Listening to the Experts: A Needs Assessment of ASSIST for Disruptive Classroom Behaviour an eLearning Professional Development Program for Classroom Teachers

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Abstract

Teachers have limited access to training in in-class interventions for disruptive classroom behaviour (DCB). The goal of the current study was to understand the needs of end-users and stakeholders for teacher-implemented in-class interventions for DCB and their perspectives on eLearning about behaviour management. The needs assessment involved a mixed methods design using a structured interview and an online survey. Descriptive statistics were used to summarize survey responses, with open-ended data used for contextualization. The results revealed: (a) end-users and stakeholders were aware of and reported using many of the interventions that have been assessed in the literature, (b) more frequently used interventions were perceived as more effective, (c) interventions were inconsistently implemented and inconsistently effective, and (d) the implementation of interventions was influenced by student-teacher relationships. Results also indicated that while the participants perceived many positives of using eLearning, there were also some perceived barriers.

Keywords: classroom teachers, disruptive classroom behaviour, eLearning, needs assessment, professional development

1. Introduction

Disruptive classroom behaviour (DCB) is characterized as off-task, non-compliant, and/or aggressive behaviour in the classroom setting (Schaeffer et al., 2006; Yoder & Williford, 2019). Disruptive classroom behaviours are common with approximately 25% of North American children entering school with noted disruptive behaviours and approximately 40%-55% of North American student files containing at least one report of disruptive behaviour (Kaufman et al., 2010; Yoder & Williford, 2019). Disruptive classroom behaviour significantly impacts both students and teachers by reducing the time for instruction and increasing teachers' work-related stress (Klassen & Chiu, 2010; Luiselli et al., 2002). In addition, students who display DCB are at risk for impaired social relationships and poor academic and post-school outcomes, such as an increased likelihood to fail courses while in school and being in contact with law enforcement as an adult (Gage et al., 2012; McDaniel et al., 2017). An efficient approach to reducing DCB would be for teachers to implement evidence-based interventions to manage and mitigate the impact of DCB effectively (Alvarez Martino et al., 2016; Nelson et al., 2002).

Overall, behavioural interventions (i.e., a plan of action based on the evaluation of the antecedents, consequences, and functions of behaviour to increase or decrease its occurrence) are the most effective method for reducing disruptive behaviour in individual children (Gorman et al., 2015; Martinussen et al., 2011). Positive Behavior Interventions and Supports (PBIS), which is widely used in the United States of America and Canada, has decades of research supporting the effectiveness of a tiered approach to prevention and intervention (Lee & Gage, 2020). Wilson and colleagues have conducted two meta-analyses (Wilson et al., 2003; Wilson & Lipsey, 2007), which included articles published between the years 1950 and 2000, examining the effectiveness of school-based interventions for reducing disruptive behaviours among all students in elementary, middle, and high school.

Wilson et al. summarized the results of 172 studies of school-based interventions (i.e., interventions implemented in a school setting, not necessarily in the classroom) for a wide range of problematic behaviours, including alcohol and drug use, dropout and nonattendance, and aggressive behaviour (Wilson et al., 2003). Their analysis suggested that the reviewed studies found significant reductions in aggressive behaviour across various behavioural intervention programs. Similarly, Wilson et al.'s second meta-analysis (Wilson & Lipsey, 2007), which included 249 studies, also suggested that behavioural interventions (i.e., plans based on the antecedents, consequences, and functions of behaviour to increase or decrease its occurrence) had a consistently positive effect on disruptive behaviours.

Despite the evidence of the effectiveness of school-based behavioural interventions for disruptive behaviour, numerous barriers prevent teachers from using these in their classrooms. Specifically, many schools use the approach prescribed by the PBIS framework, which divides prevention and intervention into three tiers based on the needs of the student (Lee & Gage, 2020). However, most of the students who display disruptive behaviours likely don't meet the criteria for Tier 2 (i.e., targeted group interventions) or Tier 3 (i.e., targeted individualized interventions) interventions and those typically offered as part of the framework are done outside of the classroom (Yoder & Williford, 2019). Barriers also include classroom teachers' lack of pre-service education in learning about these interventions and the limited opportunities for relevant in-service training/professional development (PD) (Elik et al., 2015; Gowers et al., 2004; McCrimmon, 2015; Wisdom et al., 2014). Even in situations where PD programs are available to classroom teachers, they have been found limited in individualized content and seldom provide ongoing support for teachers (Dede et al., 2009). These issues make it difficult for teachers to implement these interventions in their classrooms (Dede et al., 2009). In addition, in reviews of teacher PD programs, Borko and Dede et al. found that many PD programs had significant logistical problems, such as including disjointed and superficial information or requiring teachers to implement entirely new curricula, which can be challenging given the competing demands in the classroom (Borko, 2004; Dede et al., 2009).

eLearning is a potential method to deliver PD to classroom teachers. eLearning is the use of information technology to produce educational materials and manage learning (Arkorful & Abaidoo, 2014). Several eLearning programs have been developed to provide PD to teachers and have been shown to be effective (Bragg et al., 2021; Dede et al., 2009). In a recent systematic review, Bragg et al. synthesized the results of 11 studies that assessed the effectiveness of eLearning programs for teachers' PD (Bragg et al., 2021). Based on the results of this systematic review, eLearning improved teachers' content knowledge (i.e., the content of the curriculum being taught) and knowledge of pedagogical methods, beliefs about teaching, and self-efficacy in teaching. eLearning methods can deliver support in the implementation of behavioural interventions that are often not covered in pre-service training or PD opportunities. eLearning can also be more available, accessible, cost-effective, scalable, and customizable than traditional PD programs delivered in person (Borelli & Ritterband, 2015).

Before the current study, the authors conducted a systematic review and meta-analysis to determine what in-class interventions for DCB have been evaluated. After the title, abstract, and full text review, a total of 27 articles were summarized and analyzed. As a result, various teacher-implemented in-class interventions were identified, including behaviour plans, class-wide function-related intervention teams, group-oriented concurrent chains, positive behaviour support, positive interaction ratio, peer management, self-management, tootling (i.e., students inform teachers of others' good behaviour), and token economies. The combined effect size of the reviewed studies indicated a positive and large overall effect ($r = 0.81$); however, the average quality of the included studies was low.

The primary goal of the current study was to explore three research questions focused on end-users (i.e., classroom teachers) and stakeholders' (i.e., administrators, specialized teachers, school psychologists, and behaviour specialists) experiences with interventions for managing DCB. The secondary goal of the current study was to explore end-user and stakeholder perceptions related to an eLearning program for managing DCBs in children in Grades 1 to 12. These research questions were:

(a) What are end-users and stakeholders' knowledge of and experiences with teacher-implemented in-class interventions for DCB?

(b) What are the perceived barriers and facilitators to using an eLearning program to teach teachers to implement in-class interventions for DCB?

(c) What interventions for DCB do end-users and stakeholders see as important to include in an eLearning PD program?

The current study addresses these research questions through a mixed-methods design, collecting data from

end-users and stakeholders in two ways: (a) a structured interview and (b) a follow-up survey based on the interview data.

2. Methods and Materials

2.1 Participants

Eligibility criteria included individuals working within Canadian school systems for more than three years who had experience managing students' DCB. Participants were recruited from two groups based on their current roles: (a) end-users (i.e., classroom teachers of Grades 1-12) and (b) stakeholders (i.e., specialized teachers, school administrators, behaviour specialists, and school psychologists).

Recruitment was conducted between October 2019 and June 2020 using the following methods: (a) social media posts, (b) advertisements at teacher-oriented conferences, (c) personal contacts of the investigators with individuals within Canadian school systems, and (d) email contacts with individuals who had previously participated in research studies and indicated their interest in future research participation. Although recruitment ended in June of 2020, all interviews were conducted prior to or immediately following the health care regulations regarding COVID-19 that moved educational activities primarily to eLearning. The recruitment window was open until the end of the school year to allow for further recruitment to be done if data saturation was not reached.

Our planned recruitment goal was 42 participants, comprising 18 end-users (i.e., 6 from elementary, middle, and secondary grades) and 24 stakeholders (i.e., 6 participants in each of the 4 roles). However, recruitment was ceased once data saturation was reached (i.e., no new themes were extracted from the data). The sample size was based on Guest et al. (Guest et al. 2006), which suggested that data saturation can occur within six participants.

Participants were entered into a draw to receive a $50 digital gift card for the completion of each component of the study (i.e., structured interview and survey), with a total of two entries per participant and separate draws for each group.

2.2 Measures

All questionnaires were delivered via the secure online Research Electronic Data Capture platform (REDCap©) (Harris et al., 2019). The structured interviews were conducted via Microsoft Teams video-conferencing software or telephone by a PhD student (M.O.) and a trained undergraduate student (J.B.).

2.2.1 Eligibility Questionnaire

The eligibility questionnaire was a 7-item researcher-created measure that asked participants whether they currently work in a Canadian school system, how many years they had held a position in the system, and their role(s) in managing classroom behaviour. Responses were used to determine eligibility and sort participants into groups (i.e., classroom teachers by grade level, specialized teachers, school administrators, behaviour specialists, and school psychologists).

2.2.2 Demographic Questionnaire

The 25-item researcher-created demographic questionnaire was intended to characterize the sample concerning participants' age, sex, highest level of education, current position in the school system, number of years spent in their current position, other positions held in the school system, and years of experience in managing DCB. If participants indicated that they were currently working as a classroom teacher or had worked as a classroom teacher in the past, they were also asked to report the number of years spent teaching and which grades they had taught.

2.2.3 Structured Interview

The researcher-created interview consisted of 17 items divided into three sections. Some items were closed-ended, while others were open-ended and allowed participants to provide context for their responses. Section 1 contained four closed-ended questions about participants' general experience with behaviour management (focusing on their views from the position they had held that was most focused on behaviour management) and what pre-service, professional training, and/or PD they had received related to behaviour management. Section 2 contained 10 items that asked for information about participants' knowledge and experience with the in-class teacher-implemented interventions for DCB identified in the previous meta-analysis through a mixture of closed-ended and open-ended questions. Table 1 provides brief descriptions of these interventions. The researcher named and defined each intervention and asked whether the participant had used the intervention and the role in which it was used. Open-ended questions asked participants about the effectiveness of interventions in changing student behaviour. The last question of section 2 asked participants to name any interventions that were not previously discussed

during the interview that they thought were effective for managing disruptive behaviour. Section 3 contained two open-ended questions that asked participants to identify any barriers and facilitators they perceived to using eLearning programs for PD.

Table 1. Descriptions of the interventions included in the structured interview

Intervention	Description
Behaviour plans	A step-by-step plan for managing a specific student's disruptive behaviours. Plans include information about typical antecedents to the behaviour, warning signs, and how to defuse the behaviour.
Positive Behaviour Support (PBS)	Involves determining what reinforces a disruptive behaviour and removing that supporting reinforcer. Positive (i.e., non-disruptive) behaviours are then given reinforcement to increase their frequency.
Classroom-Wide Function-Related Intervention Teams (CW-FIT)	Involves teaching appropriate classroom behaviours and expectations, reinforcing positive behaviour, removing reinforcement of disruptive behaviours, and teaching self-management strategies.
Group Oriented Concurrent-Chains (GOCC)	Rewards groups of students for chosen positive behaviours, accounting for student preferences for target behaviours.
Positive Interaction Ratios (PIR)	Involves increasing the ratio of positive interactions between student and teacher; typically, at least five positive interactions for every negative interaction.
Peer Management	Teaching students to manage each other's behaviour by recognizing disruptive behaviour and mitigating the behaviour when it occurs.
Self-management	Involves teaching students to manage their own behaviour by teaching them to recognize and prevent or mitigate the behaviour.
Tootling	Involves instructing students to report to the teacher on instances of positive behaviour, rather than disruptive behaviour. Students who are tootled on receive praise or rewards.
Token Economy	Contingency management program in which students receive tokens for positive behaviours and lose tokens for disruptive behaviour. Tokens are used to purchase rewards on an individual or class-wide basis.
Packaged or Prepared Programs	Involves guiding a classroom teacher through an intervention step by step.

2.2.4 Behaviour Management Intervention Survey

The 18-item researcher-created survey asked participants to rate the importance of including the interventions queried during the structured interviews in an eLearning PD program and any others mentioned by participants. Ratings were made on a Likert scale from 1 "not at all important" to 7 "extremely important". This survey was developed after all structured interviews were completed and analyzed.

2.3 Procedure

All recruitment paths referred potential participants to the *ASSIST* website (http://assistforteachers.ca), where individuals completed a web form to express interest in participation. Individuals who completed the web form were e-mailed a link to an online eligibility questionnaire. If eligible, they were presented with a consent form. After giving consent, participants were presented with a demographic questionnaire. Upon completing this, participants indicated dates and times they were available for the interview. Researchers confirmed the meeting time via email and participants were contacted on the scheduled day and time, and the interview was audio-recorded. Thematic analyses were conducted concurrently with the interviews. Recruitment was closed, and themes were collated and analyzed once it was determined that data saturation had occurred. Based on this data, additions were made to the Behaviour Management Intervention Survey to add any additional interventions mentioned during the interviews. Once the survey was finalized, participants were e-mailed a link to the Behaviour

Management Intervention Survey.

2.4 Data Analysis

To characterize the sample, descriptive statistics were used to summarize the findings of the demographic questionnaire and the structured interview. To address our first (i.e., what are the experiences and knowledge of end-users and stakeholders with teacher-implemented in-class interventions for DCB?) and second (i.e., what are the perceived barriers and facilitators to using an eLearning program to teach teachers to use in-class interventions for DCB?) research questions, the results of the structured interviews were analyzed using thematic analysis (Braun & Clarke, 2006), as previous needs assessments have done [29,30] (Kelders et al., 2013; Wentzel et al., 2014). Audio recordings of the interviews were transcribed verbatim by researchers (MO and JB). For closed-ended questions, responses were coded categorically based on participants' responses (i.e., whether they used an intervention, where they used it, and whether they thought it was effective). The responses to the open-ended questions (i.e., effectiveness of interventions at changing student behaviour and perceived barriers or facilitators to eLearning) were coded using the steps suggested by Braun and Clarke (2006): (a) familiarization, (b) generating initial codes, (c) searching for themes, (d) reviewing themes, (e) defining and naming themes, and (f) reporting the themes. Two researchers were involved in each step, and disagreements about coding were discussed with the senior investigator (PC). To address our third research question (i.e., to elucidate what interventions end-users and stakeholders saw as important to include in the new *ASSIST* program), the Behaviour Management Intervention Survey responses were summarized using descriptive statistics. As recommended by Holmes (2020), a positionality statement has been provided to elucidate the potential biases of the primary investigator (M.O.).

2.5 Positionality Statement

In terms of educational background that may bias the analysis conducted in the current study, the primary investigator (M.O.) is a Canadian doctoral student trained in experimental psychology and educational research. In terms of personal biases, which may bias the analysis conducted in the current study, the primary investigator is an adult (i.e., > 30 years old) Caucasian male with left-wing political beliefs, no religious affiliations, and previous experience working in the field of education.

3. Results

3.1 Participants

Of the 116 participants (53 end-users, 63 stakeholders) who completed the eligibility questionnaire, 23 (7 end-users, 16 stakeholders) were not eligible. Of those remaining ($n = 93$; 46 end-users, 47 stakeholders), 60 (27 end-users, 33 stakeholders) provided informed consent. Of those who provided informed consent, 37 (15 end-users, 22 stakeholders) completed the demographic questionnaire and structured interview, and 31 (13 end-users, 18 stakeholders) completed the Behaviour Management Intervention Survey.

3.1.1 Sample Characteristics

Tables 2 and 3 present demographic details for participants who completed the questionnaire. The average age of end-users was 40.9 ($SD = 9.07$) years, and the average age of stakeholders was 42.32 ($SD = 7.67$) years. All end-users ($n = 15$) and 82% ($n = 18$) of stakeholders were female. For both groups, most participants were from Nova Scotia (60% of end-users, 82% of stakeholders). Most end-users reported having a bachelor's degree (or equivalent) as their highest level of education ($n = 9$, 60%) and most of the stakeholders reported holding a master's degree ($n = 19$, 86%). The average years of experience within their current roles were 13.87 ($SD = 6.78$) for end-users and 11.27 ($SD = 7.23$) for stakeholders. Most end-users reported receiving pre-service training ($n = 8$, 53%), in-service PD training ($n = 13$, 87%), or PD training pursued independently ($n = 12$, 80%) related to disruptive behaviour. Similarly, most stakeholders reported receiving pre-service training ($n = 17$, 77%), in-service PD training ($n = 20$, 91%), or independent PD training ($n = 17$, 77%) related to disruptive behaviour.

Table 2. Demographic Characteristics of End-Users by Subgroup.

Characteristic	Total (*n* = 15)	Elementary (*n* = 6)	Middle (*n* = 4)	High/Secondary (*n* = 5)
Age (years)	40.86 (9.07)	41.33 (9.40)	41.00 (11.43)	39.60 (8.79)
Gender				
Female	15 (100%)	6 (100%)	4 (100%)	5 (100%)
Male	0	0	0	0
Province				
AB	2 (13%)	0	1 (25%)	1 (20%)
NB	1 (7%)	1 (17%)	0	0
NS	9 (60%)	2 (33%)	3 (75%)	4 (80%)
ON	2 (13%)	2 (33%)	0	0
QC	1 (7%)	1 (17%)	0	0
Education				
BSc	9 (60%)	5 (83%)	2 (50%)	2 (40%)
Masters	6 (40%)	1 (17%)	2 (50%)	3 (60%)
PhD	0	0	0	0
Years in current role	13.87 (6.78)	14.17 (7.31)	14.00 (7.30)	13.75 (8.42)
Pre-service training for DB	8 (53%)	2 (33%)	3 (75%)	3 (60%)
In-service PD for DB	13 (87%)	5 (83%)	4 (100%)	4 (80%)
Independent PD for DB	12 (80%)	5 (83%)	4 (100%)	3 (60%)

Note. AB = Alberta; NB = New Brunswick; NS = Nova Scotia; ON = Ontario; QC = Quebec; PD = professional development; DB = disruptive behaviour.

Table 3. Demographic Characteristics of Stakeholders by Subgroup.

Characteristic	Total (*n* = 22)	Specialized Teachers (*n* = 6)	Administrators (*n* = 5)	School Psychologists (*n* = 5)	Behaviour Specialists (*n* = 6)
Age (years)	42.32 (7.67)	42.57 (7.76)	45.80 (7.33)	45.60 (9.48)	37 (3.95)
Gender					
Female	18 (82%)	4 (67%)	4 (75%)	4 (75%)	6 (100%)
Male	4 (18%)	2 (33%)	1 (25%)	1 (25%)	0
Province					
AB	1 (5%)	0	0	1 (25%)	0
NB	0	0	0	0	0
NS	18 (82%)	5 (83%)	5 (100%)	4 (75%)	5 (83%)
ON	1 (5%)	1 (17%)	0	0	0
QC	1 (5%)	0	0	0	1 (17%)
Education					
BSc	2 (9%)	1 (17%)	0	0	1 (17%)
Masters	19 (86%)	5 (83%)	5 (100%)	5 (100%)	4 (67%)
PhD	1 (5%)	0	0	0	1 (17%)

Years in current role	11.27 (7.23)	12.67 (8.55)	6.80 (5.36)	17.60 (5.18)	8.33 (5.43)
Pre-service training for DB	17 (77%)	4 (67%)	3 (60%)	5 (100%)	5 (83%)
In-service PD for DB	20 (91%)	4 (67%)	5 (100%)	5 (100%)	6 (100%)
Independent PD for DB	17 (77%)	5 (83%)	3 (60%)	4 (80%)	5 (83%)

Note. AB = Alberta; NB = New Brunswick; NS = Nova Scotia; ON = Ontario; QC = Quebec; PD = professional development; DB = disruptive behaviour

3.2 Experience with and Knowledge of Interventions

3.2.1 Intervention Usage

Tables 4 and Table 5 present the frequencies and percentages of stated usage of interventions by each group. For end-users, the most frequently used interventions were behaviour plans (93%), class-wide function-related intervention teams (93%), positive behaviour support (93%), self-management (93%), Positive Interaction Ratio (PIR; 80%), and token economies (73%). These were also consistently the most used interventions across the end-user grade-level subgroups (i.e., elementary, middle, and high/secondary). The least used interventions were packaged or prepared programs (13%), Group Oriented Concurrent Chains (GOCC; 27%), and tootling (33%). Two interventions, GOCC and packaged programs were not used by the elementary and middle subgroups, respectively. For stakeholders, the most frequently used interventions were behaviour plans (86%), Class-Wide Function-Related Intervention Teams (CW-FIT; 68%), Positive Behaviour Support (PBS; 68%), token economies (68%), and self-management (59%). The least used interventions were tootling (23%), packaged programs (27%), and GOCC (31%). Highly used interventions were relatively consistent across stakeholder subgroups (i.e., specialized teacher, administrator, school psychologist, and behaviour specialist), except for peer management and PIR. Peer management was used more by administrators and behaviour specialists, and PIR was used more by administrators and school psychologists.

Table 4. Reported Intervention Use Frequencies and Percentage for End-Users by Subgroup

	End-users			
Intervention	Total	Elementary	Middle	High/Secondary
	(*n* = 15)	(*n* = 6)	(*n* = 4)	(*n* = 5)
Behavior Plans	14 (93)	6 (100)	4 (100)	4 (80)
CW-FIT	14 (93)	6 (100)	4 (100)	4 (80)
GOCC	4 (27)	2 (33)	-	2 (40)
Packaged Programs	2 (13)	-	1 (25)	1 (20)
PBS	14 (93)	6 (100)	4 (100)	4 (80)
Peer Management	10 (67)	3 (50)	4 (100)	3 (60)
PIR	12 (80)	5 (83)	3 (75)	4 (80)
Self Management	14 (93)	6 (100)	4 (100)	4 (80)
Token Economies	11 (73)	6 (100)	3 (75)	2 (40)
Tootling	5 (33)	2 (33)	1 (25)	2 (40)

Note. Percentages reflect participants who reported using an intervention relative to the number in each group or subgroup. CW-FIT = Class Wide Function-Related Intervention Teams, GOCC = Group-Oriented Concurrent Chains, PBS = Positive Behavior Support, PIR = Positive Interaction Ratio.

Table 5. Reported Intervention Use Frequencies and Percentages for Stakeholders by Subgroup

Intervention	Stakeholders				
	Total (*n* = 22)	Specialized Teacher (*n* = 6)	Administrator (*n* = 5)	School Psychologist (*n* = 5)	Behaviour Specialist (*n* = 6)
Behavior Plans	19 (86)	6 (100)	5 (100)	4 (80)	4 (67)
CW-FIT	15 (68)	2 (33)	4 (80)	5 (100)	4 (67)
GOCC	7 (31)	2 (33)	1 (20)	1 (20)	3 (50)
Packaged Programs	6 (27)	1 (17)	1 (20)	3 (60)	1 (17)
PBS	15 (68)	5 (83)	3 (60)	3 (60)	4 (67)
Peer Management	12 (55)	3 (50)	4 (80)	1 (20)	4 (67)
PIR	11 (50)	2 (33)	4 (80)	3 (60)	2 (33)
Self Management	13 (59)	3 (50)	5 (100)	3 (60)	2 (33)
Token Economies	15 (68)	4 (67)	4 (80)	3 (60)	4 (67)
Tootling	5 (23)	-	2 (40)	1 (20)	2 (33)

Note. Percentages reflect participants who reported using an intervention relative to the number in each group or subgroup. CW-FIT = Class Wide Function-Related Intervention Teams, GOCC = Group-Oriented Concurrent Chains, PBS = Positive Behavior Support, PIR = Positive Interaction Ratio.

3.2.2 Intervention Effectiveness

Tables 6 and 7 present the frequencies and percentages for the perceptions of the effectiveness of interventions to reduce DCBs by participants who had reported using these. The interventions that end-users most frequently stated to be effective were PBS (*n* = 11, 79%) and positive interaction ratios (*n* = 11, 92%). When asked about the effectiveness of interventions at changing student behaviour, the most common themes in the responses of end-users were: (a) interventions are inconsistently effective, (b) interventions are effective because they reinforce positive behaviours, and (b) interventions require strong student-teacher relationships to be effective. These themes were consistent across the end-user sub-groups (i.e., elementary, middle, and high/secondary). Table 8 highlights representative quotes for these themes.

The interventions that stakeholders most frequently stated to be effective were behaviour plans (*n* = 12, 63%) and CW-FIT (*n* = 12, 80%). When asked about the effectiveness of interventions at changing student behaviour, the most common themes in the responses of stakeholders were: (a) interventions are inconsistently effective, (b) interventions require strong student-teacher relationships to be effective, and (c) interventions are often informally implemented. These themes were consistent across stakeholder sub-groups (i.e., specialized teachers, administrators, behaviour specialists, and school psychologists). Table 8 highlights representative interview quotes for these themes.

Table 6. Frequencies and Percentages of Perceived Effectiveness for End-Users Divided by Subgroup

Intervention	End-users			
	Total (*n* = 15)	Elementary (*n* = 6)	Middle (*n* = 4)	High/Secondary (*n* = 5)
Behavior Plans	10 (67)	4 (67)	4 (100)	2 (40)
CW-FIT	10 (67)	4 (67)	4 (100)	2 (40)
GOCC	2 (13)	1 (17)	-	1 (20)
Packaged Programs	2 (13)	-	1 (25)	1 (20)
PBS	11 (73)	4 (67)	4 (100)	3 (60)
Peer Management	2 (13)	1 (17)	-	1 (20)

PIR	11 (73)	4 (67)	3 (75)	4 (80)
Self Management	10 (67)	5 (83)	2 (50)	3 (60)
Token Economies	6 (40)	3 (50)	2 (50)	1 (20)
Tootling	2 (13)	2 (33)	-	-

Note. Percentages reflect participants who reported that an intervention was effective relative to the number in each group and sub-group. CW-FIT = Class Wide Function-Related Intervention Teams, GOCC = Group-Oriented Concurrent Chains, PBS = Positive Behavior Support, PIR = Positive Interaction Ratio.

Table 7. Frequencies and Percentages of Perceived Effectiveness for Stakeholders Divided by Subgroup.

Intervention	Stakeholders				
	Total (*n* = 22)	Specialized Teacher (*n* = 6)	Administrator (*n* = 5)	School Psychologist (*n* = 5)	Behaviour Specialist (*n* = 6)
Behavior Plans	12 (55)	3 (50)	2 (40)	4 (80)	3 (50)
CW-FIT	12 (55)	2 (33)	3 (60)	4 (80)	3 (50)
GOCC	5 (23)	1 (17)	2 (40)	1 (20)	1 (17)
Packaged Programs	4 (18)	1 (17)	1 (20)	1 (20)	1 (17)
PBS	9 (41)	4 (67)	1 (20)	3 (60)	1 (17)
Peer Management	5 (23)	1 (17)	2 (40)	-	2 (33)
PIR	8 (36)	3 (50)	1 (40)	2 (40)	2 (33)
Self Management	6 (27)	1 (17)	3 (60)	2 (40)	-
Token Economies	6 (27)	2 (33)	1 (20)	2 (40)	1 (17)
Tootling	5 (23)	-	2 (40)	1 (20)	2 (33)

Note. Percentages reflect participants who reported that an intervention was effective relative to the number in each group and sub-group. CW-FIT = Class Wide Function-Related Intervention Teams, GOCC = Group-Oriented Concurrent Chains, PBS = Positive Behavior Support, PIR = Positive Interaction Ratio.

Table 8. Representative Interview Quotes on Intervention Effectiveness

Participant group	Theme	Quotes
End-users		
	Situational effectiveness	"I think those plans work when the student is on board with it. If the student is not bought into whatever the plan is then those aren't often successful"
		"I think that's effective in certain situations"
		"It's very much on a student-to-student basis"
	Positive reinforcement	"I think a lot of the people that are disruptive don't receive that feedback as often as they should and I think that highlighting when they do something positive is effective"
		"Even students who have had a history of some behaviour issues...I found no matter who they are, they generally respond to positives"
		"I try to focus on positive and that's usually very successful"
	Student-teacher relationship	"It helps build trust, I don't want them to fear or have more negative feelings towards me"
		"Just getting to know them outside of the teaching moment helps you bridge the gap to bring them to where you think they should be"
		"It's a lot of me sitting down with the students and setting goals for them or talking

		about what's not working"
Stakeholders		
	Situational effectiveness	"I think in certain cases it is effective"
		"I think it's really variable…whenever you implement anything you tend to see some shift in behavior. That can be in the negative, but tends more positive"
		"I think it's very case-by-case whether this would be an effective strategy or not and I think it's important to really consider the individual students and their needs and their capacity"
Stakeholders		
	Student-teacher relationship	"This is what I come to work with every day to just build relationships and understanding"
		"I think it's the most effective strategy used. First of all because it doesn't have always as a negative force in their life"
		"I think it's really powerful"
	Informal implementation	"I haven't used it like as a formal strategy, but I've definitely used it"
		"I can't say I did it in a super formal manner"
		"I actually didn't know that was a real formal strategy with a specific name. But, I have used something like that with some of my middle school classes"

3.2.3 Other Interventions

Participants were asked to comment on other interventions that were not included in the interview that they thought were important or effective at managing behaviour in the classroom that should be included in the eLearning program. Table 9 contains brief descriptions of the eight additional interventions mentioned by participants. Five of the eight interventions were recommended by end-users (i.e., break cards, first-then scheduling, student-teacher proximity, reducing environmental stressors, and visual schedules). For stakeholders, none were recommended by administrators, one (i.e., first-then scheduling) was recommended by behaviour specialists, one (i.e., 2x10) was recommended by school psychologists, and two (i.e., restorative justice and talking circles) were recommended by specialized teachers.

Table 9. Descriptions of Other Interventions Mentioned by Participants

Intervention	Description
2x10	Teacher has a two-minute one-on-one conversation with the student about anything they want to talk about, every day for ten days.
Break cards	Teacher supplies card to allow the students to communicate when they need a break from class or a particular work demand.
First-then scheduling	Teacher presents the student with what they need to do now (first) and what = will occur afterward (then).
Reducing environmental stressors	Remove stimuli in the classroom environment that affect the student's stress levels (e.g., music, bright colours, distracting posters).
Restorative justice	School staff facilitate interactions between students who are in conflict to restore their relationships.
Student-teacher proximity	The presence of a teacher as well as the responsiveness of a teacher to the student's needs.
Talking circles	Teachers facilitate group conversations about social or emotional issues in class.
Visual schedules	Presenting a student with a schedule for their day with pictorial representations for each activity.

3.3 Barriers and Facilitators to eLearning

Tables 10 and 11 contain the frequencies and percentages of the reported barriers and facilitators to eLearning broken down by group. Across the two groups, three facilitators to eLearning were reported: (a) accessibility, (b) availability of support material, and (c) standardized PD. Both end-users (*n* =12, 80%) and stakeholders (*n* = 13, 59%) reported accessibility as the most important facilitator. Unlike end-users, stakeholders did not mention standardization as a potential facilitator. Across the end-user subgroups, accessibility was consistently the most frequent facilitator theme.

The three reported barriers to eLearning were: (a) lack of personal or real-world examples, (b) technology access, and (c) programs can be time-consuming. End-users were most concerned with a lack of real-world examples in eLearning programs (*n* = 9, 60%), while stakeholders were most concerned with the time to complete programs (*n* = 11, 50%).

Table 10. Frequencies of and Percentages of Reported Barriers and Facilitators for End-Users by Subgroup

		Total (*n* = 15)	Elementary (*n* = 6)	Middle (*n* = 4)	High/Secondary (*n* = 5)
Facilitators					
	Accessibility	12 (80)	5 (83)	3 (75)	4 (80)
	Persistence	1 (7)	0 (0)	0 (0)	1 (20)
	Standardization	2 (13)	2 (33)	0 (0)	0 (0)
Barriers					
	Examples	9 (60)	4 (67)	2 (50)	3 (60)
	Technology	3 (20)	2 (33)	0 (0)	1 (20)
	Time	3 (20)	0 (0)	3 (75)	0 (0)

Table 11. Frequencies of and Percentages of Reported Barriers and Facilitators for Stakeholders by Subgroup

		Total (*n* = 22)	Specialized Teacher (*n* = 6)	Administrator (*n* = 5)	School Psychologist (*n* = 5)	Behaviour Specialist (*n* = 6)
Facilitators						
	Accessibility	13 (59)	3 (50)	3 (60)	4 (80)	3 (50)
	Persistence	1 (5)	0 (0)	0 (0)	0 (0)	1 (17)
	Standardization	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Barriers						
	Examples	6 (27)	1 (17)	2 (40)	2 (40)	1 (17)
	Technology	6 (27)	3 (50)	2 (40)	0 (0)	1 (17)
	Time	11 (50)	4 (67)	2 (40)	2 (40)	2 (33)

3.4 Importance of Interventions for eLearning

3.4.1 Ratings of Importance

Participants' ratings of the importance of interventions for inclusion in an eLearning program for training teachers to manage DCB are presented in Tables 12 and 13. For end-users, the three highest-rated interventions were CW-FIT *(M* = 6.2*, SD* = 1.1), self-management (*M* = 6.2, *SD* = 1.1), and visual schedules (*M* = 6.2, *SD* = 1.1). The lowest rated were token economies (*M* = 2.6, *SD* = 1.6), packaged programs (*M* = 2.9, *SD* = 1.3), and peer management (*M* = 3.9, *SD* = 1.9). Importance ratings were generally consistent across the end-user sub-groups, except for PBS and tootling. The mean ratings of PBS and tootling were consistent for the elementary and high/secondary sub-groups. The middle sub-group was much lower for both interventions. For stakeholders, the

highest-rated interventions were reducing environmental stressors ($M = 6.4$, $SD = 0.8$), 2x10 ($M = 6.3$, $SD = 0.8$) and positive interaction ratios ($M = 6.2$, $SD = 1.1$). The lowest rated were peer management ($M = 3.7$, $SD = 1.3$), packaged programs ($M = 3.7$, $SD = 1.5$), and token economies ($M = 3.9$, $SD = 1.8$). Like what was found for the end-user group, ratings of importance were generally consistent across stakeholder sub-groups, with the exceptions of packaged programs, peer management, token economies, and tootling. For packaged programs, the mean rating of administrators was higher than the other sub-groups. For peer management, the mean rating of school psychologists was lower than the other sub-groups. For token economies, specialized teachers and school psychologists' mean ratings were lower, while administrators and behaviour specialists were higher. Finally, specialized teachers provided a lower rating than other sub-groups for tootling. Overall, consistently higher ratings were given to the interventions mentioned during the interviews than those summarized in the proceeding systematic review and meta-analysis.

Table 12. End-User Ratings of Perceived Importance of Behaviour Management Intervention from Survey

Intervention Source		Total ($n = 13$)	Elementary ($n = 6$)	Middle ($n = 3$)	High/Secondary ($n = 4$)
Systematic Review and Meta-analysis					
	Behavior Plans	5.5 (1.5)	5.5 (1.8)	5.3 (1.2)	5.8 (1.5)
	CW-FIT	6.2 (1.1)	6.0 (1.6)	6.7 (0.6)	6.0 (0.8)
	GOCC	4.2 (1.7)	4.3 (2.3)	3.7 (1.2)	4.5 (1.3)
	Packaged Programs	2.9 (1.3)	3.2 (1.7)	2.7 (0.6)	2.8 (1.0)
	PBS	5.2 (1.8)	6.0 (1.3)	3.0 (2.0)	5.5 (1.0)
	Peer Management	3.9 (1.9)	3.3 (2.3)	4.3 (2.1)	4.3 (1.3)
	PIR	5.9 (1.2)	6.2 (1.3)	5.7 (1.5)	5.8 (1.0)
	Self Management	6.2 (1.1)	6.2 (1.0)	6.0 (1.7)	6.5 (1.0)
	Token Economies	2.6 (1.6)	2.3 (2.0)	2.7 (2.1)	3.0 (0.8)
	Tootling	4.2 (1.3)	5.0 (1.1)	2.7 (1.2)	4.0 (0.8)
Interviews					
	2x10	5.0 (2.0)	5.0 (2.1)	5.0 (2.7)	5.0 (2.0)
	Break cards	5.2 (1.0)	5.7 (0.8)	5.3 (0.6)	4.3 (1.0)
	First-then	5.6 (1.0)	5.7 (1.0)	5.3 (1.5)	5.8 (1.0)
	Proximity	5.8 (1.0)	5.5 (1.1)	6.3 (0.6)	5.8 (1.3)
	RES	5.2 (1.3)	5.0 (1.4)	6.0 (1.7)	5.0 (0.8)
	Restorative Justice	5.9 (1.5)	6.0 (1.7)	6.3 (1.2)	5.3 (1.5)
	Talking circles	5.2 (1.4)	5.2 (1.7)	5.0 (0.0)	5.3 (1.7)
	Visual schedules	6.2 (1.1)	6.8 (0.4)	6.0 (1.0)	5.3 (1.3)

Note. Items on the behaviour management strategy survey were rated on a 7-point Likert scale. Ratings for each item can range from 1 (not at all important) to 7 (extremely important). The intervention source labelled as systematic review and meta-analysis refers to the systematic review and systematic review and meta-analysis which proceeded this study (Orr et al., 2022). CW-FIT = Class Wide Function-Related Intervention Teams, GOCC = Group-Oriented Concurrent Chains, PBS = Positive Behavior Support, PIR = Positive Interaction Ratio, RES = Reducing environmental stressors.

Table 13. Stakeholder Ratings of Perceived Importance of Behaviour Management Intervention from Survey

Intervention Source	Total (*n* = 18)	Specialized Teacher (*n* = 4)	Administrator (*n* = 3)	School Psychologist (*n* = 5)	Behaviour Specialist (*n* = 6)
Systematic review and meta-analysis					
Behavior Plans	5.8 (1.2)	5.8 (1.5)	6.0 (1.0)	5.6 (1.7)	6.0 (0.9)
CW-FIT	5.9 (1.0)	5.3 (1.3)	6.3 (0.6)	6.0 (1.0)	6.0 (1.1)
GOCC	4.3 (1.2)	4.5 (1.3)	4.3 (1.5)	3.8 (1.1)	4.5 (1.2)
Packaged Programs	3.7 (1.5)	3.0 (1.2)	5.0 (1.0)	3.6 (1.5)	3.7 (1.6)
PBS	5.6 (1.4)	5.8 (1.5)	5.7 (1.2)	4.6 (1.7)	6.2 (1.2)
Peer Management	3.7 (1.3)	4.3 (0.6)	3.7 (2.5)	2.8 (0.8)	4.2 (1.0)
PIR	6.2 (1.1)	6.0 (2.0)	6.0 (1.0)	6.4 (0.9)	6.3 (0.8)
Self Management	6.1 (1.1)	6.0 (1.2)	7.0 (0.0)	6.0 (1.2)	5.2 (1.2)
Token Economies	3.9 (1.8)	3.0 (1.6)	5.0 (1.7)	3.4 (2.1)	4.5 (1.6)
Tootling	4.4 (1.3)	3.8 (1.7)	5.7 (0.6)	4.4 (1.1)	4.3 (1.0)
Interviews					
2x10	6.3 (0.8)	6.8 (0.5)	6.3 (0.6)	6.6 (0.9)	5.8 (1.0)
Break cards	6.2 (0.7)	6.3 (1.0)	6.3 (1.2)	6.6 (0.6)	5.7 (0.8)
First-then	6.0 (0.8)	6.3 (1.0)	5.7 (1.2)	5.8 (1.1)	6.2 (0.4)
Proximity	5.5 (1.0)	5.3 (1.0)	6.7 (0.6)	5.2 (0.8)	5.0 (1.1)
RES	6.4 (0.8)	6.3 (0.5)	6.3 (1.2)	6.6 (0.6)	6.2 (1.0)
Restorative Justice	5.8 (1.2)	5.3 (1.5)	6.3 (1.2)	6.0 (1.2)	5.5 (1.2)
Talking circles	5.8 (1.3)	5.3 (1.5)	6.3 (0.6)	5.8 (1.3)	5.5 (1.5)
Visual schedules	6.3 (1.1)	6.5 (1.0)	6.0 (1.7)	6.4 (1.3)	6.2 (1.0)

Note. Items on the behaviour management strategy survey were rated on a 7-point Likert scale. Ratings for each item can range from 1 (not at all important) to 7 (extremely important). The intervention source labelled as systematic review and meta-analysis refers to the systematic review and meta-analysis which proceeded this study (Orr et al., 2022). CW-FIT = Class Wide Function-Related Intervention Teams, GOCC = Group-Oriented Concurrent Chains, PBS = Positive Behavior Support, PIR = Positive Interaction Ratio, RES = Reducing environmental stressors.

4. Discussion

The overall aim of the current study was to explore, using a mixed-methods approach, end-users' and stakeholders' experiences with interventions for DCB and their perspectives on eLearning for interventions for DCB.

4.1 Experience with and Knowledge of Interventions

Our first research question focused on the experience with and knowledge of end-users and stakeholders with the interventions summarized in the proceeding systematic review and meta-analysis. The current results suggest that most end-users and stakeholders reported using most of the in-class interventions found in the literature. The results also suggest consistency between frequency of usage and perceived effectiveness, indicating that, as one would expect, the two are related. For example, end-users most frequently reported using behaviour management interventions (i.e., behaviour plans, class-wide function-related intervention teams, PBS, and self-management) that were also reported to be effective compared to other interventions.

The results also reveal valuable information about perceived intervention effectiveness. The themes suggest that student-teacher relationships are vital. These results match the recent recommendations of Yassine et al. (2020), who suggested that improving student-teacher relationships is a key component in the success of in-class interventions for disruptive behaviour. Our results are also supported by two longitudinal studies conducted by Hamre and Pianta (2001) and Hughes (2011), who investigated the overall influence of student-teacher relationship quality on student social and academic outcomes. Both studies suggest that strong student-teacher

relationships have a dramatic long-term influence on student outcomes.

In addition to themes about student-teacher relationships, both end-users and stakeholders indicated that interventions can be inconsistently effective, and stakeholders also indicated that interventions are often implemented informally. These themes are related as interventions that are not implemented with high fidelity are unlikely to be effective (Reinke et al., 2020). These themes suggest that implementation fidelity is key to intervention effectiveness (King-Sears et al., 2018).

4.2 Barriers and Facilitators to eLearning

Our second research question focused on the perceived barriers and facilitators for using eLearning programs to provide PD about interventions for DCB. Based on the current results, the design and function of eLearning programs are consistent with the perceived facilitators (i.e., accessibility, standardized PD, and available resources) noted by participants. Developers of eLearning programs can also be mindful of and try to minimize the perceived barriers reported by participants (i.e., use of real-world examples, access to technology, and time requirements) through design choices. For example, eLearning programs should incorporate real-world testimonials from classroom teachers who have used the interventions.

4.3 Importance of Interventions for eLearning

Our final research question concerned which interventions to include in the eLearning program for DCB. Two of the three most important interventions rated by end-users (i.e., CW-FIT, self-management) were also identified in the systematic review and meta-analysis results. However, participants consistently provided higher ratings for the interventions they mentioned during the interviews, which had not been included in the list based on the systematic review (e.g., 2x10, PIR, RES, visual schedules). While these were seen as unique interventions by participants, they are, in fact, common components of behavioural interventions. These results suggest that participant perceptions of what is important to include in an eLearning program for DCB align with the literature in that they perceive behavioural interventions to be the most important (Wilson & Lipsey, 2007).

4.4 Strengths, Limitations, and Future Directions

A strength of the current study is that it involved various relevant end-users and stakeholders, resulting in a diverse collection of perspectives. However, a limitation is the size and geographic composition of the sample, which may mean that the results are not generalizable to all educators. Additionally, although a mixed-methods design was used, which allowed for the incorporation of open-ended and quantitative data, a stronger mixed-methods method (e.g., using qualitative and quantitative methods in parallel) may have produced richer results. Participants were also not asked about their previous experience with using eLearning for professional development. Therefore, it is possible that participants did not have any experience with eLearning for professional development and their perspectives may differ from those who have had experience with eLearning. As well, the sample of classroom teachers in the current study is much younger and less experienced than the average classroom teacher in North America, suggesting that the perspectives expressed by the classroom teachers in the current study may not be representative of all classroom teachers (Statistics Canada, 2018; U.S. Department of Education, 2018). Finally, the samples in the current study were too small to conduct sub-group comparisons, which would be beneficial to elucidating the differences between the groups included in the current study.

Future studies supporting the development of eLearning programs for DCB management should build on the results of the current study by developing content that meets the needs of the end-users and stakeholders, testing the usability of that program, and testing its effectiveness. Future research investigating the needs of end-users and stakeholders for eLearning should continue to use mixed methods designs, although more detailed qualitative data collection is encouraged, while taking the limitations of the current study into account in future study designs. These designs produce rich data to gain a clear picture of end-user and stakeholder needs.

5. Conclusions

Taken together, the results of the current study elucidate what end-users and stakeholders need from eLearning programs about behaviour management in general. Firstly, end-users and stakeholders tend to use in-class teacher-implemented interventions identified in the literature and with which they have seen some success, although these interventions are often used informally and implemented in an inconsistent manner. Second, end-users and stakeholders perceived interventions as requiring a strong student-teacher relationship to be effective, indicating that the program must include content that focuses on fostering a strong student-teacher relationship to support intervention implementation. Lastly, the program's design should include elements such as real-world examples, that address the perceived barriers to using eLearning for the PD of teachers. This needs assessment will support the development of an intervention for children with disruptive behaviour that is

evidence-informed and user-centred. Future intervention development studies should seek to build upon the results of the current study to maximize the degree to which interventions meet the needs of end-users, as involving end-users and stakeholders can provide valuable insights.

Author Contributions

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Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of the IWK Health Centre (protocol code: 1025174; 2022/11/21).

Data Availability

Data sharing is not applicable to this article. The data are not publicly available due to participant privacy and confidentiality.

Funding

None.

Informed Consent

Obtained.

Provenance and Peer Review

Not commissioned; externally double-blind peer reviewed.

Conflicts of Interest

The authors declare no conflict of interest.

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