THE USE OF SELF-MONITORING AND TARGET-SETTING TO INCREASE RESPONSES TO LEARN UNITS

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INSPIRED BY AUTISM

This study used an ABA reversal design to assess the effects of self-monitoring and target-setting on the number of responses to learn units, and average learn units to criteria. The participant was an 11-year-old male with a diagnosis of autism. The results showed that the tactics increased the number of responses to learn units, reduced the average number of learn units to criteria, and there was an increase in the rate at which criteria were met. When the tactic was removed, the data returned to near baseline levels for the number of responses to learn units and the cumulative criteria. As well as this, the average number of learn units to criteria significantly increased.

Literature review

- **Koegel, Singh & Koegel (2010)** study shows that individuals working with students diagnosed with autism may require tactics from the science of behaviour to increase motivation, performance and accuracy when completing learn units.
- Self-monitoring is a form of self-management which involves the individual observing their own behaviour and the subsequent self-recording of this behaviour (Harris, 1986). It is a widely applicable tactic that also lends its use to naturalistic settings (Koegel & Koegel, 1990) as well as special education classrooms in order to determine the benefits.
- **Holifield, Goodman, Hazelkorn & Heflin (2010)** used a self-monitoring procedure with two elementary students diagnosed with autism to increase their attendance to a task and their academic accuracy in the classroom. The tactic was successful in increasing the dependent variables.
- Self-monitoring was also successfully implemented by Richman, Riordan, Reiss, Pyles and Bailey (1988) to increase staff on-task behaviour and adherence to activity schedules.
- **Greer (2002)** states that learn units consist of a three-term contingency for the student and the teacher in which the response of the student occasions a reinforcement or correction operation from a teacher. Learn unit rates serve, together with criterion referenced objectives, as the basic measure of the teaching process and as the core for analysing instructional variables.

Method

Participant
The participant was an 11-year-old male with a diagnosis of autism. He had listener, speaker, reader and writer repertoires.

Setting
The study took place at a CABAS® school in England.

- The participant attended the school from 9.15am to 15.35pm and had an individualized curriculum that consisted of life skills and academic programmes.
- He worked on a 1:1 pupil to teacher ratio, and worked in an individual room located within a classroom consisting of three other pupils of similar ages and levels of ability.

Materials
Materials included a variety of programme resources, whiteboard, whiteboard marker, choice board for academic programs, tally chart, bar graph to record learn units completed and a reinforcer menu with preferred items/activities.

Data collection
Data were collected on the frequency of responses to learn units, and the number of criteria met per week.

Design
An ABA reversal design was used in this study.

Procedure

Baseline: In baseline, the participant was given a selection of 3 academic programmes to choose from.

- Each programme was worth either 30, 40 or 50 points, which were awarded after the participant completed the programme. Programmes that he found more difficult or those that were less preferred were worth more points.
- The number of learn units presented varied from programme to programme.
- The participant received 'bonus' points for emitting correct responses and for displaying appropriate and desirable behaviours. These were defined as using equipment appropriately (using for its intended purpose and without breaking), using a quiet voice, staying in his seat while doing work, and responding to instructions quickly. On average, the participant was awarded between 10-20 bonus points during the course of each academic programme.
- The total number of points was recorded and updated accordingly. These points were exchanged for preferred items, which were displayed on a reinforcer menu. More highly preferred items required a higher number of points. The most highly preferred reinforcers required between 300-400 points. Less preferred reinforcers required between 120-250 points. After accessing a reinforcer, he updated his total to show how many points he had left after the exchange.

Intervention: In the intervention phase there was no use of points.

- The participant was required to record how many responses to learn units he emitted – these were recorded using a tally chart.
- The participant had to emit a response relevant to the learn unit presented for it to be counted. If he did not know the answer, he was encouraged to make a guess or discuss with his teacher.
- At the end of each programme, he counted the number of tallies, and transferred them onto a bar chart to display the total number of responses. He was required to respond to a certain number of learn units to access each reinforcer. More highly preferred reinforcers required between 70-90 learn units, while access to less preferred reinforcers required 30-50. He was able to access these reinforcer items/activities at any time, provided he had responded to enough learn units. After accessing a reinforcer, he updated the bar chart to show the number he had left after the exchange.
- A separate contingency was put in place to reinforce the participant's appropriate and desirable behaviours.

Results

- In baseline, the weekly number of responses to learn units ranged from 141 – 648, with a mean of 414. This increased in the intervention phase to a range of 547 – 1069, and a mean of 868. In the return to baseline phase this decreased to a range of 369 – 830, with a mean of 595. See Figures 1 and 3,
- The participant met 36 criteria over 17 weeks of baseline, therefore meeting a mean of 2.1 criteria per week. In the intervention, 56 criteria were met over 11 weeks, with a mean of 5.1 criteria per week. This reduced in the return to baseline – 19 criteria over 10 weeks, with a mean of 1.9 criteria per week. See Figures 2 and 3.
- The mean number of learn units to criteria in baseline was 195. This reduced in the intervention phase to 171. In the return to baseline, the mean learn units to criteria was 313. See Figure 3.
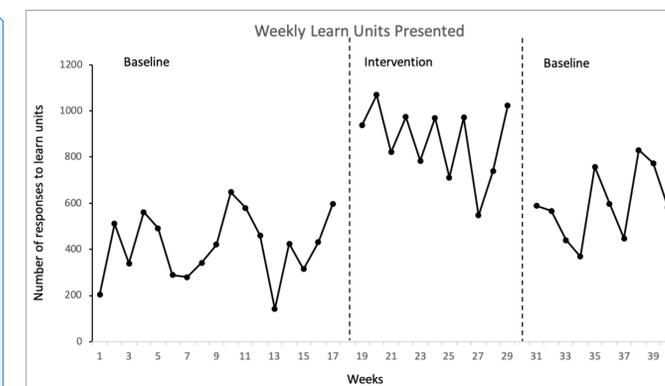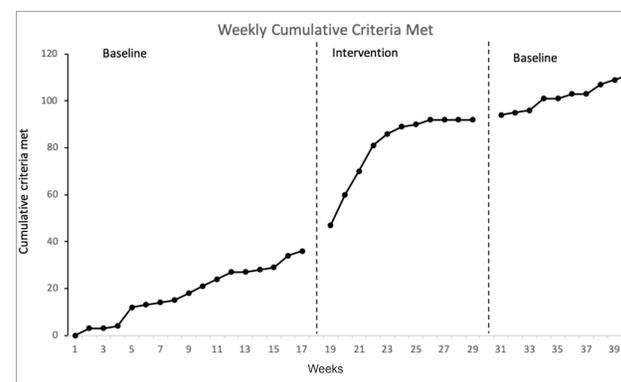

Figure 1

Figure 2

Mean weekly responses to learn units		
Baseline	Intervention	Return to baseline
414	868	595
Mean weekly number of criteria met		
Baseline	Intervention	Return to baseline
2.1	5.1	1.9
Mean weekly number of learn units to criteria		
Baseline	Intervention	Return to baseline
195	171	313

Figure 3

Discussion

- The results found that the intervention was successful in increasing the number of the participant's responses to learn units. The mean weekly number of responses to learn units increased by over double from the initial baseline to the intervention phase. As well as this, the number of criteria met per week increased, and the learn units to criteria reduced, meaning that the proportion of responses which were correct also increased. This suggests that the participant was learning at a faster rate. However, towards the end of the intervention phase, the rate at which criteria were met slowed.
- One strength of the intervention includes its ease of use, meaning that the staff implementing the procedure did not require extensive training. As well as this, the tactic had a low response effort for the participant. Another strength is the fact that self-monitoring is high in social validity – it promotes independence and is highly generalizable to other behaviours.
- A limitation of the study is the fact that interobserver agreement was not collected which impacts the reliability of the study. Despite this, Teacher Performance Rate and Accuracy data was collected regularly throughout the study which monitored the reliability of teacher antecedent delivery and accuracy of data collection.
- Future research should provide a thicker schedule of reinforcement for correct responses in comparison to incorrect responses. Self-monitoring could also be used for the participant to monitor his appropriate behaviours.

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