Hemsley, Bronwyn “Evidence does not support the use of Rapid Prompting Method (RPM) as an intervention for students with autism spectrum disorder and further primary research is not justified”. Published in Evidence-Based Communication Assessment and Intervention Vol. 10, Issue 3-4, p. 122-130 (2016)

Available from: https://doi.org/10.1080/17489539.2016.1265639

This is an Accepted Manuscript of an article published by Taylor & Francis in Evidence-Based Communication Assessment and Intervention on 16/12/2016, available online: http://www.tandfonline.com/10.1080/17489539.2016.1265639

Accessed from: http://hdl.handle.net/1959.13/1327023
REVIEW-TREATMENT

Evidence does not support the use of Rapid Prompting Method (RPM) as an intervention for students with autism spectrum disorder and further primary research is not justified1

Bronwyn Hemsley (Commentary author)

Faculty of Education and Arts, The University of Newcastle, Newcastle, NSW, Australia

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1. To determine if there is any evidence to support the use of the Rapid Prompting Method (RPM) as an intervention for students with autism spectrum disorder (ASD).
2. To present, contextualize, analyze, and evaluate sources and issues relating to RPM.
3. To consider the implications of findings in an educational context.
4. To ascertain if RPM is a suitable intervention to use with students with ASD.

METHODS

Design: Narrative review.

Data sources: The authors searched databases available through the National University of Ireland Galway Library and used internet searches for research relating to RPM


Source of funding and declaration of interests: Funding is not reported. Author conflicts of interest are not reported.

For correspondence: E-mail: Bronwyn.Hemsley@newcastle.edu.au
The names of the databases and internet search engines used were not provided. The authors used the search terms: ‘Rapid Prompting Method’, ‘Soma’, ‘HALO’, ‘RPM’, and ‘autism’. No information on the search parameters, time frame, strategies, methods, or any constraints applied to the search were provided. Therefore, it is not possible to determine if the search was capable of retrieving all relevant studies.

**Study selection and assessment:** None of the studies included in the review met the criteria for treatment studies that would be typically be considered as thresholds for inclusion in a systematic review, such as experimental or quasi-experimental designs that allow the establishment of a functional relation between the treatment and the outcomes. There did not appear to be any appraisal of the quality of the methodology or comparability of the treatment or data for the included studies. The authors did not report (a) the number of items retrieved in the search; (b) the rationale or method of screening title or abstract; (c) the number of items retrieved for full text review; (d) inclusion or exclusion criteria - although the decision to include non-peer-reviewed research was explained as being due to “a dearth of studies in this area” (p. 93); or (e) personnel involved in decisions on inclusion or exclusion. The review included three studies described by Deacy et al. (2016) as primary research, only one of which was peer reviewed. The peer-reviewed study, Chen et al. (2012), was critically appraised by Lang et al. (2014). One of the non-peer-reviewed sources, Solomon (2006), was cited as a doctorate, but is a short report on postdoctoral research that is only available to the public from the HALO website (HALO, 2016). The results of this research have been published elsewhere (see Ochs, Solomon & Sterponi, 2005; Solomon, 2011), but these reports were
not included in the review. Although the authors described the other non-peer reviewed article (Gernsbacher, 2004) as using “an adapted form of RPM” (p. 96) they also stated that “it is unclear if the intervention used in this study could accurately be described as RPM” (p. 96), reporting that:

the child’s mother … modified the methods of the RPM approach. The emphasis was on providing a means of expression for the child rather than on the academic content prioritized by RPM. Choice cards, marking sheets and finally a modified typing system were used for communication. The RPM core element of ‘repetitive prompting’ is not referred to in this study, so it is unclear if the method used is closer to ‘facilitated communication’.

Chen et al. (2012) noted that all participants had autism and lacked “flexible, communicative speech” (p. 5). Solomon (2006) reported that the study included 16 children with severe autism, the majority of whom were non-speaking. The case in Gernsbacher (2004) is not described as having a diagnosis of autism.

As noted above, all three of the studies included in the review had a high risk of bias related to the involvement of the developer of RPM, Soma Mukhopadhyay, as a therapist in video data included in the research, and by the support of HALO in the conduct of the research. However, the review authors only noted a possible conflict of interest for one study - not identified in the review as Chen et al. (2012) - in which one of its co-authors served on the scientific advisory board of HALO. Further risk of bias in the included studies is as follows: (i) Lang et al. (2014, p. 45) reported that: “Belmonte (co-author of the Chen et al. study) is also on the scientific advisor board of HALO and that Mukhopadhyay (creator of RPM and director of HALO) was the therapist for all nine
participants”; (ii) Solomon (2006), reported postdoctoral research funded by the National Academy of Education, Spencer Foundation, and results of this research have since been reported in Ochs et al. (2005) and Solomon (2011). This was confirmed by personal communication with the author (Solomon, 2016). Solomon (2006, p. 3) also reported that the RPM therapist for six of the children had been Soma Mukhopadhyay, one of whom was also videoed at Mukhopadhyay’s home. Later, Solomon (2011, p. 107-108) reported participants as being: “Sixteen, 8- to 17-year-old severely affected children and teens with ASD at home and in educational and clinical settings” with a footnote that the video data for this study are part of a 500-hour archive collected by Portia Iversen for a documentary project at the Cure Autism Now Foundation.

Approximately 100 hours of video involving nine severely affected children interacting with Soma Mukhopadhay, teachers, clinicians, and parents were selected by the author (p. 108);

(iii) Gernsbacher (2004) reported that the parent in the study had taken her son to visit Soma Mukhopadhyay in the United States but “was unwilling to go to the extreme measures that the Indian mother had used with her son” (Gernsbacher, 2004, p. 88) and adapted the treatment.

**Outcomes:** The authors provided a description of selected relevant findings from the included studies and discussed this briefly in relation to previous literature on RPM before concluding there is insufficient evidence for using RPM with children with ASD in educational settings and calling for further research.

**MAIN RESULTS**

The authors described using a documentary method analysis, which involved first
developing categories of analysis of background information on RPM, primary research, and commentaries, and then providing a commentary on the studies in relation to four themes of academic subject learning, communication, prompting, and behavior.

In relation to academic learning, the review authors reported: “this review has identified no published research on the effect of RPM on academic achievement” (p. 96). Nonetheless, the review authors re-stated the assertions of Chen et al. (2012) that “when task complexity was increased, there was no decrease in correct responses” – even though this finding had since been disputed (Lang et al., 2014; Tostanoski, Lang, Raulston, Carnett, & Davis, 2014). The review authors found that “there is a distinct tension between HALO and parents in relation to the educational and conversational ways of practicing RPM and its implications for participation in the social life of the students” (p. 96), drawing only upon Solomon (2006) and a study that was not clearly about RPM (Gernsbacher, 2004). This is later used to justify further research on the fidelity of RPM in treatment studies.

In regards to prompting, Deacy et al. (2016) again re-stated the findings of Chen et al., (2012) that “the matching of a variety of prompts to learning styles by tutors facilitated all modes of learning. No single style of prompting proved preferable in supporting the students” (Deacy et al., 2016, p. 96). The authors again re-cast Chen et al. (2012) without recourse to its critical appraisal (Lang et al., 2014) to report that “although changes in behaviour is not a stated aim for RPM, Chen et al. (2012) found the reduction of repetitive behaviours by RPM was significant” (Deacy et al., 2016, p. 97). In all categories the authors relied on re-stating results of the included studies, provided minimal and non-critical commentary, and did not provide a narrative review or critical
synthesis of results in relation to the broader literature on RPM.

AUTHORS’ CONCLUSIONS

The review authors drew several conclusions from the disparate studies included in the review, as follows: (a) the lack of research evidence on RPM needs to be addressed by the academic community; (b) because of inconsistency in applying RPM evident across the included studies, further research on “fidelity and faithfulness” (p. 97) of RPM is needed; (c) there is not sufficient evidence to support the use of RPM; and this conclusion supports that of the Wisconsin Department of Health Services Autism and Other Developmental Disabilities Treatment Intervention and Advisory Committee and Determination (2014, p. 5) in that “there is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package”; d) there is a possible link between RPM and repetitive behaviors, (e) anecdotal reports on the benefits of RPM published on the blog of Vosseller (2015a) warrant validation studies on RPM “dependent on the commissioning of research which would address RPM’s claims in academic and communicative development” (p. 98); and (f) more research on RPM is needed “before teachers should use it is as part of their evidence-based practice repertoire” (p. 98)

Commentary

This review authors aimed to determine if RPM was a suitable intervention for students with ASD, and concluded that there was insufficient evidence to support the use of RPM by evidence-based teachers working with students with ASD. This conclusion is warranted by the evidence on RPM to date. However, this conclusion is not justified by the data presented in the included studies. In addition, the findings of this review are
questionable for several reasons: (i) the authors did not declare funding or conflicts of interest; (ii) the research questions were not well defined; (iii) none of the studies included in the review met the criteria for treatment studies to be included in a systematic reviews; (iv) the review did not meet quality criteria for systematic review (Schlosser, Wendt, & Sigafoos, 2007); (v) the authors’ attempts to locate and appraise research reports on RPM appeared to be insufficient - the authors included only one study that was peer reviewed (Chen et al., 2012) and failed to locate a detailed account of Solomon (2006) in Solomon (2011) and Ochs et al. (2005); (vi) some of the included studies’ are potentially problematic due to potential conflict of interests and consequent risk of bias, which were not adequately reported; (vii) there was no appraisal of quality of the methodology or comparability of the treatment or data in the included studies; (viii) the review authors’ documentary analysis method is not described in sufficient detail to enable replication, and is non-critical; (ix) the authors only tabled each study’s author, purpose, participants, and a brief comment of the intervention and results; but provided no detail on participants’ diagnosis, educational level, non-verbal and/or augmentative and alternative communication or other communication skills or strategies, or their behavior. Therefore, it is not clear how the findings delivered on RPM relate to the aims of the review. Furthermore, without consideration of differences between the studies and participants taking part, the results were discussed in relation to participants’ academic subject learning, communication, prompting, and behavior; (x) the review authors reported taking not only the results, but also background to the research and commentary into account in the documentary analysis. However, they did not dispute flaws in background or commentary of the included studies by reference to current research on
ASD and communication. For example, Solomon (2006) erroneously asserted that speech is considered the default method of communication for both the speech therapist and the child; when augmentative and alternative communication (AAC) systems and strategies have been the focus of communication interventions for children with ASD (e.g., Iacono, Trembath, & Erickson, 2016). The review authors rightly noted that previous literature on RPM had compared Facilitated Communication (FC) to RPM and raised concern at the likelihood that messages delivered by RPM are authored by the RPM facilitator (e.g., Boynton, 2012; Todd, 2012; Tostanoski et al., 2014). Indeed, the authors were not able to determine if the treatment in one of their included studies (Gernsbacher, 2004) was RPM or FC. However, in their conclusions, the review authors did not discuss the included studies in relation to previous assertions, that: (a) RPM is a modification of FC in which “the facilitator subtly moves the keyboard or letter board as the individual types without apparent physical assistance” (Lilienfeld, Marshall, Todd, & Shane, 2015, p. 73); (b) Chen et al. (2012) had depicted RPM “in unjustifiably favorable ways” (Lang et al., 2014, p. 47); and (c) Chen et al.’s data rather “suggest that RPM may create an illusion similar to FC by fostering indefinite prompt dependency” (Lang et al., 2014, p. 47).

Neither did the review authors discuss the ethical implications of concerns over authorship of messages delivered by RPM, before recommending the “commissioning of research which would address RPM’s claims in academic and communicative development” (p. 98). This conclusion is contrary to the opinion of Lang et al. (2014, p. 46), who wrote:

The paramount question to be addressed by researchers investigating RPM should pertain to authorship of the messages. Before hypothetical explanations are offered
about how or why RPM works, evidence is needed regarding the authenticity of messages generated by people with ASD who use a letterboard held by facilitators.

The authors’ conclusion that there is a lack of research evidence on RPM, and insufficient evidence to support the use of RPM, is supported by the broader body of literature on RPM. However, the authors also concluded that because of inconsistency in applying RPM evident across the included studies, further research on “fidelity and faithfulness” (p. 97) of RPM is needed. This conclusion is not well supported by the literature, and might reflect lack of comparability of the studies included in the review.

The review authors’ conclusion that their review supports the finding of the Wisconsin ETC (2014) is accurate. However, they go on to discount the significance of RPM lacking empirical evidence by noting that other treatments for ASD also lack an evidence-base. While this may be the case (see Green et al., 2006), it does not justify the use of RPM with students with ASD, as there are known risks and potential harms of messages delivered by RPM and authored by the facilitator (e.g., Lang et al., 2014; Lilienfeld et al., 2015; Tostanoski et al., 2014). The review authors’ conclusion that more research is required into RPM “before teachers should use it as part of their evidence-based practice repertoire” (p. 98) is weakened by its use of the moral imperative and failure to detail the quality or amount of research needed for teachers and clinicians to consider in forming an evidence-based decision on whether or not to implement RPM.

The authors’ conclusion that “early indications would suggest a possible link between RPM and repetitive behaviours” (p. 98) is not supported by any indication that the authors examined data in Chen et al. (2012), nor by recent literature outlining an alternative interpretation of the data suggesting that RPM results in an illusion of
communication and prompt dependency (Lang et al., 2014). The serious methodological flaws of Chen et al. (2012), have previously been outlined by Lang et al. (2014).

Having found no further peer-reviewed research before or since Chen et al. (2012) on educational outcomes of RPM, the review authors referred to anecdotal testimony of parents on RPM - citing one account of a “client and now dear friend” (Vosseller, 2015a) of Vosseller, an RPM provider (Vosseller, 2015bb) - to support their conclusion that validation of RPM depends on the commissioning of research to address RPM’s claims. It could be argued that the priority for costly commissioned research should not be to examine RPM, which has been discredited in the literature, but instead examine promising AAC interventions for children with ASD (see Iacono et al., 2016) that involve independent forms of communication (see Brignell et al., 2016).

As the authors note, the results of the review do not provide further research-based insights on the educational outcomes of using RPM with students with ASD. Given a recent surge in literature relating to RPM (Deacy et al., 2015; McQuiddy et al., 2016; Ochs et al., 2005; Solomon, 2011), and the rapid dissemination of information about RPM through social media (Lang et al., 2016; Lilienfeld et al., 2015), there is a pressing need for key stakeholders to examine any literature on RPM critically in terms of its methodological rigor and its publisher’s credibility (Bealle, 2016). Clinicians, teachers, and parents reading literature on RPM or other treatments for ASD, whether peer-reviewed or not, need to know how to evaluate the methodology and potential risk of bias in reports on studies (e.g., to determine whether studies have been funded by Cure Autism Now Foundation, HALO, or an RPM provider, or includes data collected by Cure Autism Now, HALO, and/or Soma Mukhopadhay, or an RPM provider) (see Bowen &
Snow, 2017). In weighing up conflicting reports of potential benefits or harms of RPM for children with ASD, evidence-based policy-makers must take into account the highest level of evidence available, including critical appraisal of published research (e.g., Lang et al., 2014), and not rely on unsubstantiated anecdotal reports of RPM being of benefit to children with ASD, such as those appearing in the mainstream media (e.g., Hallman, 2016), blogs (e.g., Vosseller, 2015), or articles on RPM published in questionable journals (e.g., McQuiddy et al., 2016).

In 2006, Green et al. found that parents of children with ASD report using an average of seven treatments for their children, and used multiple treatments lacking empirical support. RPM was being ranked number 34 among 108 treatments and was reportedly used by 7% of the 552 parents responding to the internet survey (Green et al., 2006). It is not known whether these findings can be generalized to the current use of RPM by parents of children with ASD. Parents who are considering providing informed consent for the participation of their children in research on RPM need to be aware that (a) the Chen et al. (2012) study is seriously methodologically flawed but suggests that RPM may create the illusion of communication and result in indefinite prompt dependency (Lang et al., 2014), and (b) RPM has been compared to FC (see Tostanoski et al., 2014; Travers, Tincani, & Lang, 2014). As there are no studies validating authorship using RPM, there is a possibility that messages delivered by RPM could be intentionally or subconsciously authored by the facilitator holding the letter board (Tostanoski et al., 2014). Indeed, Tostanoski et al. (2014) issued a strong warning to readers that “RPM and FC are so similar that the devastating and horrific consequences of FC are likely to occur with RPM.” (p. 219). Considering the growth in ethnographic
literature on RPM (Deacy et al., 2016; McQuiddy et al., 2016; Ochs et al., 2005; Solomon, 2011) it is important that all stakeholders involved in the provision of services to children with ASD (a) exercise due diligence in enacting their duty of care to people with ASD to provide evidence-based treatments that do not cause harm; (b) apply critical appraisal skills to the reading of all literature relating to RPM, and seek the advice of appropriately qualified professionals in the fields of ASD, education, communication, and behavior if in doubt about any potential risk of bias, conflict of interest, internal threats to rigor, or implications of the research; and (c) exercise caution and due diligence in any decisions regarding the use of RPM for people with ASD for clinical, educational, or research purposes.

In relation to future research, institutional ethical review boards considering ethical approval of research on RPM need to consider not only anecdotal or descriptive reports claiming benefit (e.g., Gernsbacher, 2004; McQuiddy et al., 2016; Solomon, 2006) but also the potential harms of RPM and availability of beneficial treatments for children and adults with ASD. In this context, treatment studies on RPM could be considered potentially harmful if (a) replacing opportunity for treatments that work, or (b) introducing the possibility of a child becoming indefinitely prompt dependent and the potential for the child’s voice to be replaced by the facilitator’s. Furthermore, the methods used in RPM interventions could be considered as potentially harmful to people with ASD. Todd (2012, p. 2501), described the procedures of RPM as including physical restraint and abuse:

Escape or other disruptive behavior is dealt with physically. Subjects are kept in place by positioning them between the table and walls such that the teacher can
block the subject’s only escape route, and is able to move away if the subject’s behavior becomes unmanageable … Errors are corrected by verbal reprimands, trial termination, physical redirection using the stencil or letter board to push the subject’s hands away. This can include slapping or shaking the letter board against the subject’s face or chest. (p. 2501).

On the basis of literature on RPM to date, and the findings of this summary and commentary appraisal, further research that exposes students with ASD to RPM is not justified. However, further research on pseudoscientific treatments in ASD could include RPM in scans of social network sites (e.g., of YouTube, Twitter, Facebook, and Instagram) to detect how information, misinformation, and disinformation (e.g., Nguyen, Yan, & Thai (2013) about RPM is produced and disseminated in online forums and how this compares with or relates to information produced about FC (e.g., FC, see Hemsley & Dann, 2015).

In conclusion, the methodological flaws of Deacy et al. (2016) highlight that a systematic review of RPM is warranted to appraise treatment studies relating to RPM in children and adults with ASD. A systematic review would inform clinical practice guidelines on the use RPM with people with ASD, and guidelines on the design, funding, or ethical approval of research relating to RPM. Schlosser et al., (2016) recently registered a systematic review of rapid prompting method on the Prospero International Prospective Register of Systematic Reviews. A new protocol for a Cochrane review of communication interventions for minimally verbal children with ASD (Brignell et al., 2016), that specifically excludes FC and RPM or any other interventions that require physical support to communicate, will complement Schlosser et al. (2016) in helping key
stakeholders to make evidence-based decisions in relation to communication
interventions for children with ASD.

**Declaration of interests.** The commentary author reports no conflicts of interests and is
solely responsible for the content of this structured abstract. This review was supported in
part by funding from the Australian Research Council DE140100443.

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