

A critical analysis of the Model Statement literature: Should this tool be used in practice?

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Abstract

Investigators need to elicit detailed statements from interviewees to find potential leads, whilst simultaneously judging if a statement is genuine or fabricated. Researchers have proposed that the Model Statement (MS) can both (a) increase information elicitation from interviewees and (b) amplify the verbal differences between liars and truth tellers, thereby enhancing lie-detection accuracy. Based upon a critical analysis of the MS literature, we argue that this tool is not currently ready for practical usage, as its utility has not been fully established. We highlight a diverse range of existing MS scripts, and a greater diversity in the dependent measures examined in conjunction with this tool. More robust replications of these procedures are needed. We also highlight why some measures of verbal content may not be suitable as outcome measures and suggest that new research could use the well-established reality monitoring criteria to allow for standardisation across studies.

KEYWORDS

critical analysis, information elicitation, investigative interviewing, lie-detection, Model Statement

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1 | INTRODUCTION

Lies are typically difficult to detect (Vrij, 2008). Theoretically, this is because only small and unreliable differences exist between genuine and fabricated statements (DePaulo et al., 2003; Hartwig & Bond, 2011). As such, researchers have begun developing interviewing techniques to magnify available cues to deception and improve lie detection performance (Vrij & Granhag, 2012). Built upon the insight that longer, more detailed statements typically contain more cues to deception than shorter statements (Vrij et al., 2007), at the core of this 'information-gathering' approach is the goal of obtaining as much information as possible from an interviewee (Bull, 2010; Fisher, 2010; Fisher, Milne, & Bull, 2011). One example of such a tool is the Model Statement (MS).

The MS is an example of a detailed statement (on an unrelated topic to that of the interview), designed to encourage interviewees to report more detailed statements (Porter et al., 2018). Researchers have indicated that the MS technique is currently being used by practitioners (Leal, Vrij, Deeb, & Kamermans, 2019a), such as police and intelligence officials (see Vrij, Leal, Mann, Vernham, & Brankaert, 2015; Vrij, Leal, & Fisher, 2018a). Additionally, the Centre for Research and Evidence on Security Threats website also provides advice on how to create your own MS (<https://crestresearch.ac.uk/resources/model-statement-technique/>). It therefore seems opportune to assess how well this approach may translate into practice. For this reason, the authors have conducted a critical analysis of the literature which highlights the following issues, the diverse range of dependent measures used within MS research (see Table 1), the variation in MS scripts (see Table 2) and the lack of a theoretical rationale for using the MS (see Table 3). We argue that, based on the above issues, the MS should not be used in practice in the current form. Recommendations for the development of the MS are provided.

2 | THE MODEL STATEMENT

The MS is an example of a highly detailed statement, on an unrelated topic to that of the interview, designed to prompt interviewees to be more detailed. Originally, the MS was developed as part of a hybrid interview as a method for encouraging cooperative individuals (truth tellers) to provide more detailed statements (Hirn, Fisher, & Carol, 2012). This approach was subsequently applied to lie-detection settings with the aim of (a) encouraging individuals to provide more information and (b) improving verbal lie-detection performance (Leal, Vrij, Warmelink, Vernham, & Fisher, 2015).

3 | METHOD

3.1 | Overview

We searched for relevant articles in ResearchGate, PsycLIT, PsycINFO, Google Scholar and Web of Knowledge, using a combination of key words such as 'MS', 'prime', 'example statement', 'lie', 'lying', 'detection', 'interviewing', 'information elicitation' and 'encouraging interviewees to say more'. We also checked the websites of journals that have published work in this area (Applied Cognitive Psychology, Acta Psychologica, Journal of Applied Research in Memory and Cognition, Journal of Investigative Psychology and Offender Profiling, Legal and Criminological Psychology, Psychology, Crime, & Law). We found 17 published studies, one conference presentation and one conference poster.

3.2 | Included studies

Inclusion criteria were (a) that the study employed some form of MS (or example), (b) used individual adult samples, (c) was written in English, (d) contained both truth telling and deceptive participants and (e) was published in a

TABLE 1 A summary of the MS research

Citation	Measures	Experimental design	MS information	Results	Limitations
Bogaard et al. (2014)	SCAN reality monitoring CBCA	Between subjects	A written-MS designed to elicit more information.	All participants provided more CBCA, SCAN and RM-related information.	The example statement was not useful in aiding in lie-detection, as both truth tellers and liars provided more information when the example was provided.
Leal et al. (2015)	Plausibility CBCA	Between subjects	An audio-recorded MS designed to make liars provide more spontaneous details, that are less plausible.	All participants provided longer statements, though liars were rated as less plausible.	The MS was not useful in aiding in lie-detection, as both truth tellers and liars provided more information. Plausibility is a subjective and measure which may led to a lack of consistency across investigators.
Ewens et al. (2016)	Overall detail reminiscences	Within subjects	Two audio-recorded MS used to prompt additional information and aid in deception detection.	All participants provided longer statements, and reminiscence did not enhance lie-detection.	Neither MS was useful in aiding in lie-detection. Reminiscence was not an effective measure.
Harvey et al. (2017)	Verifiable information	Between subjects	The MS used contained additional verifiable information within it, which aimed to enhance the amount of verifiable information truth tellers disclosed.	The MS resulted in the elicitation of greater verifiable information for truth tellers (compared to liars). Liars instead reported more unverifiable information. The percentage of verifiable detail was used to enhance lie-detection accuracy.	Whether the MS is driving this effect is unknown as this is combined with part of the verifiability approach.

(Continues)

TABLE 1 (Continued)

Citation	Measures	Experimental design	MS information	Results	Limitations
Vrij et al. (2017a)	Overall details, and ratio of complications	Within subjects (complications), between subjects (overall detail)	MS used to prompt additional information and aid in deception detection.	Both truth tellers and liars provide more information when an MS is present. Truth tellers provide more complications (and less common knowledge details and self-handicapping strategies) than liars.	Common knowledge details and self-handicapping strategies are highly subjective, difficult to code and hard to ensure consistency with. There is not theoretical rational for the formula for ratio of complications stated as: (complications/ (complications + common knowledge details + self-handicapping strategies).
Porter et al. (2018)	Spatial detail Temporal detail Perceptual information	Between subjects	A spatially (or temporally) emphasised MS was used to elicit more information from truth tellers, and to enhance lie-detection. Both were audio recorded.	The spatial-MS enhances information elicitation and lie-detection when spatial, temporal or perceptual information is used as a dependent variable. The temporal-MS only aids lie-detection when temporal information is used as a dependent measure.	The spatial-MS enhances information elicitation and lie-detection using a combination of measures. In contrast the temporal-MS only works when temporal information is used as a dependent measure. This is following an initial non-significant interaction effect.

Kleinberg et al. (2018)

Person references	Between subjects	MS introduced to tests its effectiveness.	The MS was not useful at eliciting more information.	This study uses a different range of measures, in which the MS did not enhance elicitation, or aid in lie-detection.
Location references				
Temporal information				
Date time references				
Spatial information				

TABLE 1 (Continued)

Citation	Measures	Experimental design	MS information	Results	Limitations
Vrij et al. (2018b)	Complications/common knowledge	Within subjects	MS used to prompt additional information and aid in deception detection.	The proportion of complications appears to be an effective measure.	Using measures such as common knowledge details and selfhandicapping strategies are highly subjective, difficult to code and hard to ensure consistency with. There is no theoretical rational for why this formula for the <i>proportion</i> of complications was created, or why this differed from the previous formula. Calculation: (number of complications + number of common knowledge details + number of self-handicapping strategies) and the number of complications was divided by this total score.

Leal et al. (2018)	Core/peripheral detail	Within subjects	An audio-recorded MS designed to raise the level of detail reported by both truth tellers and liars	All participants provided more information after hearing an MS, and the reverse order + MS did not enhance lie-detection. The only difference emerged between liars who reported more peripheral information in the MS condition.	The MS was not useful in aiding in lie-detection, as both truth tellers and liars provided more information. Peripheral information is a subjective and difficult measure to use in practical terms, as investigators may not know which information is core to their investigation.
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TABLE 1 (Continued)

Citation	Measures	Experimental design	MS information	Results	Limitations
Leal et al. (2019b)	Core/peripheral detail	Within subjects	An audio-recorded MS designed to raise the level of detail reported by both truth tellers and liars.	All participants provided more information after hearing an MS, and the reverse order + MS did not enhance lie-detection.	The MS was not useful in aiding in lie-detection, as both truth tellers and liars provided more information. Using peripheral information as a measure failed to replicate in this study.
Harvey et al. (2019)	Overall detail	Between subjects	An audio-recorded MS designed to raise the level of detail reported by liars	Liars provided more unique detail after hearing an MS compared to liars who heard no MS. When new detail was used both liars and truth tellers said more after hearing an MS.	The second phase of the study found that truth tellers were less accurate in the MS condition.
Bogaard et al. (2020)	Overall detail verifiable detail	Mixed factors design	The MS used contain additional verifiable information.	The MS resulted in greater information elicitation, specifically for verifiable information.	Lie-detection accuracy was not improved. In fact, the MS helped liars to appear more convincing by adding similar levels of verifiable information as truth tellers.
Porter and Salvanelli (2020)	Overall detail	Between subjects	An audio and written-MS were used to elicit more information from truth tellers and to enhance lie-detection.	Only truth tellers provided more overall detail when either MS was presented. Lie-detection accuracy was enhanced.	Both MSs were equally effective at eliciting more detailed statements and aiding deception detection which was not predicted.
Vrij et al. (2020)	Detail (defined as a non-redundant unit of information about the trip the interviewee allegedly had made)	Between subjects	An audio-recorded MS designed to raise the level of detail reported by both truth tellers and liars.	Truth tellers provided more new details, complications, common knowledge details and self-handicapping strategies.	The mean for the dependent variables ranged between 0.02 and 4.80 detail for truth tellers and 0.13–2.99 for liars. Although the MS was effective at eliciting more detail, the frequency of each detail criteria was very small.

Abbreviations: CBCA, criteria-based content analysis; MS, Model Statement; RM, reality monitoring; SCAN, scientific content analysis.

TABLE 2 An overview of the MSs characteristics

Citation	Adapted or newly created	Script/story	Length of MS	Presentation modality	Manipulation checks
Bogaard et al. (2014)	New	Surprise helicopter flight in New York	1291 words, approximately three pages of writing	Written	None included
Leal et al. (2015)	New	Race day event	734 words	Audio	None included
Ewens et al. (2016)	One new One from Leal et al (2015) Each MS was translated into Russian, Korean and Hispanic	Day at the beach Race day event	1 min 30 s 1 min 30 s	Audio Audio	None included
Harvey et al. (2017)	Adapted from Leal et al (2015), with verifiable information incorporated.	Race day event	377 words	Written	None included
Vrij et al. (2017a)	Adapted from Leal et al (2015). Each MS was translated into Russian, Korean, and Hispanic	Race day event	1 min 30 s	Audio	None included
Porter et al. (2018)	Spatial-MS Temporal-MS Adapted from Leal et al (2015), with spatially or temporally emphasised detail.	Race day event Race day event	265 words 261 words	Audio Audio	Multiple choice questions were used to ensure the participants paid attention to the MS

(Continues)

TABLE 2 (Continued)

Citation	Adapted or newly created	Script/story	Length of MS	Presentation modality	Manipulation checks
Kleinberg et al. (2018)	New	First day at university	527 words	Written	Multiple choice questions were used to ensure the participants paid attention to the MS
Vrij et al. (2018b)	MS from Leal et al. (2015)	Race day event	1 min 30 s	Audio	None included
Leal et al. (2018)	Likely to be the same MS as Leal et al. (2015)	Race day event	1.3 min long	Audio	None included
Leal et al. (2019b)	MS used in Leal et al., 2018	Race day event	1.3 min long	Audio	None included
Harvey et al. (2019)	Adapted from Leal et al. (2015)	Race day event	1 min 34 s 346 words	Audio	None included
Bogaard et al. (2020)	Same MS as Bogaard et al. (2014)	Surprise helicopter flight in New York	1291 words, 297 of which contain verifiable detail	Written	None included
Porter and Salvanelli (2020)	Written-MS Audio-MS A variation of the emphasised spatial and temporal MS (derived from Leal et al., 2015, see Porter et al., 2018)	Race day event Race day event	328 words 1 min, 51 s	Written Audio	Multiple choice questions were used to ensure the participants paid attention to the MS
Vrij et al. (2020)	MS used in Leal et al. (2015)	Race day event	1 min 34 s 346 words	Audio	None included

Abbreviation: MS, Model Statement.

TABLE 3 The rationale for using a MS, the findings and interpretations

Citation	Theoretical rational	Hypothesis/hypotheses	Supported	Interpretation
Bogaard et al. (2014)	No rational provided.	Participants who received the example statement would give more comprehensive statements, resulting in higher scores on CBCA, RM and SCAN.	Yes	More information was elicited from all interviewees, which does not support lie-detection.
		This effect would be more pronounced in truth tellers than in liars, thereby increasing discriminability of these methods.	No	
Leal et al. (2015)	The MS imposes cognitive load on liars. Adds pressure for liars to include more spontaneous detail than they have initially prepared.	Truth tellers will provide more detailed statements, compared to liars.	No	More information was elicited from all interviewees, which does not support lie-detection.
		Liars statements will be less plausible than statements provided by truth tellers.	Yes	
Ewens et al. (2016)	No rational provided.	The MS would lead to more additional detail (reminiscences) from truth tellers than from liars.	No	More information was elicited from all interviewees, which does not support lie-detection. Reminiscences was an ineffective measure.
Harvey et al. (2017)	Social comparison theory is used to explain how in the absence of objective information (such as in an interview setting), people will look to others to provide a basis for social comparison.	Truth tellers will report more verifiable detail than liars, particularly in the VA with MS condition.	Yes	The MS resulted in the elicitation of greater verifiable information for truth tellers (compared to liars), which when transformed into percentages, enhances lie-detection.
		Liars will report more unverifiable details than truth tellers, particularly in the VA with MS condition.	Yes	
		The percentage of verifiable detail (verifiable detail/total detail [verifiable plus unverifiable]) to be more diagnostic of veracity in the VA with MS condition than in the VA without MS condition.	Yes	

(Continues)

TABLE 3 (Continued)

Citation	Theoretical rational	Hypothesis/hypotheses	Supported	Interpretation
Vrij et al. (2017a)	No rational provided.	An MS will increase the total amount of detail provided by truth tellers and liars.	Yes	Both truth tellers and liars provided more information when an MS is present. Truth tellers provided more complications than liars.
		An MS will increase the number of complications in a statement but will not have an effect on common knowledge details or self-handicapping strategies, due to the expected opposite effect of an MS on truth tellers and liars for these cues.	Yes	Truth tellers provided less common knowledge details and self-handicapping strategies than liars.
		Truth tellers in the MS condition will include more complications (a), fewer common knowledge details (b) and fewer self-handicapping strategies (c) than liars.	Yes	
		The ratio of complications will be higher for truth tellers than liars in the MS condition.	Yes	
Porter et al. (2018)	A social comparison between truth tellers and the MS takes place.	The MS will elicit more detailed statements, particularly for truth tellers.	Yes	The MS elicits more information from truth tellers, aiding in deception detection. The spatial-MS enhances information elicitation and lie-detection when spatial information is used as a dependent variable. The temporal-MS is effective when temporal information is used as a dependent measure, however the interaction effect was not significant.
		Participants in the spatial-MS condition will provide more spatial details than participants in the control condition (MS main effect), particularly for truth tellers (veracity \times MS interaction effect).	Yes	
	The MS acts as a prime to encourage interviewees to be more detailed.	Based on these predictions, we expect classification rates of truth tellers and liars based on spatial details to be higher in the spatial-MS condition than in the control condition.	Yes	
		Similarly, the temporal-MS condition should elicit more temporal details than the control condition (MS main effect), again this should be particularly noticeable with truth tellers (veracity \times MS interaction effect).	Partially supported	
		Based on these predictions, we expect classification rates of truth tellers and liars based on temporal details to be higher in the temporal-MS condition than in the control condition.	Yes	

TABLE 3 (Continued)

Citation	Theoretical rational	Hypothesis/hypotheses	Supported	Interpretation
Kleinberg et al. (2018)	No rational provided.	The differences in linguistic and verbal content variables between truthful and deceptive statements are larger when an MS is provided, than when it is not.	No	The MS did not enhance the verbal output of interviewees. Detecting deception was not possible.
		Classification accuracy will be higher in the MS condition.	No	
Vrij et al. (2018b)	No rational provided.	Truth tellers will report more total details, more complications and fewer common knowledge details in Phase 2, post-model statement recall phase, than in Phase 1, initial recall phase.	Yes	Truth tellers provide more information in their second recall phase. Liars did the same but only for specific types of detail.
		Liars will report more total details, more common knowledge details and more self-handicapping strategies in Phase 2 than in Phase 1.	Partially supported	
		Differences between truth tellers and liars in the proportion of complications will be more pronounced in Phase 2 than in Phase 1 of the interview.	Yes	

Leal et al. (2018)	The MS raises expectations of how much information to report via a social comparison. The MS is an example, and examples are easier to follow, compared to instructions.	The MS will elicit more core and peripheral information, compared to a control, in the second recall.	Yes	More information was elicited from all interviewees which does not aid lie-detection.
		Truth tellers will report more new core details than liars in the second recall, particularly in the MS condition.	No	The only difference in the type of detail was that liars report more peripheral information –this is information that is perceived to be irrelevant to the core event.
		Liars will report more new peripheral details than truth tellers in the second recall, particularly in the MS condition.	Yes	
		Liars will report fewer new core and peripheral details than truth tellers in the reverse order recall, particularly in the MS condition.	No	

(Continues)

TABLE 3 (Continued)

Citation	Theoretical rational	Hypothesis/hypotheses	Supported	Interpretation
Leal et al. (2019b)	The MS raises expectations of how much information to report.	<p>The MS will elicit more core and peripheral information, compared to a control, in the second recall.</p> <p>Truth tellers will report more new core details than liars in the second recall, particularly in the MS condition.</p> <p>Liars will report more new peripheral details than truth tellers in the second recall, particularly in the MS condition.</p> <p>Liars will report fewer new core and peripheral details than truth tellers in the reverse order recall, particularly in the MS condition.</p>	<p>Yes</p> <p>No</p> <p>No</p> <p>No</p>	<p>More information was elicited from all interviewees which does not aid lie-detection.</p> <p>Using peripheral information as a measure failed to replicate in this study.</p>
Harvey et al. (2019)	The MS directs attention to the social norm 'be sufficiently detailed'	<p>Interviewees in the MS-present condition will report statements containing more overall detail than interviewees in the MS-absent condition</p> <p>In the delayed interviewing condition, liars will report more details than truth tellers in the MS-present condition, but liars and truth tellers will report a similar number of details in the MS-absent condition.</p>	<p>Yes</p> <p>Yes</p>	<p>Liars in the MS condition provided more unique detail compared to liars in the no MS condition. Both liars and truth tellers provided more new detail after hearing an MS.</p> <p>Truth tellers were less accurate in the MS condition.</p>
Bogaard et al. (2020)	The MS acts as a prime to encourage interviewees to be more detailed.	<p>False statements to be shorter and less detailed than truthful statements</p> <p>False statement to include more non-verifiable and less verifiable details than truthful statements</p> <p>A MS to prompt more detailed accounts</p> <p>A MS to increase the difference in the number of verifiable and non-verifiable details between false and truthful statements specified under expectation above.</p>	<p>No</p> <p>Yes</p> <p>Yes</p> <p>No</p>	<p>The MS resulted in more information being provided, but not more verifiable information.</p>

TABLE 3 (Continued)

Citation	Theoretical rational	Hypothesis/hypotheses	Supported	Interpretation
Porter and Salvanelli (2020)	Social comparison takes place between truth tellers who are presented with an MS.	More information will be elicited when the audio-recorded MS (audio-MS) is presented compared to a control condition, particularly for truth tellers.	Yes	The written- and audio-recorded MS elicited more information from interviewees, particularly truth tellers. This resulted in greater classification of truth tellers and liars.
		Based on these predictions, veracity classification rates will be higher in the audio-MS condition compared to the control. Similarly, more information will be elicited when the written version of a MS (written-MS) is presented, compared to a control condition, particularly for truth tellers.	Yes	Both MSs were equally effective at eliciting more detailed statements and aiding deception detection.
Vrij et al. (2020)	The MS prompts truth tellers to provide more detail and puts pressure on liars to include more detail than they have initially prepared.	A direct comparison of both MSs should reveal a stronger effect of information elicitation in the written-MS condition compared to the audio-MS condition, particularly for truth tellers. Veracity classification rates should be higher in the written-MS condition compared to the audio-MS condition.	No	
		The authors predicted that liars will be able to use countermeasures effectively in a MS interview (i.e., produce verbal responses that sound similar to truth tellers' responses), and that this is most likely to happen when they are informed about (a) the types of detail examined and (b) the amount of information they are supposed to give.	No	The authors state in their article that the hypothesis was rejected. They found no evidence that liars sounded like truth tellers after being informed about the MS and/or types of detail examined.

Abbreviations: CBCA, criteria-based content analysis; MS, model statement; RM, reality monitoring; SCAN, scientific content analysis; VA, verifiability approach.

peer-reviewed journal. This resulted in 14 relevant experimental studies, the details of which are summarised in Table 1. No exclusion criteria were used. Table 2 summarises the characteristics of each of the MS used in this literature. Table 3 summaries the theoretical rationale, findings and interpretations of the MS literature.

4 | RESULTS

To date, there have been 17 published studies using a MS and two studies reported at conferences (Hirn et al., 2012; Körner & Urban, 2018). One study used pairs of participants, and although the MS appeared useful for facilitating lie-detection, this has only been tested once (Vernham, Vrij, & Leal, 2018). As we are interested in individual participants, this study has not been included in the review. When tested with children, the MS failed to magnify the differences between liars and truth tellers, but also failed to elicit any additional information from interviewees, compared to interviewees in a control condition (Brackmann, Otgaar, Roos af Hjelmsäter, & Sauerland, 2017). As we are interested in adults, this study will not be included in the review. Boon, Milne, Roslout, Heinsbroek, and Heinsbroek (2020) created a conceptually similar technique to the MS. The authors provided participants with a demonstration of the level of detail investigators seek by describing an innocuous object. As we are interested in truth telling and lie telling differences, this study will not be included in the analysis.

In the 14 published MS studies that we are interested in, information elicitation effects were observed (Bogaard, Meijer, & Vrij, 2014; Bogaard et al., 2020; Ewens et al., 2016; Harvey, Vrij, Leal, Lafferty, & Nahari, 2017; Harvey, Vrij, Leal, Hope, & Mann, 2019; Kleinberg, Van Der Toolen, Vrij, Arntz, & Verschuere, 2018; Leal et al., 2015; Leal, Vrij, Deeb, & Jupe, 2018; Leal, et al., 2019b; Porter et al., 2018; Porter & Salvanelli, 2020; Vrij et al., 2017a; Vrij, Leal, Jupe, & Harvey, 2018; Vrij et al., 2020). However, in general, a review of the literature reveals that the MS has been (largely) unsuccessful at enhancing lie-detection performance (see Table 3). This is because both honest and deceptive individuals tended to add a similar amount of detail when exposed to a MS (but for an exception see Porter et al., 2018; Porter & Salvanelli, 2020). This critical review therefore explores some of the characteristics of these studies, as well as providing potential explanations for these findings.

4.1 | Theoretical explanations for the use of the MS

In the first paper to use the MS for lie-detection purposes, Leal et al. (2015) suggest that (a) when truth tellers hear a MS they can easily provide more information, while (b) liars find adding such additional information more cognitively demanding,¹ resulting in less plausible statements. The resulting difference in the quantity, and quality, of information disclosed is predicted to facilitate more accurate lie-detection. This makes theoretical sense because more detailed statements are more likely to be perceived as credible (Bell & Loftus, 1988; Johnson, 2006; Johnson, Foley, Suengas, & Raye, 1988), and we know from the deception literature that longer statements do result in greater lie-detection accuracy (Vrij, 2008, 2015).

There are two potential issues with the above explanation. First, the prediction is not empirically supported in the MS literature. In fact, the majority of MS studies reveal that liars are able to match the level of information truth tellers provide (e.g., Bogaard et al., 2014; Ewens et al., 2016; Leal et al., 2015). Second, cognitive load is not measured within MS research, so it is unknown whether this is a factor in the tool's effectiveness. Future research could investigate this by using either participant self-reports or physiological indices to assess experienced cognitive demand when a MS is presented (vs. when no MS is used).

Leal et al. (2018) later suggest that the MS may be more effective at information elicitation because examples are easier to follow compared with a 'report all detail' instruction. Unfortunately, this assumption was not tested. However, this could be explored by using self-report scales to assess both interviewing instructions in terms of relative simplicity, informativeness and clarity. In their newer research, Leal et al. (2019b) refrain from providing

any theoretical rationale for the MS, with the justification that this tool is already being used in practice (see also Vrij et al., 2015, 2018a; Vrij, Leal, Jupe, & Harvey, 2018b).

Another explanation for how the MS functions is through the application of social comparison theory (e.g., Harvey et al., 2017; Leal et al., 2018; Porter et al., 2018). This implies that in the absence of objective information, interviewees will compare themselves to others (Festinger, 1954, see also Cialdini's, 1994 social proof). Arguably, as interviews are unusual experiences, this sets the platform for an absence of objective cues, regarding how detailed interviewees should be (Porter et al., 2018). Future research could test the validity of a social comparison argument by investigating the impact of social relevance on the model statement's effectiveness. A MS from a socially relevant individual (from the perspective of the interviewee) should be more effective and drawing social comparison (and a stronger MS effect), compared to a MS from a less socially relevant individual. Future research could explore this possibility.

Other rationales include the MS being used as a prime (Bogaard et al., 2020; Leal et al., 2015; Porter et al., 2018) or through social learning (Brackmann et al., 2017). If a priming effect is responsible for the MSs effectiveness as an information eliciting tool, then we could expect to see an unconscious (or implicit) effect. Porter et al. (2018) investigated this by asking participants to rate the types of details they heard when listening to the different MSs. Interestingly, the authors found that participants were unable to detect the detail that had been emphasised, suggesting the MS functioned as an implicit prime. Future research could investigate this finding by emphasising different types of verbal information (e.g., complications).

To date, no published research has attempted to isolate and test competing theoretical explanations for the function of the MSs. However, such research would be of significant utility when applying MSs to practice. After all, if practitioners are to generate their own MSs, this would be more reliable if they understood the mechanism underpinning its effectiveness. This may also help to explain the inconsistent findings regarding the MS's ability to enhance lie-detection (Leal et al., 2015; cf. Porter et al., 2018; Porter & Salvaneli, 2020). Additionally, these limited effects may also be because the research itself varies in dependent variables, experimental realism, and the content and composition of the MS (see Tables 1 and 2). These elements are discussed in more detail below.

4.2 | Different MS scripts

A range of different scripts have been used with the MS literature. These scripts include a surprise helicopter flight (Bogaard et al., 2014), race day event (Leal et al., 2015; Vrij et al., 2017a), day at the beach (Ewens et al., 2016) and a first day of university (Kleinberg et al., 2018). In addition to this, other studies have adapted or manipulated existing MS scripts in novel ways (Harvey et al., 2017; Porter et al., 2018). This is problematic for practitioners as often it is unclear which MSs are useful for information elicitation and lie-detection purposes. On a theoretical level, it is also unclear what factors underpin the effectiveness of the MS (i.e., the length of the statement, the type of detail, the proportion of detail included). That is to say, the dimensions of the MS responsible for increased information disclosure from interviewees have not been tested. This appears to reduce the development of new MSs to a 'trial and error' based approach, rather than one derived from empirically robust psychological principles.

4.3 | Variation in dependent variables

As one of its two core functions, the MS is designed to amplify the verbal difference between truth tellers and liars. However, to date, the MS literature has been characterised by examining a broad range of different dependent variables (see Table 1, column 2 for the 18 different cues examined over 14 published studies).

Bogaard et al. (2014) explored the effectiveness of the MS using three different coding schemes: scientific content analysis, criteria-based content analysis (CBCA) and reality monitoring (RM) criteria. They found that the MS was ineffective at amplifying the verbal differences between truth tellers and liars across all three coding schemes. Leal et al. (2015) also found the MS to be ineffective at detecting deception when CBCA was used. Instead, plausibility was used to demonstrate that although liars provided longer statements, they appeared implausible. Ewens et al. (2016) coded statements using overall detail (a combination of the RM criteria; Johnson, 2006) and reminiscence (i.e., detail not initially included in an interviewees statement, but subsequently added during later recall attempts; see Payne, 1987), but found the MS to be ineffective as a lie-detection tool. Vrij et al. (2017a, 2018b) also found overall detail to be ineffective with the MS (cf. Porter & Salvaneli, 2020).

From 2017 onwards, the MS was used with a variety of different measures ranging from verifiable information (see Harvey et al., 2017) to person and location references (see Kleinberg et al., 2018). Additionally, between 2017 and 2019, the MS literature introduced new dependent variables, complications (which are part of the CBCA criteria), common knowledge details, self-handicapping strategies and the divide of core/peripheral information. First, complications were introduced by Vrij et al. (2017a) as details that complicate a story. Such details are expected to be included more within truthful statements, compared to deceptive ones. This variable appears useful, with truth tellers providing almost three times the amount of complications, compared with liars (Vrij et al., 2017a). Subsequently, Vrij et al. (2017a) created a formula for the ratio of complications which is stated as: complications/(complications + common knowledge details + self-handicapping strategies). In 2018, Vrij and colleagues changed this formula to be the proportion of complications, which they argue is a superior measure. In this study, they state that to calculate the proportion of complications, you need the following formula: total score/(number of complications + number of common knowledge details + number of self-handicapping strategies). In 2020, Vrij and colleagues decided to make a distinction between complications low in complexity versus other complications (medium/high) to explore whether liars were inclined to report complications low in complexity. Although some support was found for this new coding scheme, a very small frequency of details emerged, ranging from a mean of 0.48–4.80 (in the MS condition). Given these low numbers, applying such techniques to real-world contexts may be difficult.

Leal and colleagues (2018, 2019b) made a distinction between core and peripheral detail reported by interviewees after hearing a MS. Core details include information about the main event, whereas peripheral details include information that is irrelevant to the main event. It is important to note that Leal et al. (2018) only found peripheral information to be an effective measure for detecting liars, and unfortunately this effect failed to be replicated (see Leal et al., 2019b).

4.4 | Emphasised MSs

One way of extending the MS research is to emphasise a specific class (or classes) of information that the investigators want interviewees to report. Porter et al. (2018) emphasised spatial and temporal information within a MS. They found that this produced an information elicitation effect particularly for truth tellers, which increased the lie-detection accuracy (for similar observations, see Vrij et al., 2018a; Leal, Vrij, Deeb, & Jupe, 2018). This interaction effect (veracity \times interviewing condition) was driven by a change in the verbal output of truth tellers. That is, the MSs resulted in truth tellers (but not liars) providing more information (compared to a control condition). A later study by Porter and Salvaneli (2020) found a similar effect when they adapted a written- and audio-MS containing a balance of emphasised spatial and temporal detail.

Note, that while the four MSs investigated by Porter et al. (2018, 2020) appear effective at information elicitation, and deception detection, we cannot ignore that (a) both papers fail to explain why this is the case, (b) neither study has been replicated, (c) no research to date has investigated what drives the MS's effects and finally (d) there remains an

overwhelming number of unsuccessful results (e.g., Leal et al., 2015; Vrij et al., 2018b). Future research should therefore isolate and test the components which may be responsible for making the MS effective.

Harvey et al. (2017) created a MS that contained emphasised verifiable information within it. They found that combining this new MS with an information protocol (IP; part of the verifiability approach; Nahari, Vrij, & Fisher, 2014), prompted truth tellers to provide more verifiable information, resulting in greater lie-detection accuracy. This combination was later retested by Körner and Urban (2018) and appeared ineffective at eliciting more information, including verifiable details. Although this second study has not yet been published, it does highlight another inconsistent replication, perhaps due to a lack of understanding of how the MS functions and what drives interviews to be more detailed in some instances. Unfortunately, we do not know if Harvey et al., (2017) created a MS that resulted in this enhanced eliciting of verifiable information or if it was instead the combination of both the MS and the IP. Bogaard et al. (2020) later tested a MS containing an overwhelming amount of verifiable information. This MS was ineffective as a tool for detecting deception but this could be because they did not use an IP. Future research should test these components separately.

4.5 | Applying the MS to real-world contexts

In real-world contexts, people are likely to be interviewed after a delay or may be interviewed about events that were, at the time, unimportant to them. By failing to recall—or originally encode—events, individuals may have less access to detailed information in their memories than is commonly assumed by the MS literature. Theoretically, the amount of information an individual can accurately report is limited by the amount of information they can recall. This limited access to information stored in memory may constrain the effectiveness of the MS as an information elicitation tool.

From a socio-pragmatic perspective (Grice, 1975), in most real-life contexts (including during investigative interviewing), individuals are motivated to provide both (a) informative and (b) accurate statements. However, according to the dual-satisficing model of memory regulation (Ackerman & Goldsmith, 2008), individuals may be in either a state of high-satisficing knowledge (and able to provide both accurate and informative statements, e.g., due to having a strong memory) or in a state of low-satisficing knowledge (where they are unable to provide both accurate and informative statements, e.g., due to having a weak memory). Whereas the majority of previous MS research involves laboratory methodologies where individuals have strong, robust and detailed memories of events (and therefore high-satisficing knowledge), we conjecture that a substantial proportion of forensic interviews occur when individuals are in a state of low-satisficing knowledge (e.g., due to the effects of delay and forgetting, weapons-focus effects, incidental encoding).

When individuals are in low-satisficing knowledge states, they must either sacrifice informativeness to preserve accuracy (i.e., provide less detailed, but more correct statements) or sacrifice accuracy to preserve informativeness (i.e., provide less correct, but more detailed statements). Previous research has shown that in low-satisficing states, individuals tend to sacrifice statement accuracy to preserve informativeness (Ackerman & Goldsmith, 2008). It appears plausible that the MS functions via encouraging interviewees to be more informative. If so, the MS may cause individuals in low-satisficing knowledge states to *further* prioritise informativeness at the cost of accuracy. This is dangerous in forensic contexts as it may prime investigators to follow wrong leads and could allow lawyers to undermine witness credibility.

Harvey et al. (2019) were the first to use the MS after a 3-week delay. They found that introducing a MS (after an initial interview) prompted both truth tellers and liars to provide more information. Interestingly, in their second phase of their study they had participants recall what they could remember from a video and coded the accuracy of that reported information. The authors found that although the MS made truth tellers say more, they were less accurate in the new information they provided. Specifically, in the MS condition (and after a delay), truth tellers were less accurate (0.54) compared to when no MS was present (0.81), $p = 0.010$.

5 | DISCUSSION

Overall, our review of the MS literature partially supports its utility: Although the MS appears successful at encouraging interviewees generally to report more information, its usefulness as a lie-detection tool is less clear.

In terms of information elicitation, empirical research shows that the MS does prompt interviewees to say more (Bogaard et al., 2020; Ewens et al., 2016; Harvey et al., 2017, 2019; Kleinberg et al., 2018; Leal et al., 2018, 2019b; Vrij et al., 2017a, 2018a, 2018b). That is, typically participants provided more detailed statements in the MS conditions, compared to a control condition where no MS was present. A review of the literature has shown that in most MS studies liars (as well as truth tellers) were able to report more detailed statements (e.g., Bogaard et al., 2014; Leal et al., 2015), making detecting deception difficult (cf. Porter et al., 2018; Porter & Salvaneli, 2020).

Prompting interviewees to provide more information is only useful in forensic contexts if the information is relevant to the investigation and accurate. Harvey et al. (2019) were the first researchers to investigate the accuracy of information provided when a MS was used. They found that although the MS was effective as an information elicitation tool, this introduced errors.

The published MS literature reveals few interaction effects between veracity (whether the interviewee is truthful or deceptive) and interviewing condition (whether a MS is present or not). This indicates that verbal differences (e.g., reported detail) between liars and truth tellers are of similar magnitude regardless of providing (or not providing) a MS. For a large class of dependent variables, the MS did not reliably enhance researcher's ability to distinguish between genuine and fabricated verbal output (Bogaard et al., 2014, 2020; Ewens et al., 2016; Kleninberg et al., 2018; Leal et al., 2015, 2018, 2019b; Vrij et al., 2017a, 2018). To allow for comparisons between MS studies, we suggest that overall detail (based upon RM criteria; Johnson, 2006) should be included in future research. This is because RM criteria, specifically overall detail, has been used extensively within the lie-detection literature (Vrij, 2008, 2015) and within many MS studies (Bogaard et al., 2020; Ewens et al., 2016; Harvey et al., 2019; Porter & Salvaneli, 2020), so would allow for standardised comparisons across studies.

The studies in which a MS enhanced lie-detection, researchers employed highly subjective measures, such as plausibility (see Leal et al., 2015), as well as measures that are difficult for investigators to determine, such as peripheral information (Leal et al., 2018; for failure to replicate see; Leal et al., 2019a), and common knowledge details (Vrij et al., 2018b). Harvey et al. (2017) established that combining a MS containing verifiable information, in conjunction with the IP (of the verifiability approach) appeared effective, though this needs to be more robustly tested, as this effect has failed to be replicated (Bogaard et al., 2020; Körner & Urban, 2018). One of the key problems with these comparisons are that the researchers have all used different MS scripts, making any accurate replication—and meaningful comparison—difficult. Future research could more robustly examine the differences between the MS scripts and could provide a collection of such scripts for more independent replications to take place.

Based on the results of this critical review, we argue that the MS literature itself is inconsistent. On one hand, the MS does appear to be a useful information elicitation tool. However, it is important to note that most research investigates its effectiveness under near-optimal conditions (i.e., when interviewing occurs without delay and when interviews are questioned about intentionally encoded events). The utility of the MS to elicit additional information under more realistic conditions is an empirical question (see Harvey et al., 2019). On the other hand, it also appears the MS only amplifies certain verbal cues, with multiple studies showing the MS to be ineffective at aiding lie-detection (see Bogaard et al., 2014; Leal et al., 2018; Vrij et al., 2018b). When 'detail' is examined as a cue, the MS has even made liars appear more like truth tellers by encouraging them to provide similar levels of information within their statements (see Bogaard et al., 2020; Harvey et al., 2017; Vrij et al., 2018b). In practical terms, this is problematic and may lead to increased classification errors.

We argue that based on the current state of the literature, the mixture of different dependent measures (see Table 1), the diversity of MSs in circulation (see Table 2), the lack of theoretical underpinning (see Table 3) and the effects of delay on interviewees' memory performance, that the MS should not be used in practise by police officers or any other investigators. As it stands, the MS can do more harm to investigations by prompting liars to produce wstatements that are similar in length to truth tellers, making them appear more credible (e.g., Leal et al., 2015) or by encouraging truth tellers to provide more information that is inaccurate (Harvey et al., 2019).

In respect to the above, one option is for lie-detection research to develop a new approach for information elicitation (see Blandón-Gitlin, Fenn, Masip, & Yoo, 2014). Instead of eliciting more information from both truth tellers and liars, researchers could instead develop new tools that encourage truth tellers to provide more information, while also encouraging liars to withhold information. Thus, tools could focus on manipulating the strategies of liars and truth tellers *asymmetrically*. One of the limitations of current MSs are that *both* truth tellers and liars tend to provide more information in response (Leal et al., 2015).

We propose that researchers could instead develop tools that encourage liars and truth tellers to adapt *different* verbal strategies upon hearing the same instructions, thus causing their verbal behaviour to diverge and become less similar. One example of this is the asymmetric information management technique (see Porter et al., 2020).

6 | CONCLUSION

Attempts at optimising the use of a MS should start with the development of a more consistent and transparent research programme. There are numerous different MS scripts that have been developed, with at least 15 different dependent measures that have been used in combination with this tool. The MS scripts vary in length and no doubt differ in their density of detail (i.e., the number of discrete details reported relative to a set number of words used). Such topics warrant future research and could help us to understand what drives the MS to prompt the reporting of additional information. We advocate a deepening rather than the continued 'broadening' of MS research. Thus, we endorse the assertion of Vrij and Granhag (2012) in as much that '...[t]ools should be empirically tested thoroughly before [being] taught to practitioners, and these tests should be published in high quality peer-reviewed journals...' (p. 115).

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ENDNOTE

¹ Cognitive demand (or cognitive load) refers to the amount of working memory resources used by a task. For more on lie-detection and cognitive load see Vrij et al. (2011, 2017b).

REFERENCES

- Ackerman, R., & Goldsmith, M. (2008). Control over grain size in memory reporting--With and without satisficing knowledge. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34(5), 1224. Retrieved from <https://psycnet.apa.org/doi/10.1037/a0012938>
- Bell, B. E., & Loftus, E. F. (1988). Degree of detail of eyewitness testimony and mock juror judgments. *Journal of Applied Social Psychology*, 18, 1171–1192. <https://doi.org/10.1111/j.1559-1816.1988.tb01200.x>
- Blandón-Gitlin, I., Fenn, E., Masip, J., & Yoo, A. H. (2014). Cognitive-load approaches to detect deception: Searching for cognitive mechanisms. *Trends in Cognitive Sciences*, 18(9), 441–444.
- Bogaard, G., Meijer, E. H., & Vrij, A. (2014). Using an example statement increases information but does not increase accuracy of CBCA, RM, and SCAN. *Journal of Investigative Psychology and Offender Profiling*, 11(2), 151–163. <https://doi.org/10.1002/jip.1409>

- Bogaard, G., Meijer, E. H., & Van der Plas, I. (2020). A model statement does not enhance the verifiability approach. *Applied Cognitive Psychology*, 34(1), 96–105.
- Boon, R., Milne, R., Rosloot, E., Heinsbroek, J., & Heinsbroek, J. (2020). Demonstrating detail in investigative interviews: An examination of the DeMo technique. *Applied Cognitive Psychology*, 34(5), 1133–1142. <https://doi.org/10.1002/acp.3700>
- Brackmann, N., Otgaar, H., Roos af Hjelmsäter, E., & Sauerland, M. (2017). Testing a new approach to improve recall in different ages: Providing witnesses with a model statement. *Translational Issues in Psychological Science*, 3(2), 131. <https://doi.org/10.1037/tps0000116>
- Bull, R. (2010). The investigative interviewing of children and other vulnerable witnesses: Psychological research and working/professional practice. *Legal and Criminological Psychology*, 15(1), 5–23. <https://doi.org/10.1348/014466509X440160>
- Cialdini, C. B. (1994). *Influence: The psychology of persuasion (revised edition)*. New York: Quill.
- DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin*, 129(1), 74. Retrieved from <https://psycnet.apa.org/doi/10.1037/0033-2909.129.1.74>
- Ewens, S., Vrij, A., Leal, S., Mann, S., Jo, E., Shaboltas, A., ... Houston, K. (2016). Using the model statement to elicit information and cues to deceit from native speakers, non-native speakers and those talking through an interpreter. *Applied Cognitive Psychology*, 30, 854–862. <https://doi.org/10.1002/acp.3270>
- Festinger, L. (1954). A theory of social comparison processes. *Human relations*, 7(2), 117–140. <https://doi.org/10.1177/001872675400700202>
- Fisher, R. P. (2010). Interviewing cooperative witnesses. *Legal and Criminological Psychology*, 15(1), 25–38. <https://doi.org/10.1348/135532509X441891>
- Fisher, R. P., Milne, R., & Bull, R. (2011). Interviewing cooperative witnesses. *Current Directions in Psychological Science*, 20(1), 16–19.
- Grice, H. P. (1975). *Logic and conversation*. In P. Cole & J. L. Morgan (Eds), *Speech acts* (pp. 41–58). New York: Academic Press.
- Hartwig, M., & Bond, C. F., Jr (2011). Why do lie-catchers fail? A lens model meta-analysis of human lie judgments. *Psychological Bulletin*, 137(4), 643. Retrieved from <https://psycnet.apa.org/doi/10.1037/a0023589>
- Harvey, A. C., Vrij, A., Leal, S., Lafferty, M., & Nahari, G. (2017). Insurance based lie detection: Enhancing the verifiability approach with a model statement component. *Acta Psychologica*, 174, 1–8. <https://doi.org/10.1016/j.actpsy.2017.01.001>
- Harvey, A. C., Vrij, A., Leal, S., Hope, L., & Mann, S. (2019). Amplifying deceivers' flawed metacognition: Encouraging disclosures after delays with a model statement. *Acta Psychologica*, 200, 102935.
- Hirn, D. E., Fisher, R. P., & Carol, R. N. (2012). *Use of a hybrid interview method to retrieve memories created during decision making*. Paper presented at American Psychology-Law Society Conference, San Juan, Puerto Rico.
- Johnson, M. K. (2006). Memory and reality. *American Psychologist*, 61(8), 760–771. Retrieved from <https://psycnet.apa.org/doi/10.1037/0003-066X.61.8.760>
- Johnson, M. K., Foley, M. A., Suengas, A. G., & Raye, C. L. (1988). Phenomenal characteristics of memories for perceived and imagined autobiographical events. *Journal of Experimental Psychology: General*, 117(4), 371.
- Kleinberg, B., Van Der Toolen, Y., Vrij, A., Arntz, A., & Verschuere, B. (2018). Automated verbal credibility assessment of intentions: The model statement technique and predictive modeling. *Applied Cognitive Psychology*, 32(3), 354–366. <https://doi.org/10.1002/acp.3407>
- Körner, A., & Urban, M. (2018). Detecting deception in insurance claims—How effective are verifiability approach and model statement? *European Association of Psychology and Law Conference*. <https://doi.org/10.13140/RG.2.2.13558.50243>
- Leal, S., Vrij, A., Deeb, H., & Jupe, L. (2018). Using the model statement to elicit verbal differences between truth tellers and liars: The benefit of examining core and peripheral details. *Journal of Applied Research in Memory and Cognition*, 7(4), 610–617. <https://doi.org/10.1016/j.jarmac.2018.07.001>
- Leal, S., Vrij, A., Deeb, H., & Kamermans, K. (2019a). Encouraging interviewees to say more and deception: The ghostwriter method. *Legal and Criminological Psychology*, 24(2), 273–287. <https://doi.org/10.1111/lcrp.12152>
- Leal, S., Vrij, A., Vernham, Z., Dalton, G., Jupe, L. M., Nahari, G., & Rozmann, N. (2019b). Using the model statement to elicit verbal differences between truth tellers and liars amongst Arab interviewees: A partial replication of Leal, Vrij, Deeb and Jupe (2018). *Applied Cognitive Psychology*, 33(6), 1008–1017. <https://doi.org/10.1002/acp.3536>
- Leal, S., Vrij, A., Warmelink, L., Vernham, Z., & Fisher, R. P. (2015). You cannot hide your telephone lies: Providing a model statement as an aid to detect deception in insurance telephone calls. *Legal and Criminological Psychology*, 20(1), 129–146. <https://doi.org/10.1111/lcrp.12017>
- Nahari, G., Vrij, A., & Fisher, R. P. (2014). The verifiability approach: Countermeasures facilitate its ability to discriminate between truths and lies. *Applied Cognitive Psychology*, 28(1), 122–128. <https://doi.org/10.1002/acp.2974>

- Payne, D. G. (1987). Hypermnnesia and reminiscence in recall: A historical and empirical review. *Psychological Bulletin*, 101(1), 5. Retrieved from <https://psycnet.apa.org/doi/10.1037/0033-2909.101.1.5>
- Porter, C. N., Morrison, E., Fitzgerald, R. J., Taylor, R., & Harvey, A. C. (2020). Lie-detection by strategy manipulation: Developing an asymmetric information management (AIM) technique. *Journal of Applied Research in Memory and Cognition*, 9(2), 232–241. <https://doi.org/10.1016/j.jarmac.2020.01.004>
- Porter, C. N., & Salvaneli, G. (2020). Eliciting information and cues to deception using a model statement: Examining the effect of presentation modality. *Journal of Investigative Psychology and Offender Profiling*, 17(2), 101–117. <https://doi.org/10.1002/jip.1541>
- Porter, C. N., Vrij, A., Leal, S., Vernham, Z., Salvaneli, G., & McIntyre, N. (2018). Using specific model statements to elicit information and cues to deceit in information-gathering interviews. *Journal of Applied Research in Memory and Cognition*, 7(1), 132–142 <https://doi.org/10.1016/j.jarmac.2017.10.003>
- Vernham, Z., Vrij, A., & Leal, S. (2018). Collective interviewing: The use of a model statement to differentiate between pairs of truth-tellers and pairs of liars. *Legal and Criminological Psychology*, 23(2), 214–229.
- Vrij, A., Mann, S., Kristen, S., & Fisher, R. P. (2007). Cues to deception and ability to detect lies as a function of police interview styles. *Law and Human Behavior*, 31(5), 499–518. <https://doi.org/10.1007/s10979-006-9066-4>
- Vrij, A. (2008). *Detecting lies and deceit: Pitfalls and opportunities*. Chichester: John Wiley & Sons.
- Vrij, A., Granhag, P. A., Mann, S., & Leal, S. (2011). Outsmarting the liars: Toward a cognitive lie detection approach. *Current Directions in Psychological Science*, 20(1), 28–32. <https://doi.org/10.1177/0963721410391245>
- Vrij, A., & Granhag, P. A. (2012). Eliciting cues to deception and truth: What matters are the questions asked. *Journal of Applied Research in Memory and Cognition*, 1(2), 110–117.
- Vrij, A. (2015). Verbal lie detection tools: Statement validity analysis, reality monitoring and scientific content analysis. *Detecting Deception: Current Challenges and Cognitive Approaches*, 1–35.
- Vrij, A., Leal, S., Mann, S., Vernham, Z., & Brankaert, F. (2015). Translating theory into practice: Evaluating a cognitive lie detection training workshop. *Journal of Applied Research in Memory and Cognition*, 4(2), 110–120. <https://doi.org/10.1016/j.jarmac.2015.02.002>
- Vrij, A., Leal, S., Mann, S., Dalton, G., Jo, E., Shaboltas, A., ... Houston, K. (2017a). Using the model statement to elicit information and cues to deceit in interpreter-based interviews. *Acta Psychologica*, 177, 44–53. <https://doi.org/10.1016/j.actpsy.2017.04.011>
- Vrij, A., Fisher, R. P., & Blank, H. (2017b). A cognitive approach to lie detection: A meta-analysis. *Legal and Criminological Psychology*, 22(1), 1–21. <https://doi.org/10.1111/lcrp.12088>
- Vrij, A., Leal, S., & Fisher, R. P. (2018a). Verbal deception and the model statement as a lie detection tool. *Frontiers in Psychiatry*, 9, 492 <https://doi.org/10.3389/fpsy.2018.00492>
- Vrij, A., Leal, S., Jupe, L., & Harvey, A. (2018b). Within-subjects verbal lie detection measures: A comparison between total detail and proportion of complications. *Legal and Criminological Psychology*, 23(2), 265–279. <https://doi.org/10.1111/lcrp.12126>
- Vrij, A., Leal, S., Fisher, R. P., Mann, S., Deeb, H., Jo, E., ... Hamzeh (2020). The efficacy of using countermeasures in a model statement interview. *The European Journal of Psychology Applied to Legal Context*, 12(1), 23–34.

How to cite this article: Porter CN, Taylor R, Salvaneli G. A critical analysis of the Model Statement literature: Should this tool be used in practice? *J Investig Psychol Offender Profil*. 2020;1–21. <https://doi.org/10.1002/jip.1563>