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### Undeutsch hypothesis and Criteria Based Content Analysis: A meta-analytic review

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#### ABSTRACT

The credibility of a testimony is a crucial component of judicial decision-making. Checklists of testimony credibility criteria are extensively used by forensic psychologists to assess the credibility of a testimony, and in many countries they are admitted as valid scientific evidence in a court of law. These checklists are based on the Undeutsch hypothesis asserting that statements derived from the memory of real-life experiences differ significantly in content and quality from fabricated or fictitious accounts. Notwithstanding, there is considerable controversy regarding the degree to which these checklists comply with the legal standards for scientific evidence to be admitted in a court of law (e.g., Daubert standards). In several countries, these checklists are not admitted as valid evidence in court, particularly in view of the inconsistent results reported in the scientific literature. Bearing in mind these issues, a meta-analysis was designed to test the Undeutsch hypothesis using the CBCA Checklist of criteria to discern between memories of self-experienced real-life events and fabricated or fictitious accounts. As the original hypothesis was formulated for populations of children, only quantitative studies with samples of children were considered for this study. In line with the Undeutsch hypothesis, the results showed a significant positive effect size that is generalizable to the total CBCA score,  $\delta$  = 0.79. Moreover, a significant positive effect size was observed in each and all of the credibility criteria. In conclusion, the results corroborated the validity of the Undeutsch hypothesis and the CBCA criteria for discriminating between the memory of real self-experienced events and false or invented accounts. The results are discussed in terms of the implications for forensic practice.

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#### La hipótesis Undeutsch y el "Criteria Based Content Analysis": una revisión metaanalítica

RESUMEN

Con frecuencia, la evaluación de la fiabilidad de un testimonio se lleva a cabo mediante el uso de sistemas categoriales de análisis de contenido. Concretamente, el instrumento más utilizado para determinar la credibilidad del testimonio es el Criteria Based Content Analysis (CBCA), el cual se sustenta en la hipótesis Undeutsch, que establece que las memorias de un hecho auto-experimentado difieren en contenido y calidad de las memorias fabricadas o imaginadas. Las opiniones y resultados contradictorios encontrados en la literatura científica respecto al cumplimiento de los criterios judiciales (Daubert standards) así como el abundante número de trabajos existentes sobre la materia, nos llevó a diseñar un meta-análisis para someter a prueba la hipótesis Undeutsch, a través de la validez de los criterios de realidad del CBCA para discriminar entre la memoria de lo auto-experimentado y lo fabricado. Se tomaron aquellos estudios cuantitativos que incluían muestras de menores, esto es, con edades comprendidas entre los 2 y 18 años. En línea con la hipótesis Undeutsch, los resultados mostraron un tamaño del efecto positivo, significativo y generalizable para la puntuación total del CBCA,  $\delta = 0.79$ . Asimismo, en todos los criterios de realidad se encontró un tamaño del efecto positivo y significativo. En conclusión, los resultados avalan la validez de la hipótesis Undeutsch y de los criterios del CBCA para discriminar entre memorias de hechos autoexperimentados y fabricados. Se discuten las implicaciones de los resultados para la práctica forense. © 2014 Colegio Oficial de Psicólogos de Madrid. Producido por Elsevier España, S.L. Todos los derechos reservados.

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Hans and Vidmar (1986) estimated that in around 85% of judicial cases, the evidence bearing most weight is the testimony, which underscores that the evaluation of a testimony is crucial for judicial judgement making. In terms of the application of Information Integration Models to legal judgements (Kaplan, 1982), the reliability and validity of the testimony are the mechanisms underlying the evaluation of a testimony. The validity of a testimony, i.e., the value of a testimony for judgement making is easily estimated and is to be determined by the rulings of judges and the courts. As for the reliability of a testimony, the courts and scientific studies have tended to estimate it in terms of the credibility of a testimony (Arce, Fariña, & Fraga, 2000), which entails the design of methods for its estimation. Traditionally, judges and the courts have performed this function on the basis of legal criteria, jurisprudence, and their own value judgements. Alternatively, numerous scientific techniques (and pseudoscientific) have been proposed such as non-verbal indicators of deception, paraverbal indicators of deception, physiological indicators (e.g., polygraph tests or functional magnetic resonance imaging), and categorical systems of content analysis. Of these, categorical systems of content analysis are currently the most systemically used technique by the courts. Thus, the courts in countries such as Germany, Sweden, Holland, and several states in the USA admit these categorical systems as scientific evidence (Steller & Böhm, 2006; Vrij, 2008). In Spain, where they are also admitted as legally admissible evidence and extensively used by the courts, an analysis of legal judgements showed that when a forensic psychological report based on a categorical system of content analysis (i.e., Statement Validity Analysis, SVA) confirmed the credibility of a testimony, the conviction rate was 93.3%, but when it failed to do so, the acquittal rate was 100%. In contrast, in other countries such as the UK, the US, and Canada these checklists are not admitted as legally valid evidence (Novo & Seijo, 2010).

Underlying categorical content systems is what is commonly referred to as the *Undeutsch hypothesis* that asserts that the memory of a real-life self-experienced event differs in content and quality from a fabricated or imagined event (Undeutsch, 1967, 1989). On the basis of this hypothesis, Steller and Köhnken (1989) have integrated all the categorical systems (e.g., Arntzen, 1970; Dettenborn, Froehlich, & Szewczyk, 1984; Szewczyk, 1973; Undeutsch, 1967) into what is known as Criteria Based Content Analysis (CBCA), which has become the leading categorical system for evaluating the credibility of a testimony (Griesel, Ternes, Schraml, Cooper, & Yuille, 2013; Vrij, 2008).

CBCA, which is part of SVA, consists of three elements: 1) semi-structured interview, i.e., the free narrative interview; 2) content analysis on CBCA criteria; and 3) evaluation of CBCA outcomes using the Validity Checklist. The semi-structured interview involves a narrative format that, unlike other types of interview such as standard, interrogative or structured interviews, facilitates the emergence of criteria (Vrij, 2005). Moreover, this type of interview generates more information (Memon, Meissner, & Fraser, 2010), which meets the requirement that CBCA criteria content analysis be performed on sufficient material (Köhnken, 2004; Steller, 1989).

The Checklist of CBCA criteria (Steller & Köhnken, 1989) consists of 19 criteria structured around 5 major categories: general characteristics, specific contents, peculiarities of the content, contents related to motivation, and specific elements of aggression (see Table 1). These criteria of reality do not constitute a methodic categorical system (Bardin, 1977; Weick, 1985), but rather stem from the authors' personal experiences of cases (Steller & Köhnken, 1989). Though this checklist was originally developed as a comprehensive system of credibility criteria grounded on the Undeutsch hypothesis, Raskin, Esplin, and Horowitz (1991) highlighted that only the first 14 criteria are related to the Undeutsch hypothesis, and the remaining 5 criteria are not associated to the aforementioned hypothesis as they are not linked to the concept of memory of actual events. This reclassification overlaps, though not entirely, with the theoretical model pro-

posed by Köhnken (1996), who regroups these major categories into two main factors: cognitive (criteria 1 to 13) and motivational (criteria 14 to 18). The cognitive factor encompasses cognitive and verbal skills, and implies that a self-experienced statement contains CBCA criteria from 1 to 13. The motivational factor, however, relies on the individual's ability to avoid appearing deceitful and ways of managing a positive self-impression of oneself as an honest witness. Thus, the motivational factor covers criteria 14 to 18, which are contrary-to-truthfulness-stereotype criteria though they really appear in true statements. Thus, these criteria have been suggested to be useful for assessing the hypothesis of the (partial) fabrication of statements (Köhnken, 1996, 2004).

Initially, the CBCA criteria were intended for populations of child alleged victims of sexual abuse. However, CBCA criteria have been applied to other types of events and age ranges. This generalization has been extended to professional practice too. Thus, the guidelines of the Institute of Forensic Medicine in Spain, which is the official public institution responsible for forensic evidence, recommends SVA as part of the protocol for women alleging intimate partner violence (Arce & Fariña, 2012). Moreover, there is no consensus regarding the term *minor*, particularly since studies use the term range from 2 to 18-year-olds and the concept of minor is generally associated to the legal age of criminal responsibility. In relation to the context of application, only field studies involve real cases of sexual abuse, since it would be unethical to subject children to conditions or instructions of victims of sexual abuse. Hence, most research is experimental and certain authors have expressed their reservations regarding validity (Konecni & Ebbesen, 1992). Moreover, real eyewitnesses and subjects under high fidelity laboratory conditions have been found to perform different tasks (Fariña, Arce, & Real, 1994). In order to overcome this limitation, some experimental studies have recreated high fidelity simulated conditions in order to mimic the context of recall of child alleged victims of sexual abuse. These conditions have been defined as personal involvement, negative emotional tone of an event, and extensive loss of control over the situation (Steller, 1989). Accordingly, this achieves face validity, with

**Table 1** CBCA-Criteria (adapted from Steller & Köhnken, 1989)

#### General characteristics

- 1. Logical structure
- 2. Unstructured production
- 3. Quantity of details

#### Specific contents

- 4. Contextual embedding
- 5. Descriptions of interactions
- 6. Reproduction of conversation
- 7. Unexpected complications during the incident

#### Peculiarities of content

- 8. Unusual details
- 9. Superfluous details
- 10. Accurately reported details misunderstood
- 11. Related external associations
- 12. Accounts of subjective mental states
- 13. Attribution of perpetrator's mental state

#### Offence-specific elements

- 14. Spontaneous corrections
- 15. Admitting lack of memory
- 16. Raising doubts about one's own testimony
- 17. Self-deprecation
- 18. Pardoning the perpetrator

#### Offence-specific elements

19. Details characteristic of the offence

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