

# *Feasibility, Contributions, and Challenges of Integrating Applied Behaviour Analysis Techniques into Mainstream Classrooms*

**Yichen Zhang**

*Queen's University Belfast, Belfast, Northern Ireland, BT7 INN, UK*

**Keywords:** Applied Behaviour Analysis, Behaviour Analysis, Effective Teaching, Mainstream Classrooms

**Abstract:** This paper provides a critical examination of the feasibility of applying Applied Behaviour Analysis (ABA) techniques in mainstream classroom settings. By systematically reviewing relevant literature and case studies, the study explores the potential benefits and challenges associated with this integration. Functional Behaviour Assessment (FBA) plays a crucial role in identifying the antecedents and consequences of behaviours, thereby enabling educators to develop targeted interventions. However, questions arise regarding the adaptability of these interventions in large, multicultural classroom environments. Overall, this study highlights both the contributions and challenges of implementing ABA techniques in mainstream classrooms.

## **1. The Contribution of Behaviour Analysis in Education**

### **1.1 Behaviour Analysis and Education**

Behaviour analysis is a discipline focused on understanding and modifying human behaviour. Fisher [1] categorises behaviour analysis into behaviourism, experimental behaviour analysis, and Applied Behaviour Analysis (ABA). ABA, in particular, is a science that offers considerable benefits to all students within educational settings. Its methods originate from the systematic application of behavioural principles to enhance socially significant behaviours, using experiments to identify the variables that facilitate behaviour modification [2]. This scientific approach potentially enables practitioners to employ a data-driven framework for continuously assessing the efficacy of their interventions. Specifically, it equips practitioners with the tools to effect behaviour change through the skilful procedures for applying behavioural-based principles.

Applied Behaviour Analysis (ABA) has been employed in various fields and has demonstrated significant success in the treatment of autism spectrum disorders [3]. Nonetheless, the debate over its application in mainstream classrooms remains contentious. Cione-Kroeschel [4] notes that teachers in mainstream classrooms also encounter students exhibiting challenging behaviours, such as aggression towards peers and difficulty concentrating during lessons. This issue is exacerbated in classrooms with a large number of students, where mainstream teachers may face numerous concurrent challenges [5]. Faced with such behaviours, many teachers fail to adopt effective strategies,

opting instead to ignore the issues, which places students at a higher risk of continuing problematic behaviours [6]. Thus, it is crucial for mainstream classroom management that teachers understand the underlying causes of students' challenging behaviours and implement effective strategies to address them [7].

## 1.2 Functional Behaviour Assessment

Functional Behavioural Analysis (FBA) represents a structured methodology capable of elucidating the nexus between antecedents and consequences of behaviours [8]. Its application proves instrumental in rectifying deleterious behavioural patterns among students within academic settings. Furthermore, the judicious selection of measures subsequent to Functional Behavioural Assessment surpasses arbitrary selection in efficacy [9]. Vargas [10] posits that learning manifests as behavioural modifications resultant from environmental interactions, with distinct environments yielding disparate behavioural outcomes. For example, a child's crying subsequent to a knee injury may stem from motives beyond pain, such as a bid for attention from peers. Conversely, if the child previously endured taunting for displaying vulnerability, emotional suppression might ensue, precluding tears in similar circumstances (Ibid).

Vargas [11] operationalized the target behaviour as the dependent variable and scrutinized its modulation through manipulation of independent variables. Through meticulous analysis and inference drawn from documented observations, the genesis of challenging behaviours could be discerned [12]. During behaviour functionality assessments, educators abstain from intervening in observed behaviours to prevent inadvertent reinforcement of challenging conduct, underscoring the necessity for a comprehensive understanding of behavioural causality [10]. Functional assessment constitutes an ongoing process rather than a singular event, as environmental dynamics evolve alongside circumstantial changes, precipitating distinct trajectories of behavioural evolution for each student (Ibid).

By apprehending the authentic potential independent variables underlying challenging behaviours, educational personnel can tailor behavioural interventions with precision [6]. Research conducted by Beavers, Iwata, and Lerman [13] demonstrates that interventions derived from behavioural assessment outcomes prove not only efficacious in mitigating challenging behaviours but also in fortifying desired behavioural patterns. Furthermore, findings from the study conducted by Pelios [14] suggest that Functional Behaviour Assessment holds the capacity to positively reinforce constructive behaviours.

## 1.3 Effective Classroom Management

According to Everston and Weinstein [15], educators are entrusted with the task of fostering an environment conducive to both academic and socio-emotional development among students. Effective classroom management not only cultivates strong teacher-student relationships but also establishes a positive learning atmosphere. Furthermore, it emphasizes proactive measures rather than passive correction [16]. According to Brophy [17], the most significant improvements in student behaviour occur when classroom management systems adhere to three fundamental principles.

- 1) 'Emphasize student expectations for behaviour and learning.'
- 2) 'Promote active learning and student involvement.'
- 3) 'Identify important student behaviours for success.'

Firstly, Whole Class Peer Tutoring emerges as an exceptionally efficacious classroom management technique, entailing students forming study groups and alternating roles as tutor and learner. This approach proves conducive to bolstering student engagement within the classroom milieu, particularly within primary and secondary educational settings [18]. According to Delquadri

et al. [19], a diverse array of students, including those with mild disabilities, stand to benefit from Whole Class Peer Tutoring. Additionally, both educators and students have reported deriving enjoyment from their respective roles in the process [20]. Secondly, choral response and response cards stand out as highly effective methods for maintaining classroom order [21]. Choral response entails the teacher posing a question, followed by students collectively vocalising their answers, whereas response cards involve students inscribing their responses on cards and then displaying them for the teacher's appraisal [22]. Both techniques harness active student participation to heighten engagement (Ibid). When students engage in chorally responding or inscribing answers on cards, they immerse themselves in the cognitive processes of reflection and response. This not only sustains their focus on classroom content but also serves as a deterrent against distractions that may precipitate negative behaviours.

## **1.4 Proactive Prevention Strategies**

Within a conducive classroom environment, proactive prevention strategies encompass the measures educators employ pre-emptively, prior to the manifestation of challenging behaviours among students, involving the anticipation of potential negative behaviours [23]. Moreover, Webb and Barrett [24] advocate for the cultivation of robust teacher-student relationships as a stellar proactive strategy, exemplified by identifying common interests and fostering open dialogue. For instance, collaboratively setting goals with students can enhance their sense of accountability, thereby effectively averting challenging behaviours [16]. According to Ghaemmaghmi et al. [25], functional communication training stands out as a therapeutic modality aimed at augmenting positive behaviours while diminishing negative ones. This approach endeavours to instil positive functional communication patterns and has yielded notable efficacy across various research studies [26].

Furthermore, facilitating the development of self-management skills among learners is imperative for fostering independent learning [27]. Research indicates its efficacy in enhancing student productivity and mitigating the likelihood of engaging in disruptive behaviours. According to Joseph and Konrad [28], successful adoption of self-management hinges on students perceiving learning as an ongoing journey. It is advocated that self-management empowers students to monitor their behaviour and record data to evaluate their advancement. This process affords them a comprehensive understanding of their progress, facilitating informed decision-making regarding the most efficacious solutions. Consequently, students can self-assess, receive timely feedback, and refine their learning efficacy and progression. McDougall and Brady [29] contend that while self-management finds application within the special education domain, it also serves as a proactive measure in averting challenging behaviours among mainstream students.

## **2. Challenges of Applying Behaviour Analysis in the Mainstream Classroom**

### **2.1 Positive Behaviour Support**

Positive Behaviour Support (PBS) constitutes an approach aimed at effecting substantial social behavioural transformations through the implementation of positive behavioural interventions [30]. Its primary objective revolves around the implementation of school-wide behavioural preventive measures, encompassing training for teaching staff, formulation of comprehensive school-wide behavioural support plans, assignment of role responsibilities, and efficacy evaluation. Notably, this intervention reinforces positive student behaviours while accentuating preventive measures, with its effectiveness evaluated based on discerned data through collaborative efforts with educational institutions [31] [32]. Numerous studies have underscored PBS's efficacy, highlighting its equivalence in effectiveness within mainstream classroom settings [33].

Taking the experiment conducted by Luiselli et al. [34] as an illustrative example, they set within an urban primary school in the Midwestern United States. The experiment delineated a protocol wherein school staff recorded instances of challenging behaviours, such as altercations with peers and classroom disruptions, exhibited by students. Upon reaching a predetermined threshold of negative behaviours, students were referred to the school office. Upon reaching a standardized frequency of office visits, students faced suspension from school for a duration ranging from one to nine days. Concurrently, students were instructed on expected positive behaviours and incentivized with rewards such as movie tickets and coupons for adhering to campus rules and exhibiting positive conduct. The outcomes of the experiment demonstrated that this intervention strategy not only markedly diminished problematic behaviours among students but also bolstered their academic performance.

However, Applied Behaviour Analysis (ABA) in education is not without its imperfections, as argued by some scholars who suggest that certain independent variables remain unaccounted for Vargas [10]. Firstly, the participants in the study hailed from diverse ethnic and cultural backgrounds, with 10% identifying English as their second language. Consequently, it merits consideration whether language barriers influenced the study data [35]. Secondly, while positive interventions were implemented through rewards such as cinema tickets and vouchers, the determination of who received a reward in this study was contingent upon a lottery system. Consequently, this method potentially exacerbated the behaviour of participants who did not receive a reward [10]. Additionally, the fluctuating student population in the primary school under study, which transitioned from 666 to 590 students in the first school year, due to student departures and arrivals, altered the cultural and interpersonal dynamics among participants. This factor may have introduced errors into the experimental data (Ibid). It is evident that although positive behavioural support can significantly ameliorate challenging behaviours among students in mainstream classrooms, there remains a necessity for refinement in the implementation strategies.

Moreover, drawing from my teaching experience in a disadvantaged primary school in China, I encountered a scenario where two students engaged in a physical altercation during a lesson, while others roamed the classroom, engaging in profanity-laden conversations. Amidst attempts to restore classroom order, another student expressed intentions of self-harm. Consequently, it could be contended that devising distinct positive behaviour intervention plans for individual students might pose a formidable challenge [36]. Given China's substantial population, classroom sizes at the elementary education level may swell to accommodate 50 to 70 students per class [37]. Consequently, the complexity of challenging behaviours that may manifest within the classroom setting becomes heightened. When implementing Positive Behaviour Support in mainstream schools in China, the initial hurdle involves addressing challenges related to teacher resources and financial constraints. As noted by Grey et al. [3], mainstream schools often confront shortages in skilled practitioners and financial allocations compared to special education institutions. Additionally, the introduction of this behavioural intervention may encounter resistance from parents at the elementary education level. This opposition stems from concerns about their children being used as experimental subjects, thereby presenting a significant barrier to the adoption of Positive Behaviour Support in mainstream classroom settings [38].

Furthermore, conducting long-term evaluations and obtaining feedback on the effectiveness of Positive Behaviour Support (PBS) initiatives can prove challenging [34]. For instance, when students transfer to different schools, continuity of their PBS programmes becomes arduous, rendering it difficult to assess the efficacy of subsequent interventions. Consequently, it could be contended that facilitating the exchange of positive behaviour support intervention plans between the previous and new schools for transferring students would not only enable effective tracking and evaluation of intervention outcomes but also streamline the process of plan reformulation, thus saving time and

resources.

## 2.2 Punitive Procedures

According to Cooper, Heron, and Heward [2], punitive procedures are characterized as methods aimed at reducing negative behaviours by altering the environmental conditions. In behaviour analysis contexts, they entail administering consequences to individuals exhibiting challenging behaviours, with the intention of decreasing the likelihood of recurrence of such behaviours in the future. Furthermore, punitive procedures can be categorized into positive and negative punishments. Fisher, Piazza, and Roane [39] elucidate that positive punishment involves the application of aversive stimuli following the occurrence of challenging behaviour, whereas negative punishment entails the removal of desired stimuli subsequent to misbehaviour. Both forms of punitive procedures are designed to diminish the probability of future occurrences of misbehaviour. However, the utilization of punitive procedures in educational settings has sparked controversy [40]. While Shaw and Simms contend that punitive procedures, when employed in conjunction with reinforcement strategies, can be highly effective in ameliorating negative behaviours, DiGennaro Reed and Lovett argue that punishment is ethically problematic and carries numerous adverse consequences compared to reinforcement strategies, particularly when addressing challenging behaviours [41]. Moreover, it could be argued that many punitive measures fail to effectively intervene or may even exacerbate negative behaviours due to the implementation of inappropriate punishments by educators. For instance, a primary school teacher publicly shamed a student for chronic tardiness, resulting in adverse physical and psychological effects on the student, who subsequently became disinclined to engage with teachers, peers, or even family members [42].

In the past, punitive procedures were extensively employed in Chinese education, particularly within basic education and family upbringing contexts [43]. However, societal advancements have brought about a shift in attitudes towards punitive measures in education, with an increasingly negative stance emerging. This transformation stems from the realization that many students have suffered physical and psychological harm due to inappropriate punitive actions [44]. As highlighted by Fisher, Piazza, and Roane [39], punitive procedures implemented for whole-class management may inadvertently elicit additional negative behaviours and prove less effective in managing disruptive behaviours. In response to these concerns, the government at the elementary education level has instituted prohibitions on various forms of punishment, such as standing punishment [45]. Nevertheless, within family settings, there persists a prevalence of inappropriate punitive measures administered by parents [46]. It could be argued that the adverse perceptions surrounding punitive procedures largely stem from educators' lack of proficiency in selecting appropriate punishments, which may inadvertently reinforce inappropriate behaviours or cause harm to students [42]. Additionally, Fisher, Piazza, and Roane [39] suggest that negative punitive procedures are less likely to inflict harm on students in basic education compared to positive punitive measures.

## 3. Conclusion

In conclusion, behaviour analysis holds relevance in mainstream classrooms for assessing student behaviour. And Applied Behaviour Analysis (ABA) emerges as an effective tool in reducing challenging behaviours among students, while concurrently reinforcing positive behaviours and facilitating academic improvement [10]. Functional behavioural assessment, classroom management strategies, and proactive prevention measures have demonstrated efficacy in addressing students' behaviour in mainstream educational settings, thereby highlighting the research significance of behaviour analysis in this context. However, despite its potential benefits, the application of behaviour analysis in mainstream classrooms faces several challenges, including the need for teacher



training and inadequate funding. Additionally, the use of punitive procedures requires careful consideration to prevent harm to younger students. Therefore, while behaviour analysis can indeed be applied in mainstream classrooms, it necessitates the development of appropriate interventions and cautious implementation to ensure its effectiveness and mitigate potential risks.

## References

- [1] Fisher, W. (2021). *Handbook of Applied Behaviour Analysis*, (2nd ed.). Guilford Publications.
- [2] Cooper, J.O., Heron, T.E. and Heward, W.L. (2007). *Applied behaviour analysis* (2nd ed.). Upper Saddle River, NJ: Pearson/Merrill–Prentice Hall.
- [3] Grey, I.M., Honan, R., McClean, B. and Daly, M. (2005). 'Evaluating the effectiveness of teacher training in Applied Behaviour Analysis', *Journal of Intellectual Disabilities*, 9(3), pp. 209–227.
- [4] Cione-Kroeschel, J. (2021). 'Using Applied Behaviour Analysis Effectively in the Classroom'. *Applied behaviour analysis edu.org*. Available at: [www.appliedbehaviouranalysisedu.org/2021/11/aba-in-classroom/](http://www.appliedbehaviouranalysisedu.org/2021/11/aba-in-classroom/)
- [5] Tywman, J., & Heward, W., (2016). 'How to Improve Student Learning in Every Classroom Now', *International Journal of Education Research*, 87(1), pp.78-90.
- [6] Crone, D., Hawken, L. & Horner, R. (2015). *Building Positive Behaviour Support Systems in Schools: Functional Behavioural Assessment. Second Edition*. Guilford Publishing.
- [7] Postholm, M., (2013). 'Classroom Management: What Does Research Tell Us?', *European Educational Research Journal*, 12(3), pp. 389-402.
- [8] Cooper, J.O., Heron, T. E., & Heward, W. L. (2020). *Applied behaviour analysis* (3rd ed.). Pearson.
- [9] Iwata, B.A., Pace, G.M., Dorsey, M.F., Zarcone, J.R., Vollmer, T.R., Smith, R.G., Rodgers, T.A., Lerman, D.C., Shore, B.A., Mazaleski, J.L., Goh, H.L., Cowdery, G.E., Kalsher, M.J., McCosh, K.C. and Willis, K.D. (1994). 'The Functions Of Self-Injurious Behaviour: An Experimental-Epidemiological Analysis', *Journal of applied behaviour analysis*, 27(2), pp. 215-240.
- [10] Vargas, J.S. (2013). *Behaviour Analysis for Effective Teaching. Second Edition*. London: Routledge.
- [11] Vargas, J.S. (2009). *Applied behaviour analysis for effective teaching*. New York: Routledge.
- [12] Anderson, C. M., Rodriguez, B. J. and Campbell, A. (2015). 'Functional behaviour assessment in schools: Current status and further directions' *Journal of Behavioural Education*, pp. 338-371.
- [13] Beavers, G. A., Iwata, B. A. & Lerman, D. C. (2013). 'Thirty years of research on the functional analysis of problem behaviour', *Journal of Applied Behaviour Analysis*, 46, pp. 1–21.
- [14] Pelios, L., Morren, J., Tesch, D. and Axlerod, S. (1999). 'The impact of functional analysis methodology on treatment choice for self-injurious and aggressive behaviour', *Journal of Applied Behaviour Analysis*, 32(2), pp.185-195.
- [15] Evertson, C. M. & Weinstein, C. S. (Eds.) (2006). *Handbook of classroom management. Research, practice, and contemporary issues*. Mahwah, NJ: Larence Erlbaum Associates, Inc.
- [16] Korpershoek, H., Harms, T., de Boer, H., van Kuijk, M. & Doolaard, S. (2016). 'A meta-analysis of the effects of classroom management strategies and classroom management programs on students' academic, behavioural, emotional, and motivational outcomes.' *Review of Educational Research*, 86(3), pp. 643-680.
- [17] Brophy, J. (2006). 'History of Research on Classroom Management'. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues*, pp. 17–43. Lawrence Erlbaum Associates Publishers.
- [18] Greenwood, C. (1997). 'Classwide Peer Tutoring', *Behaviour and Social Issues*, 7(1), pp. 53-57.
- [19] Delquadri, J.C., Greenwood, C.R., Whorton, D., Carta, J.J. and Hall, R.V. (1986). 'Classwide Peer Tutoring', *Exceptional Children*, 52(6), pp. 535–542.
- [20] Maheady, L., Mallette, B. and Harper, G. (2006). 'Four Classwide Peer Tutoring Models: Similarities, Differences, and Implications for Research and Practice', *Reading & Writing Quarterly*, 22(1), pp.65-89.
- [21] Malanga, P. and Sweeney, W. (2007). 'Increasing Active Student Responding in a University Applied Behaviour Analysis Course: The Effect of Daily Assessment and Response Cards on End of Week Quiz Scores', *Journal of Behavioural Education*, 17(2), pp.187-199.
- [22] Tincani, M., and Twyman, J. S. (2016). *Enhancing Engagement Through Active Student Response*. Philadelphia, PA: Center on Innovations in Learning.
- [23] Denti, L.G. (2012). *Proactive classroom management, K–8: A practical guide to empower students and teachers*. Corwin Press.
- [24] Webb, N. and Barrett, L.O. (2014). 'Student views of instructor-student rapport in the college classroom', *Journal of the Scholarship of Teaching and Learning*, 14, pp.15-28.
- [25] Ghaemmaghami, M., Hanley, G.P. & Jessel, J. (2021). 'Functional communication training: From efficacy to effectiveness.' *Journal of Applied Behaviour Analysis*, 54, pp.122-143.

- [26] Lambert, J.M., Bloom, S.E. and Irvin, J. (2012). 'Trial-Based Functional Analysis and Functional Communication Training In An Early Childhood Setting', *Journal of applied behaviour analysis*, 45(3), pp. 579–584.
- [27] Cooper, J.O., Heron, T. E., & Heward, W. L. (2020). *Applied behaviour analysis (3rd ed.)*. Pearson.
- [28] Joseph, L.M. and Konrad, M. (2009). 'Have Students Self-Manage Their Academic Performance', *Intervention in School and Clinic*, 44(4), pp.246–249.
- [29] McDougall, D. and Brady, M.P. (1998). 'Initiating and Fading Self-Management Interventions to Increase Math Fluency in General Education Classes', *Exceptional Children*, 64(2), pp.151-166.
- [30] Sugai, G., Horner, R. H., Dunlap, G., Heineman, M., Lowis, T. J., Nelson, C. M., et al. (2000). 'Applying positive behaviour support and functional behavioural assessment in schools', *Journal of Positive Behaviour Interventions*, 2, pp.131–143.
- [31] Putnam, R. F., Handler, M. W., & Luiselli, J. K. (2003). 'Positive schools: A behavioural consultation, intervention, and prevention approach to student discipline', *Psychiatric Services*, 54, pp.1039.
- [32] Lewis, T. J., & Sugai, G. (1999). 'Effective behaviour support: A systems approach to proactive school-wide behaviour management', *Focus on Exceptional Children*, 31, pp.1–24.
- [33] Crone, D.A., & Horner, R.H. (2003). *Building Positive Behaviour Support Systems in Schools : Functional Behavioural Assessment*, Guilford Publications, New York. Available from: ProQuest Ebook Central. [21 April 2024].
- [34] Luiselli, J.K., Putnam, R.F., Handler, M.W. and Feinberg, A.B. (2005). 'Whole-School Positive Behaviour Support: Effects on Student Discipline Problems and Academic Performance', *Educational psychology (Dorchester-on-Thames)*, 25(2–3), pp.183–198.
- [35] Banks, J.A. (2013). 'Multicultural Education: Characteristics and Goals', in Banks, J.A. and McGee Banks, C.A. (eds.) *Multicultural Education: Issues and Perspectives*, 8th edn., NJ: Wiley, pp.3-32.
- [36] Stormont, M.A., Sandra, C.S. and Timothy, J.L. (2007). 'Teacher Implementation of Precorrection and Praise Statements in Head Start Classrooms as a Component of a Program-Wide System of Positive Behaviour Support', *Journal of behavioural education*, 16(3), pp.280–290.
- [37] Zhang, W.T. (2017). 'Problem Analysis and Path Exploration of Teacher-Student Interaction in Primary School Classroom Teaching', *Teaching and Management*, pp.64-66.
- [38] Yu, Y. and Tan, H.P. (2019). 'A Review on Positive Behaviour Support for Intervention of Children', *Journal of Modern Special Education*, 2019(22), pp.13-19.
- [39] Fisher, W. W., Piazza, C. C. and Roane, H. S. (Eds.). (2021). *Handbook of applied behaviour analysis*. Guilford Publications.
- [40] DiGennaro Reed, F.D. and Lovett, B.J. (2008). 'Views on the Efficacy and Ethics of Punishment: Results from a National Survey', *International journal of behavioural and consultation therapy*, 4(1), pp. 61-67.
- [41] Shaw, R., & Simms, T. (2009). 'Reducing attention-maintained behaviour through the use of positive punishment, differential reinforcement of low rates, and response marking', *Behavioural Interventions*, 24(4), pp. 249–263.
- [42] Warnick, B. R., & Scribner, C. F. (2020). 'Discipline, punishment, and the moral community of schools', *Theory and Research in Education*, 18(1), pp.98-116.
- [43] Li, X.X. (2024). 'The Development and Transformation of Educational Punishment in Education', *Contemporary Family Education*, pp.19-21.
- [44] Cui, Y. and Fu, S.Q. (2023). 'Empowerment: A Study of the Bias and Rectification of Teachers' Disciplinary Powers in Education', *Journal of Curriculum and Instruction*, 2023(8), pp. 4-10.
- [45] Luan, S.X. (2023). 'Legal Appraisal of the Boundary of Teacher's Corporal Punishments', *Oriental Law*, pp.130-140.
- [46] Niu, H. and Wang, M.F. (2024). 'The Relations between Parental Corporal Punishment and Children's Executive Function: A 3-year Longitudinal Study', *Psychological Development and Education*, 40(4), pp.479-487.