We Thinkers! Series: An Academic Critique

Joanne Bennett. Academic critique, submitted April 2021

The *We Thinkers! Series* is a curriculum to support children ages four to seven to develop their social competencies. Based on the Social Thinking Competency Model, this involves learning the following skills: social attention, social interpretation, problem-solving, and social cognitive self-regulation (Winner & Crooke, 2019). These skills have been perceived as difficult to teach as most people learn them naturally - for example, how to act within a group - and then continue to develop them across the lifespan (Hendrix et al., 2013). Some children may require additional support to build their foundational skills and, therefore, this programme uses a cognitive behavioural approach to provide concrete language to explain and teach social concepts.

We Thinkers! consists of two parts: volume one *Social Explorers* (Hendrix et al., 2013) and volume two *Social Problem Solvers* (Palmer et al., 2016). There is a total of ten units introducing ten Social Thinking concepts; these are intended to be delivered sequentially (see Table 1).

Table 1. *Content of the We Thinkers! Series (social thinking concepts introduced in each unit).*

Volume 1 *Social Explorers*	**Volume 2** *Social Problem Solvers*
1. Thinking Thoughts and Feeling Feelings	6. Hidden Rules and Expected and Unexpected Behaviour
2. The Group Plan	7. Smart Guess
3. Thinking With Your Eyes	8. Flexible Thinking and Stuck Thinking
4. Body in the Group	9. Size of the Problem
5. Whole Body Listening	10. Sharing an Imagination

Each volume can be purchased as a kit, which includes a curriculum guide (containing lesson plans, structured activities, educational goals, and letters for parents) and five storybooks. Each unit is centred around a storybook, which follows four children as they have an adventure and explore the relevant social concept (e.g., how to follow a group plan). In April 2021, volume one cost £96.40 and volume two cost £140.60 (Thinking Books, n.d.). It is important to note that 'We Thinkers! Volume 1 Social Explorers' was previously titled 'Incredible Flexible You Volume 1'. This was renamed due too many Social Thinking products containing the word 'flexible', but the content was not changed.

The We Thinkers! Series was designed for children aged four to seven years with social learning weaknesses. However, because it uses a language-based approach, it is recommended that participating children have normal/near-normal language development for their age. It is not suited for children who are not yet verbal or those who find joint attention or participating in a group challenging (Hendrix et al., 2013). The authors suggest that the approach may benefit all children, including those with a range of diagnostic labels (including Autism, Learning Disabilities, Attention Deficit Hyperactivity Disorder) and those with special educational needs who do not have a diagnostic label. They recommend that each child's strengths and difficulties should be considered to decide if this intervention will be relevant and suitable for them. Delivery of the We Thinkers! Series is intended to occur in small groups of two to four children, ideally with two supporting adults. The authors recommend this format to maximise the adult's ability to engage with each child, both to support their engagement and to use naturalistic social interactions as teachable moments.

In this academic critique, I will first explore

how the We Thinkers! Series is underpinned by psychological theories, describing the overarching Social Thinking Methodology before focusing on how theory of mind is considered. Then, I will report the findings from a systematic search of the literature which aimed to answer the question 'how effective is the We Thinkers! Series at supporting children to develop their social competencies?'. I will conclude by reflecting on the implications of these findings for professionals who are considering using or recommending the We Thinkers! Series.

Theories Underpinning the We Thinkers! Series

The We Thinkers! Series is a tool developed by Social Thinking®. Alongside being the company name, 'Social Thinking' is the developmental methodology that underpins their products. On the Social Thinking® website, (Crooke & Winner, 2020) outline that the methodology was developed from elements of cognitive behavioural and behavioural principles, combined with the knowledge and experience of stakeholders. The authors explain that the evidence-based concepts and widely recognised conceptual frameworks informed the development of strategies, activities, and tools (e.g., We Thinkers! Series). These developmental layers are shown in Table 2.

The Social Thinking® website acknowledges there are limited published, peer-reviewed studies exploring the components of the Social Thinking methodology, although there are several published articles, theses and dissertations that can be accessed on the 'evidence' section of their website. The criteria for inclusion on their website are not specified, so it is unclear if there is a bias towards publications supporting their products. Additionally, many of the papers are not open access which may limit accessibility to individuals who are interested in exploring the evidence base. However, Crooke and Winner (2020) explain that the methodology is based on well-researched theoretical concepts, and therefore it is a practice based on evidence. The American Psychological Association highlight that interventions that have not yet undergone systematic empirical testing cannot be judged as ineffective for that reason alone (APA Presidential Task Force on Evidence-Based Practice, 2006). They encourage the consideration of clinical expertise, and the patients' context as part of the decision-making process to determine if an intervention would benefit an individual. In relation to We Thinkers! this highlights the role of adults who know a child best considering if the intervention is appropriate for them.

Referring back to Table 2, Crooke and Winner (2020) outline that layer one and two are the underlying theoretical concepts and constructs that interventionists (i.e., individuals delivering Social Thinking tools) need to understand to be able to effectively teach the content in the later layers. However, this is not mandated as no formal training is required to deliver the We Thinkers! Series. One of the underlying theoretical concepts is 'theory of mind' (Premack & Woodruff, 1978), or in other words being able to successfully understand other people's perspective. Having an effective 'theory of mind', defined as "knowing that other people know, want, feel or believe things" (Baron-Cohen et al., 1985, p.38), is acknowledged as being important to enable social success and the development of relationships (Hendrix et al., 2013). 'Theory of mind' is thought to develop rapidly during the preschool years (Pellicano, 2007) and therefore it is unlikely that adults recall their own development of this skill. This means that individuals delivering the We Thinkers! series will need to have had, or be given, specific input about 'theory of mind' to effectively deliver the intervention content.

Moving on to layer 3 in Table 2, in the We Thinkers! Series, perspective-taking (i.e., 'theory of mind') is taught concretely, using thought bubble props to encourage participants to show what they are thinking, whilst enabling them to see what others are thinking. When used repeatedly, thoughts bubbles have been shown to enhance autistic children's performance on theory of mind tasks (Paynter & Peterson, 2013; Wellman et al., 2002). This progresses to teaching participants how to make educated guesses about what someone else might be thinking. Unit three ('thinking with your eyes', and layer 4) uses the analogy that 'eyes are like arrows', to teach that what someone is looking at is usually what they are thinking about (Social Thinking, 2020). Therefore, if a person is looking at something,

Table 2. *Layers of the Social Thinking Methodology (Crooke & Winner, 2020).*

For Interventionists		**For Interventionists to use with Social Learners**			
→ Layer 1	**→ Layer 2**	**→ Layer 3**	**→ Layer 4**	**→ Layer 5**	**→ Layer 6**
Research-Based Theoretical Concepts	**Conceptual Frameworks**	**Treatment Frameworks**	**Strategies (Social Thinking Vocabulary)**	**Activities (for Strategies)**	**Motivational Development Tools**
• Joint Attention • Theory of Mind • Executive Functioning • Social emotional Learning • Social Cognition • Self-Regulation • Reading Intentions • Visual Supports • Social Communication	• Social Competency Model • Social Learning Tree • Social Communication Profile (Levels of the Social Mind) • ILAUGH Model • GPS (Group Collaboration, Play and Problem Solving) • Cascade of Social Attention	• Social Behaviour Mapping • 4 Steps of Communication • 4 Steps of Perspective Taking • Friendship Pyramid • I have a thought, You have a thought • Anxiety Spirals • Zones of Regulation Tools and Strategies • Goals and Action Plans	• Think with your eyes • Body/Brain in the group • Whole Body Listening • Expected/ Unexpected Behaviour • Read the plan • Smart guess • Rules Change with age • Sharing an imagination • And many more	• Thinksheets for different developmental ages • Thinking-based lesson plans • Individual activities for teaching strategies (literally thousands) • Activities created by you	• We Thinkers! Vol 1 & 2 • You Are a Social Detective! • Superflex Comics, Posters • Whole Body Listening Larry • Social Thinking and Me • Social Fortune or Social Fate • 10 ST vocab. Visual Supports • Should I or Shouldn't I? • Navigating the Zones

they are probably thinking about it. This is then reinforced through activities (layer 5) such as drawing arrows from characters eyes to determine what they are thinking about, and playing non-verbal games where children need to interpret what or who someone is looking at.

An overarching critique of the cognitive behavioural model of intervention, and of the theory of mind literature, is the emphasis on the need for the individual to change their thoughts and behaviours to align with social expectations. In relation to Autism, Milton (2012) challenges this narrative by introducing the 'double empathy problem', which considers that although autistic people often lack insight into the behaviours of non-autistic people, equally, non-autistic people also lack insight into the experiences of autistic people. The difference is that autistic people are usually required to change their behaviours to fit expected social norms, whereas non-autistic people are generally not required to develop their understanding and change their behaviour. This critique is relevant to the We Thinkers! Series, which seeks to change children's thoughts and behaviours, without also encouraging others to empathise with them.

Effectiveness of the We Thinkers! Series

A systematic search of the literature was conducted to address the question, 'how effective is the We Thinkers! series for developing children's social competencies?'. Following the screening procedure (Appendix A), four theses were included in the final analysis. Using the National Institute for Health and Care Excellence's (2014) checklist for grey literature the studies were assessed as being of high quality (see Appendix B). Therefore, although the quantity of literature is small, the author is confident that the study designs and methodologies are suitably rigorous, resulting in the findings of each study being credible.

The four theses were conducted by postgraduate students in the United States of America. In the earliest study, Powell (2015) aimed to assess the impact of We Thinkers! on social attendant behaviour, monitoring behaviour and social skills in the classroom. Statistical analysis found no significant change

in any of these areas, based on three standardised measures completed by teachers before and after the intervention.

Also focusing on behaviours within the classroom, Edwards (2019) used an action research approach to determine the effects of the We Thinkers! on the social interaction and self-management skills of children with emotional behavioural difficulties. This study used a novel assessment tool, developed by the researcher, in which the children earned points for not engaging in the following behaviours: non-compliance, inappropriate language, aggression, elopement/bolting and property destruction. Analysis showed the group gained significantly more points during the intervention period, compared to the baseline period, suggesting a significant reduction in undesired behaviours.

In a study looking at playground behaviours, Peters (2016) sought to evaluate the effectiveness of We Thinkers! on positive social initiations, positive social responses, and active engagement. Based on daily observations conducted by the researcher, Peters reported modest improvements for most children in each area; however, the author notes that there is no convincing evidence this was due to We Thinkers! Parents completed the Autism Social Skills Profile (Bellini & Hopf, 2007) before and after the intervention; statistical analysis showed a significant increase in overall social functioning.

Most recently, Draper (2020) compared the social, emotional, and behavioural outcomes for two interventions: We Thinkers! and Class-Wide Function-related Intervention Teams (CW-FIT), a teacher-led, classroom-based intervention. Momentary time sampling during guided reading measured 'off-task behaviour' and 'excessive social interaction'; no significant difference was found between pre- and post-measures. Teachers also completed two behavioural measures pre- and post-intervention. No significant difference was found for behavioural problems, as measured by the Strengths and Difficulties Questionnaire (Goodman, 2005). However, the group showed a significantly higher score on the Social Skills Improvement System, Social Emotional Learning edition (Gresham et al., 2018), suggesting that the teachers had seen progress in the children's social and emotional competencies, specifically, self-awareness, self-management, social awareness, relationship skills and responsible decision making.

Considering these studies collectively, whilst noting that each operationalised 'social competencies' differently, the findings are inconsistent and other factors are likely to have been influential. For instance, Edwards (2019) reported a reduction in undesired social behaviours in the classroom, however, there was also a multitude of tangible rewards available for gaining behaviour points, which leads to question the impact of We Thinkers! alone. However, Edward's findings are supported by Draper (2020), as teachers also reported progress in social and emotional competencies. Conversely, Powell (2015) found no change in teacher-reported behaviours, whereas Peters (2016) reported no change in school, but parents perceived improved social functioning. Interestingly, Peters' results suggest that although the desired behaviours were not being shown in school, the children were perceived to have generalised their learning to the home context. Generalisation is encouraged in the We Thinkers! Series, as it includes letters to send to parents/carers to encourage the use of Social Thinking language across contexts; however, the four studies did not appear to utilise this within their methods.

Within each study, there was variation across several factors relating to the intended use of the intervention, including population and intervention delivery. It is important to explore these to enable conclusions for future practice to be drawn. Firstly, the intervention is intended for children aged four to seven years with social learning weaknesses and average language abilities (Hendrix et al., 2013). In line with this, Powell's (2015) sample included eight kindergarten (UK Year 1; age five to six) children who were identified by their teacher as having below-average social skills and no concerns about language or learning abilities. Using a similar age group, Peters (2016) recruited eight autistic children from kindergarten/first grade (UK Year 1/2; age five to seven). Within the sample, seven children had a speech and language impairment, although their IQ scores (80 to 117) are used to justify their inclusion. It is

unclear if these scores were already available, or if IQ assessments were administered for this study. Draper's (2020) total sample included 12 first grade (UK Year 2; age six to seven) children, of which nine participated in the We Thinkers! intervention. With a slightly older age range, Edwards (2019) had eight participants who attended a mixed-grade class (UK Years 2 to 4; age six to nine); diagnoses included 'emotional disability', Autism, and Attention Deficit Hyperactive Disorder. Although some children were older than age seven, this range of participant characteristics aligns with Palmer et al.'s (2013) guidance that a child's suitability for the intervention should be determined by those who know them well. The results in all studies were analysed by group, therefore, conclusions cannot be drawn regarding the effectiveness for individual children, or based on specific participant characteristics (e.g., gender, age, diagnosis, language ability).

Secondly, considering the intervention itself, there are no guidelines for the length or frequency of delivery, which is reflected in variations across the studies. Delivery varied across the duration of the intervention (four weeks, five-week, six weeks, eight weeks), the frequency (daily, bi-weekly, weekly), and the length of each session (20 minutes to 50 minutes). Within this, the time spent focusing on each unit varied from one unit in 30 minutes (Draper, 2020) to one unit in 100 minutes (Peters, 2016). On the one hand, this suggests that the intervention is flexible and can be adapted to suit the needs of the participants and the time available within the education setting. But on the other hand, it makes it difficult to consider which factors may impact the effectiveness of the intervention. Furthermore, in all studies, the children completed the five units of We Thinkers! volume one, but Draper (2020) was the only study to incorporate volume two, delivering two out of five sessions. Therefore, this review can only consider the effectiveness of We Thinkers! volume one, and not the series as a whole.

Another factor that may influence the intervention effectiveness is group size. The We Thinkers! authors suggest a group size of two to four children, supported by two adults, to ensure individual support can be given. The intervention was delivered to groups of two (Peters, 2016), three (Draper, 2020) and four (Powell, 2015) children. The group size in Edward's (2019) study is unclear. In relation to available adult support, Powell (2015) and Edwards (2019) report co-delivering the intervention with another adult. However, in both these studies, there is limited reflection about the influence of the researchers' dual position and existing relationships, as they were the children's school psychologist and class teacher respectively. Conversely, Peters (2016) and Draper (2020) led the intervention independently, which may have reduced the children's access to additional support when required. Peters (2016) was the only study to check the fidelity of the intervention components (85.7 to 100%), using observations from a research assistant.

Reflecting upon the research question, from these findings a clear conclusion about the efficacy of the We Thinkers! series cannot be drawn. This is due to the studies not completing both volumes of the series, each study conceptualising 'social competency' in a distinct way, using different participant inclusion criteria, and the considerable variance in intervention delivery. There is some evidence that, following delivery of We Thinkers! volume one, teachers observed a reduction in undesired behaviours (Edwards, 2019) and an increase in social and emotional competencies (Draper, 2020), and that parents perceived an improvement in their child's social competency (Peters 2016). However, more research is required to understand the effectiveness of the We thinkers! Series for developing social competencies, especially where both volumes one and two are delivered. It would be useful for future studies to involve analysis of results for individual children, and qualitative methods to explore social competencies that may not be reflected in standardised measures. Long-term follow-up measures would also be beneficial to determine the intervention impact over time.

Implications for Professional Practice

Education professionals who are interested in using the We Thinkers! Series should explore the available information to inform their decision

regarding if it is appropriate for the children in their setting. Decision-makers should be aware that the resources have been developed based on existing psychological foundations, but that currently the evidence-base for the effectiveness of We Thinkers! is limited. However, there is some suggestion from available literature that it could be useful to improve children's social competencies, therefore, it is worth considering.

Particular positives include that the delivery of the sessions can be flexible in terms of group size, length of each session and duration of the intervention, and financially the intervention is cost-effective as once the resources have been bought the intervention can be delivered repeatedly. There are also no training costs, however, those delivering the intervention should endeavour to understand the programme and its psychological foundations fully. During the intervention, professionals should consider individual children's progress and be mindful that it is likely to take a prolonged time for the Social Thinking language and concepts to embed (Hendrix et al., 2013). They could consider how the family can be involved (e.g., sharing provided parent letters), alongside embedding the concepts within the classroom, to encourage generalisation.

In their role, Educational Psychologists (EPs) are well placed to recommend the We Thinkers! intervention if they believe it may be beneficial for a particular child, or for a school exploring which interventions they could facilitate. If recommending We Thinkers!, EPs should be mindful that this intervention takes a within-child approach, in that the aim is for the child to change their behaviour so that it is more socially acceptable. Ethically, EPs should be considerate of this and ensure to also encourage systemic and environmental change to support children experiencing social difficulties.

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Appendix A – Systematic search strategy

Scoping searches were undertaken using the following databases, 'Delphis' (accessible via the University of Southampton library), 'Google Scholar' and ProQuest. A research question was then developed using the SPICE framework (Booth, 2006), as shown in Table 3. The final research question was, 'How effective is the "We Thinkers" Series at supporting children to develop their social competencies?'. The search terms, shown in Table 3, were entered into 'PsychInfo', 'ERIC', 'Web of Science' and 'MEDLINE' databases. The grey literature was searched using the 'Proquest Dissertation and Theses Global' database.

The PRISMA process, shown in Figure 1 (Moher et al., 2009), was used to filter the literature found via the search strategy. The applied inclusion and exclusion criteria are shown in Table 4. Four studies were included in the final analysis. As all studies were theses, they were quality assessed using the National Institute for Health and Care Excellence's (2014) checklist for grey literature (see Appendix B). The data from each study were extracted into a table (see Appendix C) before analysis and synthesis began.

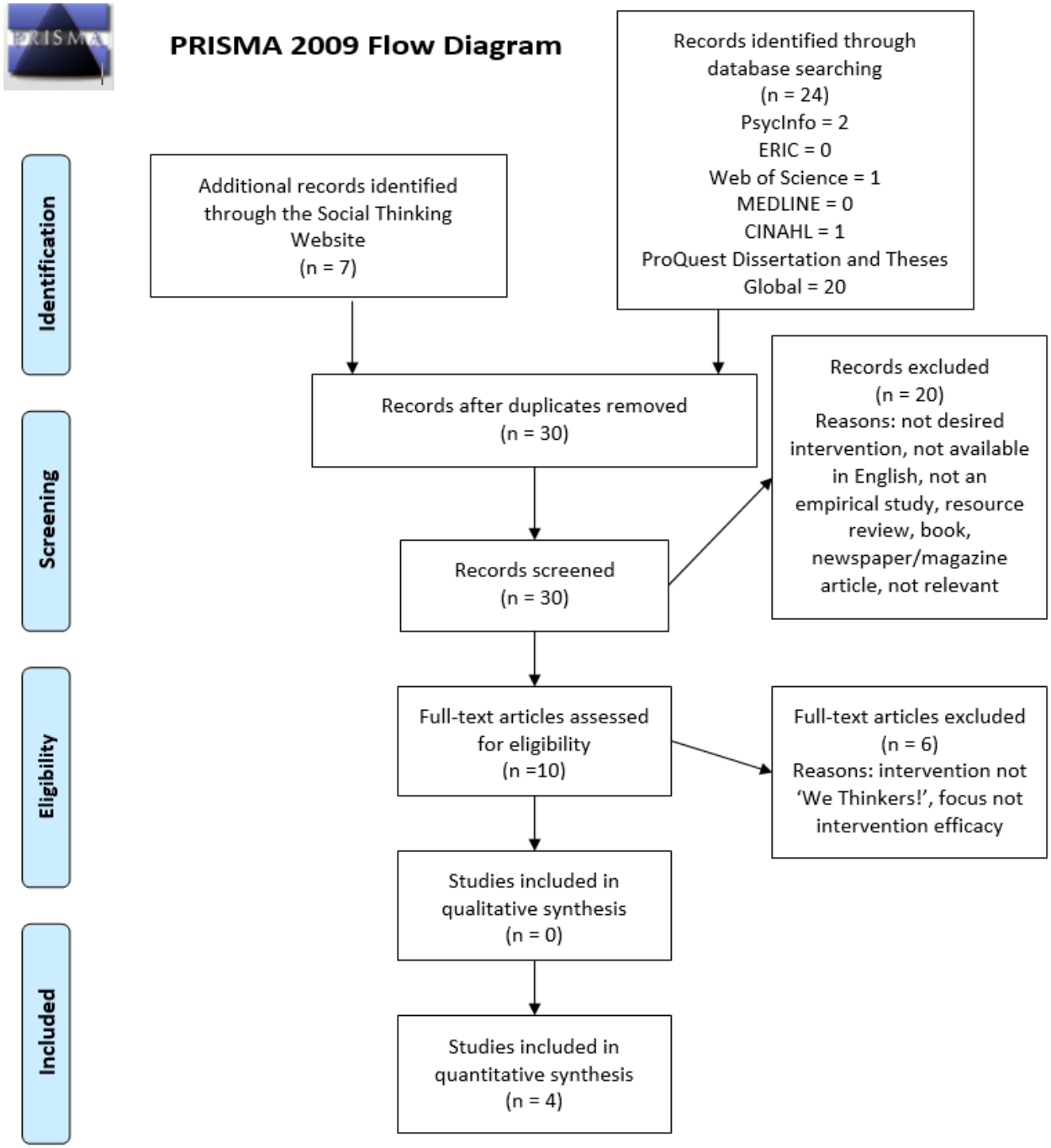
Table 3. *Question and search strategy development using the SPICE framework.*

SPICE Framework	Question Elements	Search Strategy
Setting	Any	
Population	Children and young people	
Intervention	We Thinkers! (formerly *The Incredible Flexible You*)	"We Thinker*" OR "Incredible Flexible You"
Comparison	Not applicable	
Evaluation	Development of social competencies	

Table 4 *Systematic search inclusion and exclusion criteria.*

Inclusion Criteria	Exclusion Criteria
Participants aged 17 or under	Participants aged 18 or older
Full text available	Systematic reviews
Paper available in English	Reviews of resources
Must include an empirical study	Book / newspaper / magazine articles
Intervention is We Thinkers! / The Incredible Flexible You (Hendrix, Palmer, Tarshis & Winner, 2013)	
Outcomes relating to social competencies	

Figure 1. *PRISMA Flow Diagram (Moher et al., 2009).*



Appendix B

Table 5. *Quality assessment of qualitative studies using the National Institute for Health and Care Excellence's (2014) checklist for grey literature.*

		Draper (2020)	Edwards (2019)	Peters (2016)	Powell (2015)
Individual author	**Associated with a reputable organisation?**	Yes	Yes	Yes	Yes
	Professional qualifications or considerable experience?	Yes	Yes	Yes	Yes
	Produced/published other work (grey/black) in the field?	Unclear	Unclear	Unclear	Unclear
	Recognised expert, identified in other sources?	Unclear	Unclear	Unclear	Unclear
	Cited by others? (use Google Scholar as a quick check)	No	Yes	Yes	Yes
	Higher degree student under 'expert' supervision?	Yes	Unknown	Yes	Yes
	Detailed reference list or bibliography?	Yes	Yes	Yes	Yes
Accuracy	**Does the item have a clearly stated aim or brief?**	Yes	Yes	Yes	Yes
	Does the item meet its aims?	Yes	Yes	Yes	Yes
	Does the item have a stated methodology?	Yes	Yes	Yes	Yes
	Has the item been peer-reviewed?	No	No	No	No
	Has the item been edited by a reputable authority?	N/a	N/a	N/a	N/a
	Is the item supported by authoritative, documented references or credible sources?	Yes	Yes	Yes	Yes
	Is the item representative of work in the field?	Yes	Yes	Yes	Yes
	If no, is it a valid counterbalance?	N/a	N/a	N/a	N/a
	Is any data collection explicit and appropriate for the research?	Yes	Partly	Yes	Yes
	If the item is secondary material (e.g. a policy brief of a technical report), does it provide an accurate, unbiased interpretation or analysis of the original document?	N/a	N/a	N/a	N/a
Coverage	**Are any limits to the item clearly stated?**	Yes	Partly	Yes	Partly

Objectivity	**Is the author's standpoint clear?**	Yes	Partly	Yes	Partly
	Does the work seem to be balanced in presentation?	Yes	Partly	Yes	Yes
Date	**Does the item have a clearly stated date related to content?**	Partly	Yes	Partly	Partly
	If no date is given, but can be accurately ascertained, is there a valid reason for its absence?	N/a	N/a	N/a	N/a
	Has key contemporary material been included in the bibliography?	Yes	Yes	Yes	Yes
Significance	**Is the item meaningful (i.e. does it incorporate feasibility, utility and relevance)?**	Yes	Yes	Yes	Yes
	Does it add context?	Yes	Yes	Yes	Yes
	Does it enrich or add something unique to the research?	Yes	Yes	Yes	Yes
	Does it strengthen or refute a current position?	Yes	Partly	Yes	Yes
	Would the research area be lesser without it?	Yes	Yes	Yes	Yes
	Is it integral, representative, typical?	Yes	Yes	Yes	Yes
	Does it have impact (in the sense of influencing the work or behaviour of others)?	Yes	Yes	Yes	Yes
Comments (where response was no, unclear, or partly)		Unknown when data was collected.	They are a student; a supervisor is not named. Explanation of the points sheet and associated reward systems remains unclear. No reflection on the author's joint position as the researcher and the teacher (who delivered the intervention). Some consideration of limitations, others could have been explored.	Unknown when data was collected.	The data analysis methods are unclear. Author's position is mentioned in different areas of the report, but could be clearer (e.g., they are one of the school's psychologist, this is only mentioned in the appendix). Unknown when data was collected.

Appendix C

Table 6. *Data extraction table.*

Study population	Study objective	Intervention, training, and support	Study design	Measures/analysis used	Outcomes/themes reported
Powell (2015)					
8 children in Kindergarten, age 5.7 – 6.3 5 females, 3 males No concern for language or learning abilities Teacher ratings/referral identified all children as demonstrating below-average social skills	"To assess the impact of a brief, social-cognitive model of social skills intervention on student social attendant behaviour, monitoring behaviour and social skills"	12, 40-50-minute sessions, 2x a week over 6 weeks – length of each book dependant on the group 2 intervention groups, each with 4 children – outside the classroom Co-delivered by a trained speech-language pathologist and the researcher (1 session just SLP) Researcher = school psychologist TIFY Vol 1	Wait-control design Quasi-experimental design 3 data collection periods – before intervention teachers completed 3 rating scales for each P – then after 1st group completed intervention – then after group 2 concluded IV = intervention DV = social attendant behaviour (SSIS/SRS-2), self-monitoring skills (BRIEF), overall social skills	3 data collection periods Social Skills Improvement System (SSIS) Rating Scale – measures social skills, problem behaviours and academic competence. (DV = cooperation, engagement and self-control subscales + social skills scale) Social Responsiveness Scale (SRS-2) School Age – measures social, communication and repetitive/stereotypic behaviour associated with ASC – used Social awareness subscale and Social Cognition subscale Behaviour Rating Inventory of Executive Function (BRIEF) – school executive function behaviours (used Monitor subscale)	"did not provide evidence of the program's ability to improve social attendant behaviours, monitoring behaviours, or social skills in kindergarten students identified as demonstrating below-average social skills" Social attendant behaviours – no sig effect size Monitoring behaviour – moderate effect for group 1 Social skills – no sig effect They suggest that "practitioners should know that students require better attention skills than is stated"

Peters (2016)					
8 male children aged 5 – 7 with placements in self-contained kindergarten or first-grade classroom All diagnosed with ASD 3 significant developmental delay (37.5%), speech and language impairments (87.5%) IQ 80 – 117	"To evaluate the effectiveness of the program upon the participant's positive social initiations, positive social responses, and active engagement during recess."	Intervention delivered daily for 20 minutes in a small group over 5 weeks (25 sessions) – one week per storybook Intervention delivered to pairs of participants. After one pair finished the intervention, the next pair started. Delivered by the researcher whilst a teacher and a paraprofessional engaged with other students in the class.	Concurrent multiple baselines across participants single-case research design Baseline (until 5 data points), intervention (5 weeks of TIFY sessions), follow up (1-week after intervention) Performance goal of 25% improvement needed to be achieved on 3/5 consecutive sessions. IV = intervention DV = positive social initiations, positive social responses and appropriate active engagement	Observational data collected by the researcher at 10, 1-minute intervals each day of the intervention, during playtime. Autism Social Skills Profile (AASP) completed by parents pre- and post-intervention (overall social functioning). Social validity (extent to which all stakeholders of an intervention approve of it) assessed using the Behaviour Intervention Rating Profile (BIRP) – completed by school professional-rated TIFY across acceptability, effectiveness and time to effect – rated effectiveness as acceptable and perceived effectiveness for each student to be only slightly effective Research assistant trained to assess intervention procedural fidelity –checklist for 7 required instructional components whilst observing.	"Slight gains in social competency, yet the data did not support a functional relation between the intervention and dependent variables." **Positive social initiations** – all Ps reached a 25% increase goal during the 1st or 2nd storybook. At follow up, all Ps maintained levels of positive social initiations at or above the intervention mean. BUT unclear if intervention is the cause. Modest improvement baseline to follow up. **Positive social responses –** 7 Ps 25% increase on book 1 – 5. 1P did not show an increase. All maintained positive social responses at or above intervention mean. Unclear if slight changes were due to intervention. Modest improvements. **Appropriate active engagement –** 7Ps 25% increase book 1-3, 1P did not meet the target. Intervention levels maintained at follow up. Not no convincing evidence that intervention was the cause. Modest effects. **Overall social functioning – ASSP** paired sample two-tailed t-test - SIG with a large effect – therefore, TIFY had a significantly positive effect on overall social functioning.

Edwards (2019)					
8 primary age students with moderate-severe emotional behavioural disabilities 7 boys, 1 girl All EBD: 1 ASD, 1 ADHD, 6 'emotional disability', 4 read 1+ levels below grade. Convenience sampling	"determine the impact of the IFY v.1 daily social skills curriculum on social interaction and self-management skills on students within a primary level self-contained classroom with moderate to severe emotional behavioural disabilities"	45-minutes intervention every day for 20 days All staff trained to use the points sheet (instruction and modelling). Students given direct instruction about their points sheet – how they can earn and lose points. Reminders throughout the school day. During intervention, students could earn tangible rewards related to points.	Pre-experimental design (Ps as their own controls), 20-day baseline in February 2019, 20-day intervention period in March 2019 IV = intervention DV = point sheet Researcher = classroom teacher	Daily points sheet completed by teacher, social worker, two paraeducators to record social interaction and self-management skills. They could earn up to 5 points per instructional block of time (13 x 30 min session). Received a point if they did not engage in non-compliance, inappropriate language, aggression, elopement/bolting and property destruction – these behaviours represent social interaction and self-management skills. Total of all points across the study (prorated for absences or shortened school day) They can also lose points – lose 1 point for each time a negative behaviour occurred. But, no negative scores. Once points lost can't be earned back.	Found a significant difference in points scored between the group for the baseline and intervention period. Non-independent t-test.

Draper (2020)					
12 students in 1st grade – 9 participated in We Thinkers! and 3 in classroom intervention Criterion sampling Teacher and school psychologist discretion determined children whose "behavioural disruptions" warranted Tier 2 intervention. Referral made to researcher who observed and interviewed the teacher to determine if they should be considered.	Comparison of a teacher-led, classroom-based intervention and a pull-out, small group intervention in improving SE&B outcomes for behaviourally at-risk elementary school students. To determine if the We Thinkers! Curriculum helps improve observed and teacher-reported problematic behaviours	Incredible Flexible You (Hendrix et al., 2013) + We Thinkers! Volume 2 Zweber-Palmer et al., 2016) 30-minutes, once per week, for 8 weeks. Delivered by researcher to 3 groups of 3 children. Teacher implemented the Class-wide Function-Related Intervention Teams (CW-FIT) group contingency program which encourages appropriate behaviour by awarding points for positive behaviour – with the whole class, data only for 3 participating children. Teachers given the choice which intervention – to maximise investment / fidelity. 4 chose pull-out, 1 classroom based.	Quasi-experimental design to examine the overall and relative effectiveness of 2 interventions 2 comparison groups that lacked random assignment IV = intervention (CW-FIT or We Thinkers! v.1+2) DV = off-task behaviour (= instances when the student was not engaged in the activity they were assigned to)	**Off-task behaviour** Researcher 30 min observation, pre/post intervention during guided. Recording on/off task behaviours every 30s (momentary time sampling). **Excessive social interaction** – 30 min observation, 30s recording pre/post during guided reading **Outcome variables** 1. Social/emotional competence – Social Skills improvement System, Social-Emotional Learning Edition, Core Skills scale (SSIS – SEL) teacher rating 2. Behavioural problems – Strengths and Difficulties Questionnaire (SDQ)	Improved teacher-reported social and emotional outcomes, but a lack of significant change in behavioural measures. **Repeated-measures paired samples *t*-tests:** *Frequency of off-task behaviours NOT sig different. (small effect size) *Excessive social interaction – NOT sig different (small effect size) *Social and emotional competency – SIG higher scores post-intervention (p=.017) with a large effect size *Behaviour problems – NOT sig different (small effect size) **Paired sample *t-tests* to analyse social and emotional competency pre- / post-intervention separately for each intervention** *WeThinkers! SIG higher after intervention vs pre (large effect size). *CW-FIT group NOT sig different (large effect size) Positively impacted skill *acquisition* but not *behaviours* Small group more effective than classroom-based