Randomizing Criteria Within an Interdependent Group Contingency: Effects on Math Seatwork

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INTRODUCTION

• The Good Behavior Game (GBG), first described by Barrish, Saunders, and Wolf (1969), is an interdependent group contingency often used for decreasing disruptive behavior in the classroom.
• Research indicates GBG is effective, easy to implement, time efficient, and a widely used classwide intervention (Barrish, et al., 1969, Harris & Sherman, 1973).
• GBG has been primarily used for decreasing disruptive behaviors.
• Few studies (e.g., Darch & Thorpe, 1977; Darveaux, 1984; Swezy et al., 1992) have incorporated prosocial or academic behaviors within the GBG. Recently, Good Classroom Game (Mudgal, 2004), an academic expansion of the GBG was found effective in increasing work completion and decreasing off-task behaviors of elementary students.
• The current study further explored the GCG by comparing the effects of randomized and non-randomized criteria of work completion and accuracy (math) for target students and their peers. Ancillary effects of GCG on off-task behavior of target students were also assessed.

METHOD

Participants

• Four elementary students and their respective classes
  - Abel: 10 y.o., male, 4th grade; 22 students in class
  - Bobby: 8 y.o., male, 3rd grade; 19 students in class
  - Jack: 10 y.o., male, 5th grade; 23 students in class
  - Noah: 8 y.o., male, 3rd grade; 16 students in class

Materials

• Functional Analysis Informant Record for Teachers- Academic (FAIR-TA; Henry, 2000).
• Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) and Children’s Intervention Rating Profile (CIRP; Witt & Elliott, 1989).
• Criteria and rewards jars.

Dependent Variables

• Work Completion: Target students and peers.
• Work Accuracy: Target students and peers.
• Off-task behavior: Target students.

Design

• Cross-over phase change
  - ABCB: Baseline, non-randomized criteria, randomized criteria, and non-randomized criteria.
  - ACBC: Baseline, randomized criteria, non-randomized criteria, and randomized criteria.
• Visual inspection of data.

Procedure

Baseline

• Recorded work completion, work accuracy, and off-task behavior (target students only) during math independent seatwork.
• Teacher training took place towards the end of the baseline.
• Criteria selection.
• Team division.

GCG: Non-randomized criteria and randomized criteria

• GCG procedures (teams, non-randomized/randomized criteria, and rewards) and rules were explained to the students.
  - Non-randomized criteria was pre-decided in consultation with the teacher. Teams with average work completion and accuracy equal to or more than the criteria won the game.
  - Randomized criteria included range of different work completion and/or accuracy criterion written on paper slips and deposited in a jar. Teams with average work completion and/or accuracy equal to or more than the randomly selected criterion won the game.
  - GCG implementation during independent math seatwork time.
• Preference assessment
• Recorded work completion, work accuracy, and off-task behavior (target students only) during math independent seat work.
• Declaring results of the game to students.
• Reinforcer delivery to the winning team(s).
  - Phase changes: Two classes were randomly assigned to each sequence of phases.
  - ACBC sequence was used in Abel and Bobby’s class.
• IRP-15 and CIRP completed at the end of the phase.

Reliability

• Interobserver agreement for off-task behavior ranged from 92-100%.
• Interobserver agreement for work completion ranged from 91-100%.
• Interobserver agreement for work accuracy ranged from 80-100%.

Procedural Integrity

• Teachers’ procedural integrity ranged from 76-100%.

RESULTS

• Bobby and Noah’s work completion increased meaningfully when the GCG was played. Their peers’ work completion increased slightly when GCG was implemented.
• Abel and Jack’s work completion increased initially with the GCG, but later reverted to baseline levels. Their peers’ work completion demonstrated similar pattern.
• The target students and their peers’ work accuracy was not impacted meaningfully when the GCG was played.
• Off-task behaviors of all four target students decreased meaningfully when GCG was used.
• All teachers rated GCG as acceptable. Majority of the students indicated liking the GCG.

DISCUSSION

• Results suggest that GCG can be successfully used to increase work completion and decrease off-task behaviors of the target students.
• Some support for GCG’s effectiveness in increasing work accuracy of the target students was noted.
• GCG was moderately effective in increasing classwide work completion.
• Minimal, if any, evidence for GCG’s effectiveness in increasing work accuracy was noted.
• No differential effects were found between non-randomized or randomized criteria within the GCG. Both types of criteria equally effective in increasing work productivity.

Limitations

• Reinforcers were randomized across all phases.
• More changes in work completion for some students could not be identified possibly due to ceiling effects.
• Group data did not allow for investigating individual changes in peers’ work completion.

Figure 1. Abel and his peers’ data from GCG phases
Figure 2. Bobby and his peers’ data from GCG phases
Figure 3. Jack and his peers’ data from GCG phases
Figure 4. Noah and his peers’ data from GCG phases

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