

Using Interspersal Procedures to Improve Academic and Behavioral Skills

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Using Interspersal Procedures/High-Preference Strategies to Increase Academic Performance and Task-Oriented Behaviors



Elias Clinton

Task Difficulty and Off-Task Behaviors

- Familiar statements associated with academic work:

“This is too hard.”

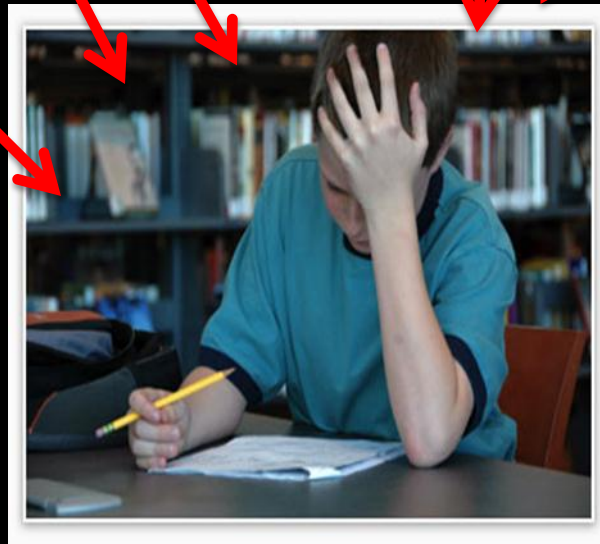
“I’m bored.”

“I hate this!”

“I can’t do this.”

“I don’t know this stuff.”

“@*!?! This sucks!”



Let's Start with The Facts

- Skill improvement is based on repeated practice
 - Practice cannot occur if students do not engage in tasks
- Teachers commonly report “off-task behaviors” and “non-compliance” as common behavior issues
 - Students ask to leave
 - Complaining
 - Refusal to complete work
 - Sleeping
 - Aggression
 - Doodling
- Students history of repeated failure may lead to negative beliefs about abilities
- Research has indicated that manipulating the ratio of known to unknown items within an assignment can increase academic proficiency, compliance, and on-task behaviors

Interspersal Procedures & High-P Request Sequences

- Common “futile” attempts to address behavioral concerns:
 - Detention
 - Missed Recess
 - Students have “silent lunch” to finish work
 - “Rewards” for finishing work – if the learner does not have the skill in his/her repertoire
 - Retention

Interspersal Procedures & Academics

- Interspersal Techniques:
 - “Target” items/tasks – the skill being taught or developed
 - “Maintenance” items/tasks – mastered skills
 - Interspersal procedures mix target and maintenance items for instruction/assessment
 - Example: student’s weekly spelling list consists of 5 target items and 5 maintenance items (from previous week’s list)
 - Maintenance items serve as potential reinforcers to students
 - *Discreet Trial Completion Hypothesis*
 - Item completion is reinforcing due to learning history
 - Increasing discreet easily completed items = denser R+

Why use IP?

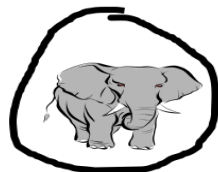
- Strength-based approach to addressing non-compliance and disengagement without using punishment
- Targets new skills while revisiting mastered skills (maintenance)
- Demonstrated effective for increasing academic responding and compliance to adult requests

Example of an Interspersal Worksheet

$$44 + 52 = \underline{\quad}$$

50	51	52	53	54
55	56	57	58	59
60	61	62	63	64

12 more than 51 is _____.



Which is bigger?



2

68

High-Preference Strategy

High-P Strategy:

Designing assignments with a sequence of maintenance tasks preceding a target task

- usually 3 – 5 maintenance tasks to 1 target task

Example: A student needs help on multiplication facts

- Student does not engage in multiplication tasks (too difficult)
- Yet, student has demonstrated mastery of, and a preference for, single-digit addition facts
- During training:

$$\begin{array}{r} 2 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$$

High-Preference Strategy

- Can be used for training (if the student cannot engage in the target skill and does not comply with task demands)
 - Not intended to teach new skills alone
 - Must be combined with an instructional method if the target skill is not in the student's repertoire
 - Discrete Trial Training

High-P Request Sequences

- Can be used during independent work (if the student can successfully engage in the target skill but typically does not engage in the task due to lack of fluency)
- Possible explanations for why High-P works:
 - Premack Principle “If you don’t eat your meat, you can’t have any pudding!”
 - Engaging in undesirable task to access desirable task
 - Also shown to work in reverse
 - Behavioral Momentum: easy item (success) → easy item (success) → easy item (success) difficult (more likely to comply while in momentum)

Determining Target and Maintenance Items

- Identify target skills associated with off-task/non-compliance/disengagement
 - Assess for target and maintenance items
 - Determine criteria
 - Maintenance items can be solved quickly and accurately
 - Latency of 3 seconds
 - 100% accuracy across 3 - 5 trials
 - Target items
 - Latency > 3 seconds
 - Accuracy < 100% across trials
 - Conduct preference assessment for maintenance items
 - Interview
 - Permanent product examination– what items has a student historically completed
 - R+ preference assessment: give choices
 - May not be “simple” problems, but preferred

Creating IP/High-P Assignments

- Choosing between **IP** and **High-P**
 - Interspersal: target, target, target, maintenance
 - High-P: maintenance, maintenance, maintenance, target
 - **Idiosyncratic** to the student
 - Some students may need a denser schedule of R+ (i.e., maintenance items)
 - Some student may need **priming**
- Options: flashcards, worksheets, or electronic format

Monitor Student Success

- Accuracy
- Completion
 - Number of items
- Rate
 - Number of correct items completed in a given time interval
- It is possible that maintenance items may have been misidentified
 - Skipping items
 - Rate of target items not improving
- Fade intervention as student shows success
 - 3 maintenance items → 2 maintenance items...

Examples of Interspersal/High-P Research

- Used to increase food acceptance of participants with pediatric feeding disorders (Patel et al., 2006)
- Single-digit multiplication facts (Burns, 2005)
- Independent object labeling (Ormsby & Belfiore, 2009)
- Spelling words (Neef, Iwata, & Page, 1980)
- Compliance to low-probability teacher requests (Belfiore, Lee, Scheeler, & Klein, 2002)
- Compliance to medical requests: taking medication (Harchik & Putzier, 1990)

General Education Classroom Applications of Interspersal Techniques

- When many of the students are not on task when doing independent seat work → add additional maintenance items
- Student who is under challenged by the curriculum and demonstrating off-task behaviors → adding challenging items may improve on-task behavior
- Students reluctant to volunteer answers to complex questions → ask additional questions that students have previously answered correctly
- Behavioral momentum → put easier problems at the start of the assignment to increase on-task behavior

Special Education Classroom Applications of Interspersal Techniques

- Improving sight word recognition → show a student one unknown word, have the student practice, show a known word
- Helping students learn to recognize rimes when onset sounds have been mastered. → every time a student is asked to recognize rime, also asked to say the onset
- Helping a student learn to write the letter S → student is also allowed to work on known letters

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Questions?

Comments?

Concerns?

Epiphanies?

