An adaption of the Good Behaviour Game to promote social skill development at the whole class level

ABSTRACT

Social skill interventions are utilised by educational psychologists to promote positive social behaviour amongst pupils. These have predominantly occurred for target populations, rather than at the whole class level. Research into evidence-based, whole class interventions for social skill development is warranted. The Good Behaviour Game (GBT) is an evidenced based contingency management intervention for promoting positive behaviour at the whole class level. The purpose of the current study was to evaluate an adaption of the GBG to target engagement in social skills in a mainstream classroom in a primary school setting. An ABAB reversal design was used to evaluate teacher implementation of the GBG. The GBG was shown to be effective in promoting engagement in targeted social behaviours of *positive social interactions* and *working as team*. No change in behaviour was observed for the targeted social behaviour of *supporting peers.* The paper discusses the implications of the findings including impetus for further research in this area. The limitations of the study and relevancy to EP practice are explored.

KEY WORDS:

The Good Behaviour Game, Social Skills, Social Competence, Contingency Management, Social Development

Introduction

Social Skills and Social Skills Training

Spence (2003) defines social skills as "the ability to perform those behaviours that are important in enabling a person to achieve social competence" (Spence, 2003, p. 84). Social competence has been defined by Spence and Donovan (1998) as having the proficiency to obtain successful outcomes as a result of interacting with peers. Social skills training is an intervention that often takes an operant conditioning approach to directly teaching, via modelling and feedback, and promoting engagement in specific social behaviours, via positive reinforcement (Spence, 2003).

The development of effective social skills during childhood is vital for successful social development and the avoidance of negative outcomes later in life. Social skill deficits have been shown to have long term negative impact on psychological adjustment and adaptive functioning (Campbell, Hansen & Nangle, 2010). For example, children with impaired social skills are more likely to develop depression as adults, whereas adolescents who have been exposed to social skills training are less likely to later develop depressive symptoms (Segrin, 2000; Rose, Hawes & Hunt, 2014). In contrast, the possession of social – cooperation skills predict higher levels of emotional wellbeing during adolescence (Halopainen, Lappalainen, Junttila & Savolainen, 2012). As such, school-based interventions which seek to promote the development of positive social behaviour are of social significance.

A range of social skill intervention packages exist and are marketed for use in schools (Gray, 1998; Sheridan, 1995; Kelly, 1997; Peterson & Lewis, 2000; Gray, White & McAndrew, 2002; Radley, Ford, Battaglia, & McHugh, 2014). Predominantly, these can be characterised as targeted intervention, consisting of small groups of pupils from a particular population. For example, research literatures exist that examine the efficacy of social skills interventions for

individuals with a diagnosis of Autism Spectrum Condition (ASC) or those categorised as having Emotional, Social and Behaviour Disorders (ESBD) (Bellini, Peters, Benner & Hopf, 2007; Callahan, Hughes, Mehta, Toussaint, Nichols, Ma, Kutlu & Wang 2017; Cook, Gresham, Kern, Barreras, Thornton, &, Crews 2008; Maag, 2006). Interventions that explore boarder aims, such as various aspects of social and emotional learning, have also been shown to be adaptable to directly target observable social skills; for example, nurture groups (Grantham & Primrose, 2017).

These types of social skills interventions are an historically established area of practice and research interest for EPs (Grantham & Primrose, 2017; Denham, Hatfield, Smethurst, Tan & Tribe, 2006; Maddern, Franey, McLaughlin & Cox, 2004; Nelson, 1996; Chalk & Smith, 1995; Morgan & Pearson, 1994; Daniels, 1990; Swinson, 1990; Cross & Goddard, 1988). Predominantly, these have focused on small group, targeted intervention. Of note, Swinson (1990) reported an EP implemented, successful whole class social skills training programme in a secondary school. However, this research is dated and highlights the paucity of studies exploring the viability of whole class intervention.

In summary, psychological interventions for improving social skills, aimed at the whole class level, have been limited (Spence, 2003). In addition, interventions aimed at generalising social skills taught in a small group context to everyday environments, such as the classroom, have also been limited (Evans, Axelrod & Sapia, 2000; Spence, 2003). Given the importance of social skill proficiency in childhood development, it is arguable that intervention promoting engagement with positive social behaviour for all members of a class is desirable.

Group contingencies and the Good Behaviour Game

Group contingencies offer an appropriate applied behaviour analytic strategy for developing a social behaviour intervention at the whole class level. A group contingency is a contingency

of reinforcement where the chosen consequence is applied to all, or some, members of a group, based on all group members' behaviour (Cooper, Heron & Heward, 2007). Group contingencies have been applied to improve social interactions in a first-grade classroom, in a preschool setting, in four elementary school classrooms and for reducing vocalisations of children with ADHD in a whole class setting (Robertshaw & Hiebert, 1973; Murphy, Theodore, Aloiso, Alric-Edwards & Hughes 2007; Thorne & Kamps, 2008; Davies & White, 2000).

'The Good Behaviour Game (GBG) is a whole class, group contingency-based intervention that has been limitedly adapted for promoting social skills development (Barrish, Saunders & Wolf, 1969; Flower, McKenna, Bunuan, Muething & Vega, 2014.) As a form of contingency management, the intervention is conceptualised as a dependent group contingency; potentially adaptable for promoting engagement in positive social behaviour at the group level.

The original conception of the intervention was played as a 'game' in a classroom setting (Barrish et al., 1969). The class was divided into two teams. The GBG was played for an hour during usual lesson time. The rules of the game were 'stay in your seat' and 'don't talk out of turn'. Each time a member of a team broke a rule a point was given to their team. At the end of the lesson each team that had scored below a specified number of points won the GBG and every member of the team accessed the reward. The GBG has been numerously replicated and has a strong evidence base (Tingstrom, Sterling-Turner & Wilczynski, 2006; Flower et al., 2014; Bowman – Perrott, Burke, Zaini, Zhang & Vannest, 2015).

The GBG has proved to be readily adaptable to new behaviours. The intervention has been modified to target behaviours which comply with library rules and expectations, to encourage teeth brushing and to decrease aggressive behaviours in a school cafeteria (Fishbein & Wasik,

1981; Swain, Allard & Holborn, 1982; McCurdy, Lannie & Barnabas, 2009). Given its amenability to diverse behaviours, the GBG is a potentially effective classroom-based intervention for encouraging positive social behaviour and reducing negative social behaviour.

A handful of studies have explored adapting the GBG to promote social behaviour. Dolan, Kellam, Brown, Werthamer-Larsson, Rebok, Mayer, Laudolff, Turkkan, Ford & Wheeler (1993) aimed to decrease rates of aggressive and shy behaviour in the classroom setting. Nineteen schools from five urban areas in Boston, USA were selected to take part. Schools implemented either the GBG or a comparison intervention in their early years classrooms. A reduction of aggressive behaviours was satisfactorily observed. In addition, a reduction in shy behaviours was observed, as measured using the Peer Assessment Inventory.

Parish (2012) applied a rule reward version of the GBG in a school cafeteria, where teams earned points for engaging in targeted social skills. Targeted behaviours were operationally defined as socially appropriate interactions, both verbal and nonverbal, and abiding by the rules of the cafeteria. The rules of the cafeteria were 'respect others', 'safe body' and 'talk quietly'. A multiple baseline design across lunchtime periods demonstrated that the adapted version of the GBG successfully reduced aggressive behaviour. However, the intervention did not have an effect on increasing targeted pro-social behaviours.

More recently, Smith, Osgood, Oh & Caldwell (2018) conducted a randomised trial of the GBG in seventy six after school youth work programmes for targeting social-emotional development. Positive social behaviours were not directly targeted; the version of GBG implemented involved teams winning if they scored three or less "mis-behaviours". The impact of the game on problem and pro-social behaviour was assessed using the Strengths and Difficulties Questionnaire, completed by participating children (SDQ, 2019), . Participants in

GBG control group were reported to show statistically significant higher levels of pro-social behaviour.

Whilst the GBG has been subject to several narrative literature reviews and a meta-analyses that showed it to be effective, evidence exists that expands the picture of its impact on behaviour change (Tingstrom et al., 2006; Flower et al., 2014; Bowman – Perrott et al., 2015). As previously noted, Parish et al. (2016) found that it did not result in increased levels of targeted pro-social behaviour in a school cafeteria setting. One potential reason for this is that the chosen context may have impeded intervention integrity; it being a busy environment, compared to a regulated classroom, and the GBG implemented by many practitioners, as opposed to one teacher.

The Education Endowment Foundation (2018) conducted a Randomised Controlled Trial (RCT) with seventy seven schools in England seeking to assess the impact of the GBG for classroom behaviours (concentration, disruptive behaviour, pro-social behaviour) and pupil's reading skills. There was no substantial evidence to support the GBG as an intervention for improving pupil's reading skills. There was also no evidence to show that the intervention decreased unwanted behaviour and improved pro-social behaviour. The intervention was further critiqued on grounds of being manualised and not allowing for adaption to suit the needs of pupils with Special Educational Needs and Disability (SEND).

The RCT used a version of the GBG where teams that broke the rules were given points as a form of punishment. This may account for no change in pro-social behaviour, as this wouldn't have allowed occurrences of pro-social behaviours to be reinforced. Implementation was reported to vary with regard to frequency and durations of the intervention differing across schools (Education Endowment Foundation, 2018). It was reported that results were sensitive

to changes in how data was analysed and so should be treated cautiously (Education Endowment Foundation, 2018).

Purpose of study and aims

Considering these studies, there is some emerging evidence that the GBG may have a positive impact on increasing participant's engagement in social skill behaviours, such as reducing unwanted negative behaviours like aggression and shyness or increasing pro-social behaviour. This is especially so if a rule-follow version of the game is implemented. The purpose of the current study was to further evaluate the adaption of the GBG to support the development of social skills by increasing whole class engagement in pro-social behaviour. Two of the previous research has taken place in different contexts; a cafeteria and an after school club; as an exception, Dolan et. al (1993) was classroom based. Therefore, the current study was based in a mainstream classroom to evaluate adapting the GBG to promote social skill engagement at the whole class level. A rule-follow version of the GBG, where points were awarded for engagement in target social behaviours, was played in a mainstream Year Five classroom. The analysis of efficacy was conducted using a single-case reversal design.

Method

Research hypotheses

1) The GBG will increase the frequency of whole class engagement in the target pro-social behaviour of *positive social interactions with a peer.*
2) The GBG will increase the frequency of whole class engagement in the target pro-social behaviour of *working as a team.*
3) The GBG will increase the frequency of whole class engagement in the target pro-social behaviour of *supporting peers.*

Experimental design

As the research intended to assess the efficacy of an operant-conditioning based intervention, single-case research design was chosen (Cooper et al., 2007). In single-case research design the subject acts as their own control with the behavioural intervention positioned as the Independent Variable (IV) and the targeted behaviour change positioned as the Dependent Variable (DV) (Kazdin, 2011). An ABAB reversal design was used to empirically assess the effectiveness of the teacher implemented version of the GBG.

A reversal design moves across several conditions. The baseline condition observers rates of target behaviour (DV) before the intervention is put in place (IV). The first intervention phase observes any changes in behaviour in response to the intervention (IV). In the reversal phase the intervention (IV) is removed. If behaviour rates (DV) return to baseline levels then experimental control is said to have been shown (Cooper et al., 2007; Kazdin, 2011). A second intervention phase (IV) can confirm experimental control (Cooper et al., 2007; Kazdin, 2011).

In the field of Applied Behaviour Analysis it is argued that single-case research design compromises a true experiment as experimental control is demonstrated (Cooper et al., 2007; Kazdin, 2011). However, when implemented in complex and ever evolving contexts, such as a school classroom, it can be also be positioned as a quasi- experiment where there is some degree of experimental control but the impact of other variables is acknowledged (Huitema, 2011) (see 'Limitations' for further discussion).

Subjects

Subjects were twenty seven children between the ages of eight and ten *(M* = 9.4*)* who were part of a Year Five classroom in a mainstream primary school. 58% were female and 42%

were male. The ethnic composition of the class was predominantly White-British with around a third of pupils being of Asian-British heritage.

The class teacher remained consistent throughout the study. The teacher was male and had two years' experience teaching. He had a bachelor's degree in primary school education.

Setting

The recruited school was geographically located within a large urban area of a major UK city. The school was single form entry and had 225 pupils on role, slightly smaller than the national average. It had an OFSTED rating of 'Good'.

The GBG sessions took place in the same classroom for the entirety of the study. Sessions took place once a day, at the same time, during the first lesson of the day. The lesson subject alternated daily between 'literacy' and 'maths'. The game was played during group work time. The duration of group work time was not controlled as the teacher chose the length of time they wished for pupils to work together; it was felt this reflected the applied educational nature of the research. Sessions lasted for a mean of 31 minutes (range 25 – 32).

The classroom was an average sized classroom on the second floor of the main school building. The classroom had windows down one entire side of the room. There were three other walls, with no windows, and one door leading into the corridor. The front of the class had a white board and the class teacher’s desk. There were five table groups distributed in the remaining space. Table groups ranged between 4-6 pupils per desk. All pupils could orient towards the front of the class. Pupils had a specified individual seat which they occupied at the start of the class, but seating arrangements changed throughout a lesson based on task requirements and at the direction of the class teacher. During group work, when the game was played, this allowed for different pupils to interact with a range of peers. Pupils sat at the

desks during group work. The two research behaviour observers sat at the back of the class and had a clear view of the entire classroom.

Target responses and data collection

Target responses (social skill behaviours) were developed after an initial classroom observation and discussion with the class teacher to pinpoint social behaviours for change that had social validity for the participating class. The operationalised target responses were *positive social interactions with a peer*, *working as a team* and *supporting peers.*

Two observers recorded occurrences of targeted responses. Observer one was the principal investigator of the research project. Observer two was a doctorate student of Educational Psychology and did not have input into the development of the research project. Observer two observed for the purpose of inter-observer agreement to assess reliability of observation data (see 'Inter-observer agreement').

Observers recorded an occurrence of *positive social interactions with a peer* if a participant interacted with a peer for at least three seconds using a measured tone of voice which was of a medium audible volume and faced the individual with a reasonable distance between them. They also must have displayed an open body posture and had a relaxed, approachable facial expression. Observers recorded an occurrence of *working as a team* when a participant engaged in joint work with a peer for at least 3s. For example, jointly working out a maths answer. Observers recorded an occurrence of *supporting peers* when a participant made an encouraging or praising comment to a peer, such as "you can do this" or "that's really neat colouring in". Responses were recorded as frequency measures. Targeted responses were scored as an occurrence each time a pupil in the class engaged in that response.

Observers recorded the occurrence of p*ositive social interactions with a peer, working as a team* and *supporting peers* using a paper and pen data sheet system. Data collection was

completed by the first author and a doctorate research candidate, who provided secondary data for inter-observer agreement.

Inter-observer agreement

Inter-Observer Agreement (IOA) data was collected by having two independent data collectors simultaneously observe pupils and record the frequency of target responses. IOA was collected for 40% of the total number of observation periods. This was distributed equally between baseline, intervention and reversal experimental phases.

Procedure

Teacher Training

The class teacher was trained in what the GBG entails and how to set up and implement the intervention during a training lecture that occurred before the intervention procedure began. The training lecture lasted for an hour. During the lecture what the GBG entailed was outlined, supporting research literature was presented and the rationale for the current research explained. The training lecture then concentrated on explaining how to implement the GBG. Time was scheduled immediately afterwards for the class teacher to ask questions in order to give immediate clarification. After the training lecture the researcher played a game of the GBG with a different class within the school which the teacher of the target class observed; this demonstrated the GBG. Due to teaching time restraints for the class teacher a competency-based model was not followed. However, the researcher provided informal feedback to the class teacher after each time the GBG was played.

Baseline phase

During baseline, the GBG was not played. The class teacher implemented lessons as usual. No planned reinforcement was made available for positive social interactions, aside from typical

positive verbal statements from the class teacher. A whole class reward system was in place prior to the research study. This was an interdependent group contingency whereby the whole class was awarded 5 marbles (placed into a jar) when all pupils met behavioural expectations set out by the teacher. During baseline and during typical classroom instruction the reward of five marbles was available for engagement with behavioural expectations regarding compliance behaviours such as remaining on task, but not for social behaviours. When the jar was full the whole class had access to a highly prized reward, such as a class trip to a theme park or zoo (the jar was full when one hundred and twenty marbles were inside of it). Baseline observations remained until a downward trend in the data was observed.

Intervention phase one

After the baseline phase the first intervention phase involved the GBG being played with the class. This was implemented by the class teacher. The version of the GBG implemented in the study was based on the original GBG with alterations made to accommodate the purpose of the current research (Barrish et al., 1969). The altered version of the game rewarded rule following rather than punitive rule infraction. The game focused on increasing positive social behaviours rather than focusing on increasing compliance with classroom rules.

The GBG was initially introduced to the class during a thirty minute presentation. The session was conducted by the researcher and the class teacher. The session outlined what the GBG was and how it was played using a Powerpoint presentation. The class teacher explained to the group that they were going to be playing the GBG in order to encourage them to get along better with each other and to work well together during group activity work. Examples and non-examples of the three target social behaviours were modelled to the group. Then, role play of the three target behaviours between pupils occurred with feedback from the session

presenters. The opportunity for pupils to have questions answered about the GBG was offered. An example run of the game was then played.

When the GBG was implemented, the class teacher would first announce to the class that the GBG was going to be played. The class teacher was provided with a short script to remind participants of how the game was going to be played. The class was then reminded of the three rules which were:

1. We will show positive behaviour towards each other:

- Use calm voices
- Use friendly body language
- Use friendly faces

2. We will work as a team:

- Ask questions of each other
- Contribute and share the work load

3. We will support our peers:

- Praise each other
- Encourage each other

A4 size posters displaying the rules of the game were put on the classroom walls so all participants could see one at any time.

The class was not split into teams but played the GBG as one team. This decision was made collaboratively with the class teacher. It was made based on the idea that as the intervention

aimed to improve social interaction and cohesion amongst pupils, then playing as one team supported this; it fostered a team spirit, rather than inter-team competitiveness.

During game play, any time a rule was observed to be followed by the class, the class teacher awarded a point to the whole team. The teacher would verbally praise the whole group for the point and give explicit feedback on the social behaviour that had won the point. Points were displayed on a large sheet of paper at the front of the class.

At the end of play the teacher revealed if the group had won or lost the GBG. The group won the GBG by scoring more points than a pre-set criterion for winning. The criterion for winning was kept secret from the class until game play had ceased. The criterion was initially set slightly lower than the average baseline number of occurrences of target social behaviour. This was done to enable the class to contact reinforcement during the first time the GBG was played. The criterion for winning the game was then varied across game play sessions based on the final score for the previous game. Over time the criterion was increased to encourage an increase in the frequency of social behaviour. To start with, the criterion was gradually increased, but as increasing behaviour change was observed larger jumps were implemented. In this way, the criterion for winning the game produced motivation for participation. Table one shows the criterion for winning each session.

Session	**Criteria for winning The GBG (amount of points)**

Intervention phase one	
1	15
2	12
3	14
4	30
5	31
Intervention phase two	
1	25
2	40
3	41
4	45
5	50

Table one: Criterion for winning The Good Behaviour Game during each game session.

If the class won the GBG the class teacher would announce their success. The whole class then gained access to the reward. The reward was five marbles for the class marble jar. This was a highly motivational reward as it allowed the class to work as a team to gain prized marbles, and utilised pre-existing motivation and buy-in to classroom-based rewards.

If the group had not won the GBG they did not have access to the reward and were told that they would have an opportunity to play the GBG again tomorrow. Verbal feedback was offered

on which behaviours they could focus on more next time to win. The GBG was played until an increasing stable trend was observed.

Reversal phase

During the reversal experimental phase the GBG was not played. The class teacher conducted the lesson as usual. No reinforcement was made available for positive social interactions, excepting typical positive verbal statements from the class teacher. The whole class reward of marbles for the marble jar was still available for other behaviours, such as remaining on task, but not for social behaviours. The reversal phase lasted 4 sessions as a return to pre-baseline rates and a downward trend was observed.

Intervention phase two

After the reversal phase a second intervention phase was implemented. The GBG was played in the same way it had been during intervention phase one.

Ethical considerations

Ethical approval for the research study was granted by the University of Birmingham's Ethical Review Board.

Results

Figure one displays the frequency of occurrences for the three target social behaviours across experimental phases. The baseline observations for *positive social interactions* showed mostly stable variability with a low to moderate level, demonstrating no trend (M = 6). When the GBG was introduced there was an eventual change in level, with a change from no trend to an overall increasing trend with a reasonably steep slope and some moderate variability to the data (M = 13). Upon removal of the intervention there was an instant change to a low level. Data remained stable with a slight decreasing trend (M = 3). When the GBG was introduced a second time

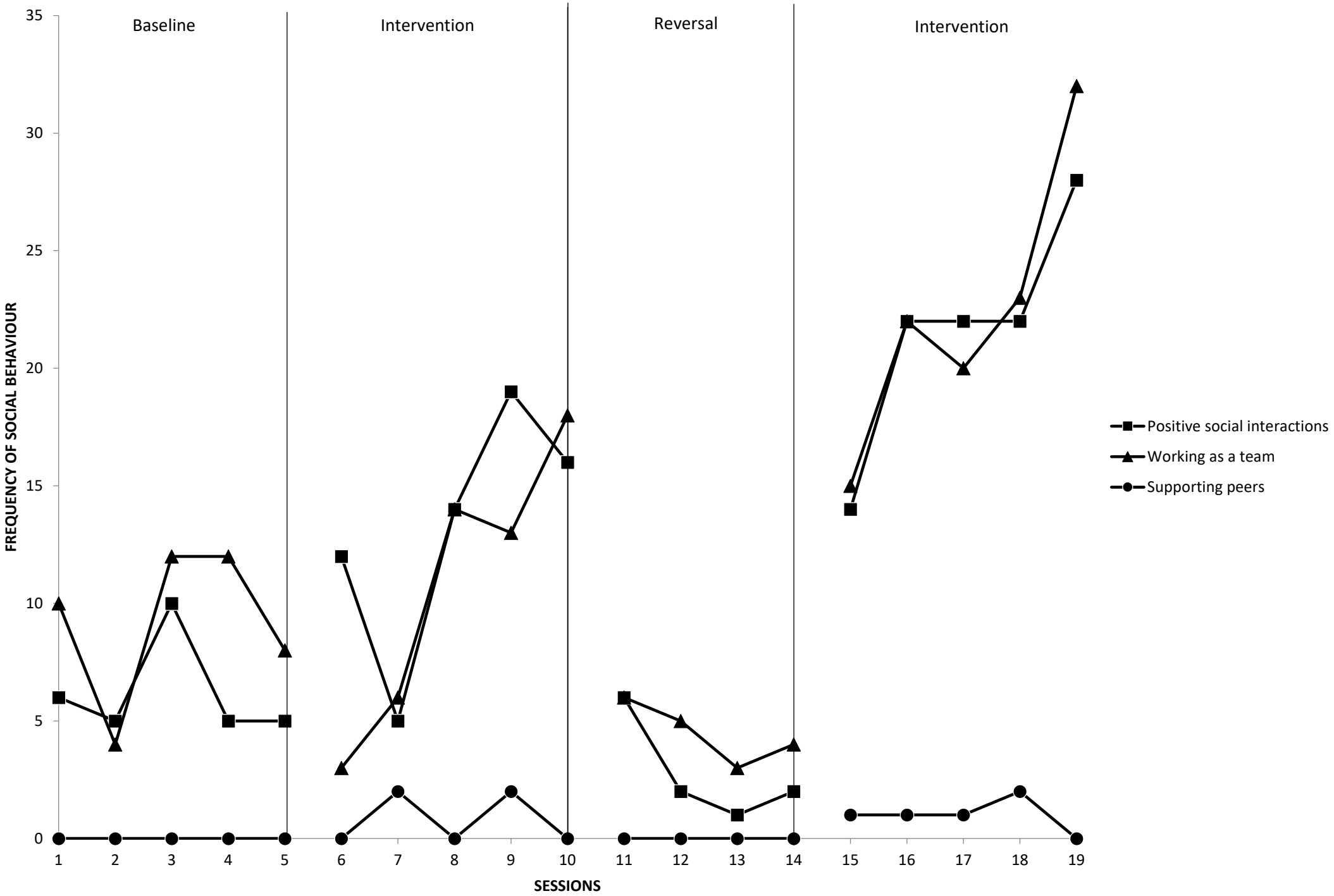
there was a marked change in level with the stable data demonstrating an increasing trend (*M* = 22). These findings show that hypothesis one was met and the GBG demonstrated an increase in the frequency of whole class engagement in the targeted pro-social behaviour of *positive social interactions with a peer.*

The baseline observations for *working as a team* showed a moderate to low trend with moderate variability and no trend (*M*= 9). Implementation of the GBG resulted in an initial decrease in level followed by a steep increasing trend with stable variability (*M*= 11). When the GBG was removed there was an instant change to a low level with stable data showing a decreasing tend (*M*= 6). Upon reintroduction of the GBG there was a marked change in level with an increasing trend and very slight variability (*M*= 22). These findings show that hypothesis two was met and the GBG demonstrated an increase the frequency of whole class engagement in the targeted pro-social behaviour of *working as a team.*

The baseline observations for *supporting peers* demonstrated a low level with no trend and stable variability (*M*= 0). When the GBG was implemented there was a very slight increase in level with no trend (*M*= 0.8). When the GBG intervention was removed the trend, variability and level were the same as they had been during baseline (*M*= 0). Upon the second implementation of the GBG, there was a very small increase in level with no trend. This was followed by a decrease in trend with the data showing no variability (*M*= 1). These findings show that hypothesis three was not met and the GBG did not demonstrate an increase in the frequency of whole class engagement in the targeted pro-social behaviour of *supporting peers.*

In summary, observation data for *positive social interactions* increased in level and demonstrated an increasing trend during the GBG intervention experimental phases and decreased in level and demonstrated a decreasing, or no trend, during baseline and reversal experimental phases. Data showed a consistent slight variability throughout experimental

phases. Observation data for *working as a team* showed a similar pattern of a decreasing, or no trend, with a low-level during baseline and reversal experimental phases and an increase in level and an increasing trend during the GBG intervention experimental phases. The data showed a very slight variability during the baseline phase only and showed stability in all other experimental phases. Observation data for *supporting peers* demonstrated a consistent low level with no variability or trend across all experimental phases.


Baseline
Intervention
Reversal
Intervention
FREQUENCY OF SOCIAL BEHAVIOUR
SESSIONS
0
5
10
15
20
25
30
35
1
2
3
4
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6
7
8
9
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11
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14
15
16
17
18
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Positive social interactions
Working as a team
Supporting peers

Social validity

The social validity of the GBG intervention was assessed using the Usage Rating Profile Inventory (URP-I) (Chafouleas, Briesch, Riley-Tillman & McCoach 2009). The URP-I consists of 29 items which are rated on a scale of one to six where one is strongly disagree and six is strongly agree. The items cover the categories of acceptability of intervention, understanding of intervention, feasibility of the intervention and support for implementation. The class teacher who implemented the GBG completed the URP-I.

Table two presents overall URP-I scores, as well as ratings for acceptability, understanding, feasibility and systems support. A higher score indicates a higher level of intervention acceptability. However, for systems support a lower score is desirable as it indicates greater ability to implement the intervention independently.

Rater	**Acceptability**	**Understanding score**	**Feasibility score**	**Systems support**	**Total**
Class teacher	61/78	43/48	41/48	15/36	160/210

Table two: Social validity scores as measured using the URP-I.

The scores demonstrate that the class teacher thought they had a good understanding of the GBG (understanding score), they felt they could implement it without additional help (systems support score) and the intervention was feasible (feasibility score). The GBG was viewed as acceptable for use (acceptability score).

Inter observer agreement

IOA was calculated using the formula: (Number of times the observers agree / total number of observations) X 100. If an interval occurred where neither observer recoded a response, then these were counted as 100% agreement. There was an agreement of 86%.

Discussion

The purpose of the current study was to evaluate an adaption of the GBG to support whole class social skills development by increasing pupil engagement in pro-social behaviour. The study evaluated the implementation of the adapted the GBG in a mainstream classroom setting, during group work time. The study also provided additional analysis of the effectiveness of a rule follow version of the GBG.

The results demonstrate that the GBG was partially successful in increasing targeted social skills behaviour. For the target behaviours of *positive social interactions* and *working as a team*, the data can be interpreted as showing that the GBG was an effective intervention for changing behaviour at the group level, in a desirable direction, for these specific behaviours. For the target behaviour of *supporting peers* there was no noticeable change in behaviour as a result of the GBG. This leads to the interpretation that, for this specific behaviour, the GBG was not an effective intervention for changing the behaviour of the group.

One plausible explanation for the lack of change in the behaviour *supporting peers* is that this behaviour represents a skill acquisition deficit rather than a skill performance deficit (Gresham, 1997). Baseline levels of engagement in behaviours *positive social interactions* and *working as a team* indicate that pupils already knew how to perform these behaviours and did so. Lack of engagement in *supporting peers* at baseline could be an indication that this behaviour was not present in their collective behaviour repertoire; it constituted a skill deficit. As the GBG rewarded behaviours that were already engaged in, to increase their frequency, it would not

likely have had a measurable impact on behaviours that require further intervention to learn how to do. It is likely that a more successful intervention for increasing *supporting peers* would have involved further explicit teaching of this skill prior to the GBG intervention via methods such as group work, role play, modelling and feedback etc. This type of approach would have been more fitting for social interaction difficulties thought to arise from an acquisition deficit.

Although prior to the GBG implementation all target behaviours were modelled to and role played by pupils, this only occurred once. Behavioural based social skill intervention packages aimed at targeted groups emphasise the need for multiple learning opportunities over a period of at least 6 to 8 weeks (Bellini et al. 2007; Callahan et al., 2017; Cook et al., 2008; Maag, 2006; Spence, 2003). It is plausible to predict that if further specific skill modelling and role play had occurred, then a corresponding increase in the frequency of *supporting peers* may have been observed.

The findings therefore demonstrate that the GBG is adaptable to promote whole class engagement in existing social behaviours and is potentially further adaptable to support the generalisation of newly acquired social skills. It can be hypothesised that behaviours developed through a social skills intervention could be encouraged in the generalised classroom context through employment of the GBG.

These reflections are consequential in the context of previous research that attempted to specifically adapt the GBG to target social behaviours. Dolan et al. (1993) successfully demonstrated that the GBG could be adapted to reduce shy behaviours. The current research's findings provide evidence for the initial impetus that Dolan et al. (1993) provided for the GBG being employed to positively affect social behavioural development. The research findings are also notable as they differ from the findings of Parrish (2012) where the GBG did not

successfully increase pro-social behaviours. Therefore, the current research indicates that the GBG can be adapted to target positive social behaviours.

As the current study used a rule follow version of the GBG it adds to a growing body of literature demonstrating that this version of the intervention is effective for promoting engagement in desirable behaviour. (Robertshaw & Hierbert, 1973; Darch & Thorpe, 1977; Lutzker & WhiteBlackburn, 1979; Fishbein & Wasik, 1981; Swain et al., 1982; Rodriguez, 2010; Parrish, 2012). As such, it lends itself to educational contexts where social behaviour is sought to be encouraged. There is evidence to suggest that schools set expectations for social behaviour and punish 'rule infraction' but are less likely to reward rule following (Skiba & Peterson 2000; Sugai & Horner, 2002). The current research supports the notion that social behaviour is successfully changed in educational settings by rewarding occurrences of positive behaviour and rule following. Schools may wish to consider the use of positive, rewarding measures over punitive forms when targeting social behaviour.

Social validity is an important measure for assessing the acceptability of an intervention for its users (Wolfe, 1978). The GBG scored positively for social validity when rated by the class teacher. This shows that an adapted version of the GBG for social behaviour would potentially be readily used by class teachers and viewed as favourable.

Limitations

The study is subject to several limitations. Due to the amount of time and resources the school could donate, the GBG was evaluated with one class for nineteen weeks. Further replication would have strengthened the conclusion that the intervention was effective. If the practical considerations had been different then the scope of the evaluation of the GBG could have been widened to include a replication. For example, replicated with the same class, replicated with a different class in the same school or replicated with a different class in a different school.

Likewise, a ‘follow up’ additional experimental phase which would have observed targeted behaviour after the final experimental phases would have strengthened experimental control.

Another limitation is a lack of analysis for generalisation of intervention effects. The study showed that the GBG effected behaviour change in the context in which it was played. Any potential behaviour change beyond this context was not observed as part of the experimental design. Observations in other contexts, such as the playground or the afternoon, would have allowed an analysis of generalisation outside of the classroom setting. A follow up of the GBG could have involved an ABABC reversal design where ‘C’ is observational data taken after a specified amount of time has elapsed from the last implementation of the GBG. It would be hoped that the rates of the target behaviours would have remained at similar levels indicating generalisation and continuation of intervention effects.

A final limitation is a need for social validity for the GBG to be collected from the pupils in the class. Whilst the teacher was consulted, the acceptability of the intervention for the class is also valid and the experience of participants is important data to review. A replication may consider utilising social acceptability ratings with participant

Further research could experiment combining the GBG with a consistent behavioural social skills training package for targeted behaviours. The behavioural social skills training would target behaviours representing a general acquisition deficit within a specific group or whole class. The GBG would be conceptualised as a method of group contingency management to promote generalisation of newly acquired social skills and / or motivation for engaging in social behaviours arising from a performance deficit.

As previously touched upon when reviewing the study’s limitations, further replication is also warranted to strengthen the findings. Replication could occur with different age groups or in different contexts, such as the playground.

The research design is also subject to a critique of its limitations. Reasonable efforts were made to demonstrate experimental control and ensure data validity, such as the use of a reversal phase and the use of a second observer for inter-observer reliability. However, given the real-world context that the research took place in some variables could not be controlled for. For example, the time of day that the intervention took place in was not held constant. As such, the research design could be positioned as a quasi-experiment seeking to make a balanced judgement of the effectiveness of real-world educational practice. Because of this, the results should be interpreted with caution.

Conclusion and relevancy to educational psychology practice

In summary, results from the current study provide evidence that the GBG can be adapted to promote engagement in social skill behaviour in a mainstream classroom. As such, it could be utilised by EPs and teachers to promote whole class social skill development. The findings also demonstrate that in such contexts the GBG would be most effective when utilised to promote further engagement in social behaviours already existent in a skill repertoire. Lastly, it is recommended that a rule follow version of the game is played, as this was shown to increase the occurrence of positive social interactions.

In conclusion, the GBG offers a highly relevant intervention for EPs to utilise to promote social skill development at the whole class level. It is rooted in a successful extension of a strong evidence base, which meets EPs stringent appraisal of any intervention's accompanying research literature. Further to this, it confers many benefits that render it easy to apply, making it a readily usable intervention by EPs in their practice.

Firstly, as it is a straightforward intervention, it is quick for EPs to train teachers in how to use the GBG, taking between one to two hours. This is beneficial, as EP time is increasingly valuable and schools who buy into services seek financially viable training options. Along the

same line of argument, after paying for training the GBG is very low cost to implement, requiring no additional funding to be allocated for extra resources and staff time.

Lastly, the GBG is an intervention that can affect whole class behaviour but requires minimal changes to existing classroom practice as it is played during regular teaching practice. EPs seek this quality in interventions as they are aware of the need to adapt and curate practice to each individual school setting that they work with. As such, the existence of a low cost, easy to implement intervention, that also has an existing evidence base, will be of interest to EPs working with teachers to promote positive social behaviour and social skill development at the whole class level.

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