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The use of 'Positive Greetings at the Door' to increase on-task behaviour in a vocational training centre

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Abstract

Background: Preliminary studies suggest 'Positive Greetings at the Door' is a simple, low cost, antecedent intervention, for promoting engagement and reducing the risk of disruptive behaviour at the beginning of lessons.

Method and materials: Three single case ABAB reversal designs were used in a vocational training centre for adults with intellectual disabilities. Real time duration recording was used to measure on-task behaviour. Interval recording was used to investigate staff delivery of verbal attention. Functional assessments of off-task behaviour were completed.

Results: Results revealed that staff greetings produced increases in on-task behaviour, during the first ten minutes, from a mean of 54% during baseline to a mean of 79% during intervention phases. Staff greetings appear to set the occasion for staff to interact more frequently with participants.

Conclusions: 'Positive Greetings at the Door' may be an antecedent manipulation that is low cost, technically undemanding, function-independent and effective in improving on-task behaviour.

Keywords: On-task behaviour; intellectual disabilities; antecedent intervention; 'Positive Greetings at the Door'; work scheme.

Introduction

Off-task behaviour at the beginning of lessons can impact on students' learning and cause management problems for teaching staff (Walker et al, 2004). Demands on teaching staff are high when commencing a lesson, including organising the class, preparing resources and taking registers. For some pupils, transitions into class can also be challenging given changes in routine and environments (Sterling-Turner and Jordan, 2007). A high level of class engagement is incompatible with disruptive classroom behaviours (Rathvon, 2008), so efforts to promote engagement at the beginning of lessons are likely to set a positive scene for learning, and be beneficial in preventing the future occurrence of disruptive behaviours.

The impact on academic engagement of 'Positive Greetings at the Door' (PGD) by teachers has been evaluated in classrooms (Allday and Pakurar, 2007; Allday et al, 2011; Cook et al, 2018), with encouraging results. Results from these three preliminary studies suggest PGD could be a simple, low cost, antecedent intervention for promoting academic engagement and reducing the risk of disruptive behaviour at the beginning of lessons. PGD requires teachers to greet students at the door, prior to entering the classroom, with a specific positive statement which can reinforce desired behaviour and capitalise on social learning (Allday and Pakurar, 2007; Cook et al, 2018). Cook

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et al (2018) suggest PGD allows staff to connect with students at the beginning of a lesson and build positive momentum that translates into on-task behaviour in the classroom.

Allday and Pakurar (2007) used PGD to increase student on-task behaviour in a mainstream US middle school, with three students who engaged in off-task behaviour. Teachers greeted each student at the classroom door with a positive, unscripted comment. On-task behaviour increased from a baseline of 45% of observed time to 72% following intervention. In a later study Allday et al (2011) observed improvements in latency to activity engagement following the introduction of PGD. Cook et al (2018) investigated PGD across 10 classrooms of middle school pupils in the US using a randomised block design. In the control group, engagement was similar at 54.75% at baseline and 59.54% in intervention phases of the study. For the intervention group engagement rose from 58.75% at baseline to 79.70% at intervention, with academic engagement improving 20% and disruptive behaviour (speaking out of turn, leaving seat, disrupting peers, etc) reducing from 13.68% to 4.13%. Cook et al (2018) concluded that PGD may establish behavioural momentum for engagement, maximise staff instructional time, and prevent occurrence of disruptive behaviours.

PGD is compatible with the aim of building capable environments and enhancing quality of life, core aims in the delivery of PBS (Carr, 2007; McGill et al, 2010; Gore et al, 2013; Cook et al, 2018). The procedure is simple and economical in comparison with other antecedent pre-session strategies that require a significant amount of staff time (O' Reilly, 1999; O' Reilly et al, 2007), and which may, therefore, not be viable in a teaching environment with an over-stretched staff facing competing demands on their time.

Given the potential effects and ease of delivery, there may be other contexts in which the procedure could have value. The purpose of this study was to replicate Allday and Pakurar's study (2007) in a vocational training centre for adults with intellectual disabilities (ID). We evaluated the effects of PGD on activity engagement among adults attending the centre, where a degree of instructional control is required and off-task behaviour is a threat to learning and development. We extended Allday and Pakurar's (2007) study by observing on-task behaviour over the first 20 minutes of a session, as opposed to 10 minutes in the original study. We measured staff attention across phases, and conducted descriptive functional assessments of off-task behaviour.

Method

Participants

Support staff at a vocational training centre nominated three participants who had difficulty being on-task, especially during the first 20 minutes of work sessions. (Their names have been changed for the purposes of the study.) Nicolas was a 31-year-old man with Down syndrome who was reported to engage frequently in off-task (eg failure to complete set tasks, leaving the work scheme, making regular drinks) and disruptive behaviour (eg constant requests of staff, using socially inappropriate language, throwing items on the floor, threatening to hit other workers or staff). Emma was a 48-year-old woman with Down syndrome, who was non-verbal and used Makaton to communicate. Emma was reported to display frequent off-task behaviour (eg searching for alternative tasks, shouting at others, pulling staff by the arm to sit next to her) and disruptive behaviour (eg loud vocalisations such as grunts and screams, taking work off others, and physical aggression if challenged by staff). Ian was a 26-year-old man with Down syndrome, impaired hearing and unclear speech. Ian occasionally used Makaton to supplement speech to communicate. Ian was reported to be 'settled' currently at work but had a history of off-task behaviour (eg not following directions, not completing work) and disruptive behaviour (eg shouting swear words, banging tables with his fist, and physical aggression towards others).

Setting

All three participants attended the local authority vocational training centre for adults with ID. Duties involved making art and craft products such as greeting cards, jewellery, flower pots, waste bins, or letter racks. Produce was sold at local craft markets and shops. The vocational centre consists of a classroom type room at the rear of a local authority day services building. There were usually eight workers present at any time, with one staff member. Some workers utilised a bench in the centre of the room and some were engaged at work stations around the edges of the room. Staff attempted to prepare tasks at work stations prior to the workers' arrival.

Ethical approach and consent

Bangor University Ethics Committee approved the study. Three study participants and one member of staff agreed to take part.

Design

Three single case ABAB reversal designs were used (Baer, 1975; Cooper, Heron and Heward, 1987; Bailey and Burch, 2002) to examine the effects of the intervention (A = baseline; B = PGD).

Participants attended the work scheme part-time on a sessional basis. They were observed for the first 20 minutes of their first work session of the day (either 9.30am–9.50am or 1pm–1.20pm). Observers were located inconspicuously in the corner of the setting prior to staff and participants arriving. Observations were made over a period of nine weeks.

Intervention

Baseline phases

At baseline, staff were asked to maintain a typical routine. Greeting workers at the door with a positive comment was not part of their normal routine. The normal routine involved directing participants to work stations from within the room, checking attendance lists, gathering and distributing materials and organising refreshments. Participants were directed to work tasks in both phases.

Intervention phases: PGD

Staff were instructed to greet the target worker at the door by using the worker's name and a positive statement (eg 'Good morning, Ian. I'm glad you're here today. The pot you painted yesterday was fantastic'). Staff were then instructed to pursue their regular routine, following delivery of the greeting.

Measures

Data were collected on participants' on-task behaviour and staff delivery of verbal attention.

Allday and Pakurar's definition of on-task behaviour was used [where 'support worker' replaces 'teacher']: '... when he or she was (a) actively listening to the support worker's instructions, defined as being oriented toward the support worker or task and responding verbally (e.g. asking questions about the instructions) or non-verbally (e.g. nodding); (b) following the support worker's instructions; (c) orienting appropriately toward the support worker or task; (d) seeking help in the proper manner (e.g. raising hand)' (2007, p318).

The occurrence or non-occurrence of on-task behaviour was recorded using real time duration recording, as duration recording is the most relevant measure of a behaviour that has a temporal dimension (Cooper et al, 1987). Observations commenced once the participant had arrived at their workstation. Data collection was achieved using a time piece and a stopwatch with an interval recording facility. Data were expressed as a percentage of time that participants were on-task. This was calculated by dividing the number of seconds of on-task behaviour by the total number of seconds of on-task behaviour plus the number of seconds of off-task behaviour, during observation. This ratio was then converted to a percentage.

Staff verbal attention was defined as 'the specific delivery of verbal discourse towards the target participant'. Staff delivery of verbal behaviour to participants was measured using ten second partial interval recording (Miltenberger, 2004). Observations began at the same time as the real time duration recording. Data were expressed as a percentage of intervals where staff delivered verbal attention to target participants. This was calculated by dividing the number of intervals of staff verbal attention by the total number of intervals of staff verbal attention plus the number of intervals of no staff verbal attention. This ratio was then converted to a percentage.

Inter Observer Agreement

Inter observer agreement (IOA) was assessed by having a second observer independently record the on-task behaviour of workers and staff delivery of verbal attention in 25% of sessions spread across baseline and intervention phases.

Agreement was assessed for on-sets and off-sets of on-task behaviour. A margin of error of plus or minus one second either side (three seconds) was agreed. IOA for on-task behaviour was calculated by dividing the number of agreements of timings of on-sets and off-sets of on-task behaviour by the total number of agreements and disagreements of timings of on-sets and off-sets of on-task behaviour. This ratio was then converted to a percentage figure. Mean agreement for on-task behaviour was adequate to good (Hartmann, 1977; Stemler, 2004) at 93% (range, 80% to 100%) for Nicolas, 83% (range, 67% to 100%) for Emma, and 83% (range, 67% to 100%) for Ian.

For staff, verbal attention IOA was calculated by dividing the number of agreements of intervals by the total number of agreements and disagreements of intervals and converting this ratio to a percentage. IOA for staff verbal attention was good (Hartmann, 1977; Stemler, 2004) at 94% (range, 90% to 97%) for Nicolas, 96% (range, 94% to 98%) for Emma, and 98% (range, 97% to 100%) for Ian.

Descriptive functional assessment

Allday and Pakurar (2007) suggested PGD may have reduced or eliminated the establishing operation for attention maintained off-task behaviour. However, as they did not complete prior functional assessment of off-task behaviour this could not be examined. To address this a descriptive functional assessment of off-task behaviour in the work scheme was completed for each person prior to intervention. Data were collected initially using structured staff interview (O'Neill et al, 1997) and Motivational Assessment Scale (Durand and Crimmins, 1992). Daily notes, care plans, behaviour support plans, incident reports, and professional reports were then examined. ABC records (Evans and Mayer, 1985) were reviewed for the month prior to intervention. All three participants had up-to-date functional assessments across multiple settings. Functional assessment in this study suggested off-task behaviour shown by Nicolas and Emma was attention maintained, while Ian's behaviour was escape maintained.

Results

On-task behaviour

Results for Nicolas, Emma and Ian are presented in *Figure 1*. PGD was associated with increases in on-task behaviour during the first 10 minutes of observations for all three participants. At baseline, participants were on-task a mean of 54% (SD = 27.43; range = 0-92%) of the time. Following the introduction of PGD, participants were on-task a mean of 79% (SD = 18.32; range = 27-100%) of the time.

Nicolas

At baseline phases Nicolas was on-task a mean of 24% of the observed time and 63% at intervention phases.

At BL1 Nicolas was on-task a mean of 13% of the observed time (range, 0% to 29%). There is an immediate change in level at IV1, with Nicolas on-task a mean of 56% of observed time (range, 27% to 80%),

though with a descending trend. Data point 8 is the only data point at IV phases that overlaps with data on BL phases and a particularly low level of on-task behaviour. This observation coincided with breaking news of the death of an international pop star, and a discussion about this news affected on-task behaviour at the beginning of work that particular morning. At BL2 Nicolas was on-task a mean of 35% of the observed time with some variability following a particularly low on-task score for data point 9 (range, 0% to 53%). There is a further increase in the level of on-task behaviour at IV2 (mean = 70%; range, 58% to 91%).

Emma

At baseline phases Emma is on-task a mean of 71% of the observed time and 89% at intervention phases.

At BL1 Emma is on-task a mean of 67% (range, 40% to 92%) of the observed time with an ascending trend. At IV1 there is a change in level to a mean of 84% (range, 73% to 97%) of time observed on-task. At BL2 the mean is 74% (range, 57% to 82%) of observed time on-task. There is a further increase in level at IV2 where on-task behaviour increases to a very positive mean of 93% (range, 82% to 97%).

Ian

At baseline phases Ian is on-task a mean of 67% of the observed time and 85% at intervention phases.

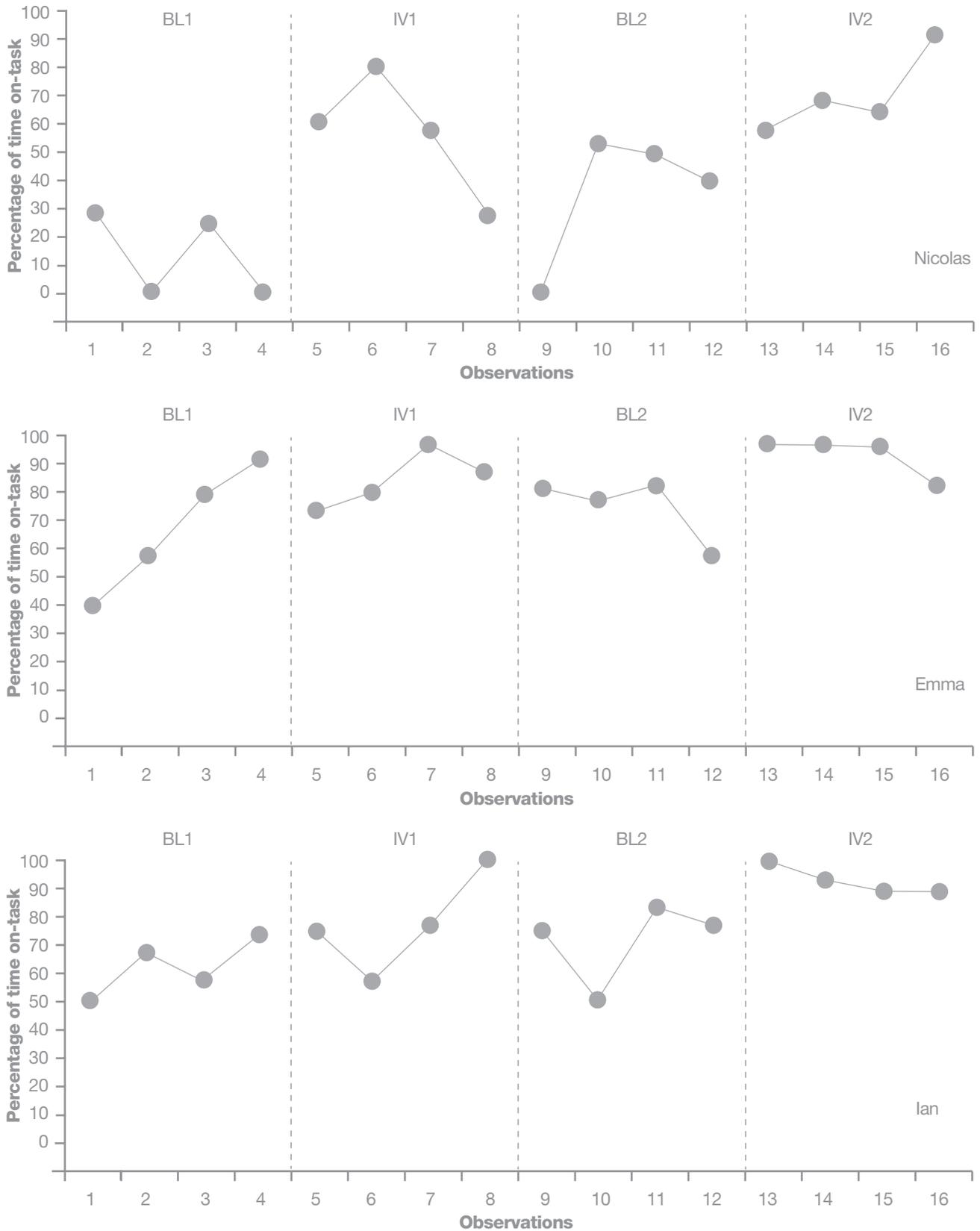
At BL1 Ian is on-task for a mean of 62% of observed time (range, 50% to 74%). At IV1 Ian is on-task a mean of 77% (range, 57% to 100%) of observed time. A return to baseline at BL2 indicates a drop in level to a mean of 71% (range, 50% to 83%). There is a further increase in level at IV2 where on-task behaviour increases to a very positive mean of 93% (range, 89% to 100%).

Results for all three participants show a positive effect for the intervention of PGD with some variability in on-task behaviour in individual phases. All participants reveal increases in level at BL2 compared to BL1, suggesting possible generalisation effects following IV1. Levels at IV2 were higher than at IV1 for all participants.

Percentage of non-overlapping data (PND)

Overall, a visual analysis of the three charts in *Figure 1* suggests that the intervention was effective. The data clusters, however, are not widely separated and there is overlap and variability in some data points, plus ascending or descending trends between phases.

Figure 1: Percentage of time on-task during the first 10 minutes – Nicolas, Emma and Ian
 (BL1=Baseline 1; IV1=Intervention 1; BL2=Baseline 2; IV2=Intervention 2)



Scruggs, Mastropieri, and Casto (1987) suggested the use of percentage of non-overlapping data (PND) to analyse intervention effectiveness in ABAB designs. PND is the percentage of data at the intervention phase that is more extreme (in an improvement direction) than the single most extreme baseline data point (Scruggs and Mastropieri, 1994). Due to possible generalisation effects at BL2, PND was calculated on the data score of IV2 (percentage of data points at IV2 that were more extreme than the single most extreme data point at BL1 or BL2). PND results of 70% or higher suggest effective intervention effects. PND for Nicolas was 100%, for Emma 75%, and for Ian 100%.

Staff verbal attention – partial interval recording (PIR) results

Allday and Pakurar (2007) speculated that increases in on-task behaviour may have been the result of unprogrammed changes in the reinforcement schedule of staff attention. Partial interval data on staff delivery of verbal attention is illustrated in *Table 1*, expressed as a percentage. Following delivery of a greeting at intervention phases staff were not trained or directed to deliver further verbal engagement with participants.

Overall there was not a significant correlation between increases in staff attention and increased on-task behaviour ($r_s = .122, p = .205$). However, during minutes 0–10, results for two participants reveal some increases in the delivery of staff verbal attention at intervention phases. At baseline phases staff engaged verbally with Emma a mean of 9.5% of time rising to 13.5% at intervention phases. At baseline phases staff engaged verbally with Ian a mean of 4.5% of time rising to 8% at intervention phases. Results for Nicolas show similar (high) levels of attention at 26% at baseline phases to 27.5% at intervention phases. Increased staff verbal engagement on an intermittent schedule may have contributed to increases in on-task behaviour at intervention phases. More research would be required to understand the relationship and impact of staff verbal attention on on-task behaviour.

The impact of PGD on on-task behaviour during minutes 10–20

One aim of this study was to extend the research of Allday and Pakurar (2007) by considering on-task behaviour for 20 minutes. During minutes 10–20, Nicolas's on-task behaviour increased from a mean of 47% at baseline phases to 59% at intervention phases.

Emma's on-task behaviour increased from 66% at baseline phases to 81.5% at intervention phases. For these participants the intervention appears to impact, although increases in on-task behaviour are smaller than during minutes 0–10.

During minutes 10–20 Ian's on-task behaviour remains at a mean of 77.5% at baseline and intervention. Data would suggest that the IV has a diminishing impact for Ian after ten minutes. It is important to note that Ian's on-task levels, for minutes 10–20, were already relatively high at baseline.

Discussion

The purpose of this research was to investigate the impact of PGD on on-task behaviour for adults with ID in a supported work scheme. As far as we know, this is the first study that has investigated the use of PGD in an adult learning environment. Consistent with previous research on children in classrooms (Allday and Pakurar, 2007; Allday et al, 2011; Cook et al, 2018), PGD improved on-task behaviour for all three participants. This suggests that PGD may be an effective low cost, high impact intervention, to increase on-task behaviour.

These results extend the previous research in several ways. First, the study examined the suggestion by Allday and Pakurar (2007) that increases in on-task behaviour were a consequence of an unprogrammed change in the reinforcement schedule of staff attention. Staff delivery of verbal attention to target participants was measured to examine this hypothesis. Whilst the data revealed some increases in attention at intervention phases for two participants (Emma and Ian), they did not for the third participant (similar levels for Nicolas), and there was not a significant overall association between increases in verbal attention levels and increases in on-task behaviour. More research is required to investigate the association between staff attention levels and type, and on-task behaviour following use of PGD. Previous research has suggested that increased levels of intermittent attention can improve positive behaviour and reduce problem behaviour in some individuals (Hagopian, Fisher and Legacy, 1994; Hanley, Piazza and Fisher, 1997; Vollmer et al, 1993).

Secondly, results of the descriptive functional assessment suggested that Nicolas and Emma's problem off-task behaviour was attention maintained and Ian's problem off-task behaviour was escape maintained. Previous research has indicated that pre-session attention may reduce the effectiveness of attention as

Table 1: Mean (%) PIR data on staff verbal attention delivered to target participants (BL1=Baseline 1; IV1=Intervention 1; BL2=Baseline 2; IV2=Intervention 2)

Participant	Condition	Minutes 0–10 (%)	Minutes 10–20 (%)	Minutes 0–20 (%)
Nicolas	BL1	17	31	24
	IV1	31	35	33
	BL2	35	37	36
	IV2	24	20	22
Emma	BL1	7	5	6
	IV1	14	14	14
	BL2	12	5	9
	IV2	13	7	10
Ian	BL1	4	1	3
	IV1	8	2	5
	BL2	5	1	3
	IV2	8	2	5

a reinforcing consequence (Fischer et al, 1997; Berg et al, 2000). A previous study by McComas et al (2003) revealed that pre-session attention strategies were only effective for attention maintained behaviour. McComas et al (2003) discovered no impact on escape maintained behaviour, yet in this study there was clear impact of Ian's on-task behaviour in minutes 0–10, though not in minutes 10–20. Smith and Iwata (1997) found that in certain cases antecedent variables did not correspond directly to specific maintaining variables. This suggests that as environments are enriched by antecedent strategies, such as positive greetings, motivation for alternatively maintained behaviours could be affected.

Thirdly, this study extended the time period data were collated from 10 minutes, as in Allday and Pakurar's (2007) study, to 20 minutes. The effect was weaker between minutes 10 and 20 for Nicolas and Emma, and had no effect for Ian. The intervention may have a diminishing impact over time, and further investigation is needed into strategies to enable maintenance.

The results of this study add to the literature on the benefits of manipulating antecedent variables to change behaviour (Kern et al, 2002). Antecedent interventions form part of the design of positive environments (McGill and Toogood, 1994; McGill, 1999; Michael, 2000) in a PBS framework. Educational settings have traditionally used reactive responses – public reprimands, punitive strategies that damage relationships, and increased attention for disruptive behaviour that may in fact maintain it (Cook et al, 2018). Antecedent attention interventions have historically been overlooked due to their unpractical and time-consuming nature in busy, applied settings. Having a low cost, easily assimilated intervention like PGD can enhance the climate of the environment; create a smooth, structured and organised start to a session for individuals who may struggle with transitions; foster staff-pupil/service user relationships; reduce disruptive behaviours; increase engagement; and ultimately promote learning (Cook et al, 2018). This intervention may have a number of applications in numerous settings, across the lifespan, and across a range of populations.

A significant limitation in the present study is the inability to control extraneous variables such as intrusions of late employees; work not set up by staff on time; intrusions of staff or care workers; the arrival of cakes for a birthday celebration; the news that there was no milk for break-time tea; and the news of the death of an international pop star. These issues may have contributed to some variability in on-task behaviour between phases, with some overlap of data points and ascending or descending trends between phases. Future studies should consider more data points in each phase to ensure measurement stability. An additional limitation is the fact this is a small one-setting study with only three participants.

Investigations into PGD could take five specific directions. First, it would be beneficial to study the impact of PGD in isolation by controlling subsequent delivery of staff attention through phases. Second, it would be useful to consider the conditions necessary to ensure maintenance. This would likely involve investigating the benefits of adding various (manageable) schedules of staff attention. Third, research is required on the content and type of staff verbal attention that is delivered and its effectiveness on on-task behaviour. Fourth, for Nicolas, staff were delivering verbal attention at a mean of 27%. Strategies are necessary to enable staff to direct attention that is more effective in promoting on-task behaviour on lean schedules. Finally, the intervention worked well for Emma who is non-verbal, but has good receptive language skills. Research could explore alternative (non-verbal) antecedent greeting strategies for individuals with more significant receptive language issues.

Conclusions

In conclusion, this study suggests PGD could be an effective intervention to promote on-task behaviour in a vocational training and, perhaps, other settings. Further research is warranted to examine the effects of staff attention on improvements in on-task behaviour. Future studies might consider whether intervention effects can be extended beyond the first ten minutes.

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