize the intervention, "Each day we meet we will do the same set of activities. You will begin by saying (letters/sounds/numbers/words) on flashcards, I will help you with (letters/sounds/numbers/words) you have trouble with, then you will read the flashcards eight more times. Lastly we will graph how many (letters/sounds/numbers/words) you said correctly and compare it to other times you read to see how much you improved. Do you have any questions?"

This template should provide you with procedures to train students the steps they will use when meeting with you to practice using Flashcard D&P approaches.

Flashcard Drill & Practice: Treatment Integrity Protocol

This protocol is to be used by teachers when working with students using the Flashcard D&P procedures. It is meant to ensure adherence to treatment and should be used when you are administering the intervention to document how often and for how long the intervention is ran.

Student:_____   Date: _____   Start/End Time: _____

Materials

Required: □ Unknown and known item flashcards   □ Scoring sheet   □ Pencil   □ Timer

Optional: □ Graph (for self-graphing)   □ Rewards

Intervention Procedures

1. Document date, start time, & end time: This is useful when investigating student response to intervention. You can answer how often and consistently the Flashcard D&P intervention was done and how many instructional minutes were spent with the student engaged in the procedure. □

2. Prepare flashcards for use: Using the Target Assessment and/or Pre-Assessment data identify unknown items to be used during the intervention session. In addition, specify the number of cycles to be used with these items. □

   a. If using performance feedback and/or reward, instruct them to see if they can beat their score from the previous day and what reward they may be able to obtain. □

3. For an unknown item, hold up a flashcard and say, "This (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" If the student correctly responds, praise and move to the next flashcard. If the student responds incorrectly, provide corrective feedback and repeat model and prompt saying, "No, the (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" Repeat until student correctly responds. Record student responding.

   a. If revisiting a known item hold up the flashcard and say, "What (letter/sound/number/word) is this?" If the student correctly responds, praise and move to the next flashcard. If the student responds incorrectly, provide corrective feedback and present a model and prompt saying, "The (letter/sound/number/word) is _____. What (letter/sound/number/word) is this?" Repeat until student correctly responds. Record student responding.

4. Tell the student, "Now you should know all the items on the flashcards. You are going to read all the flashcards ___ (e.g., 5) more times. I want you to do your best to say all the (letters/sounds/numbers/words) correctly."

5. After the final flashcard trial say to the student, "Good job, now let's compare your final flashcard trial to your first. It looks like you increased __ (letters/sounds/numbers/words) read correctly today, great job. We will be charting how well you did the first time you said the (letters/sounds/numbers/words) on the flashcards and compare it to the last time you said them to see how much you improved. This will also let us compare how you are doing from day to day and week to week."

6. Summarize the intervention, "Each day we meet we will do the same set of activities. You will begin by saying (letters/sounds/numbers/words) on flashcards, I will help you with (letters/sounds/numbers/words) you have trouble with, then you will read the flashcards eight more times. Lastly we will graph how many (letters/sounds/numbers/words) you said correctly and compare it to other times you read to see how much you improved. Do you have any questions?"

When providing feedback remember to attribute increased reading skills to effort & practice. □

Differentiating Instruction: Flashcard Drill & Practice

The flashcard D&P intervention increases student learning rates due to the use of a complete learning trial (i.e., stimulus-response-feedback) and repeated practice on a targeted item set (e.g., numbers, math facts, words). The MIND: Flashcard D&P protocol describes a set procedures to be repeated 3-5 times in a session across 8 unknown items. That being said, to maximize the effectiveness of the flashcard D&P intervention teachers may need to differentiate procedures to increase effectiveness. Three ways to differentiate flashcard D&P is to 1) alter the number of items that make up the target set; 2) alter how many times the set is presented during a session; and 3) alter the ratio of known to unknown items included in the set?

1. When doing a flashcard D&P intervention the teacher must determine the size of the intervention target set (i.e., the amount of items taught during the intervention session). The OTISS Flashcard D&P intervention suggests that teachers begin using 8 unknown items. For some students, these items will be learned quickly and the intervention may become boring. For others, practicing too many items will lead to small amounts of learning and cause frustration. Depending on how the student responds the teacher may want to change the amount of items taught.

2. Another facet of the Flashcard D&P intervention that can influence learning rates is how many times the teacher cycles through the targeted set. The Flashcard D&P intervention suggests that teachers begin using 3-5 cycles during a session. However, if students are not learning taught items then the teacher can increase the amount of cycles during the session that the student is exposed to (e.g., go from 5 cycles per session to 8 cycles per session). Note that this will increase the required instructional time.

    a. These two facets of intervention (set size and cycles) can be mixed and matched depending on student response to learning. For example, if the standard approach (8 items, 5 cycles) fails to produce learning the teacher could alter instruction by decreasing the item set and increasing the number of cycles (5 items, 8 cycles).

3. In an effort to keep planning time for teachers at a minimum while maintaining strong learning rates the MIND Flashcard D&P intervention recommends identifying and practicing all unknown items. However, an additional way to differentiate flashcard D&P is to intersperse known and unknown items. Examples of this include the Folding-In (7 knowns to 3 unknowns) and Incremental Rehearsal (9 knowns to 1 unknown) approaches.