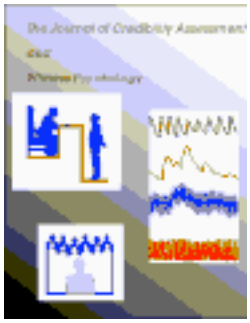
The Journal of Credibility Assessment and Witness Psychology

2003, Vol. 4, No. 1, pp. 63-74

Published by the Department of Psychology of
Boise State University



The Use Of Law Enforcement Polygraph Tests With Juveniles

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Portions of this paper were presented at the 2002 American Psychology and Law Society Biennial Conference in Austin TX. This research was funded by an Edinboro University of Pennsylvania Senate faculty research grant. The authors thank Katherine Ober, Suzie Juhascik, Robin Berlin, Erin Beardsley, and Kimberly Parr for their assistance with this project. Ron Craig received his Ph.D. in Developmental Psychology from the University of Utah and is currently an Associate Professor of Psychology at Edinboro University of Pennsylvania. Carla Molder received her Bachelor's in Psychology from Edinboro University of Pennsylvania and is currently working in a medical research setting. Correspondence, including requests for reprints, should be sent to: Ron Craig Department of Psychology, Edinboro University of Pennsylvania, Edinboro, PA 16444; e-mail: rcraig@edinboro.edu.

ABSTRACT: Law enforcement polygraph examiners responded to a survey regarding their use of the polygraph with juveniles, types of test and special procedures used, and any perceived limitations in using the test with this population. The results indicate that polygraph tests are administered to juveniles in a variety of law enforcement contexts Many examiners express concern over testing juveniles below age twelve. A majority of the examiners make no modifications when testing juveniles. However, several reported specific limitations in using the polygraph with juveniles under a certain age. Of greatest concern regarding the use of the polygraph with juveniles was the potential limitation related to the development of cognitive abilities and sustained attention. While the polygraph is being used with juveniles, little research exists regarding its use with this population. There is a critical need to further explore the validity of the polygraph with this population.

The Use Of Law Enforcement Polygraph Tests With Juveniles

While the use of the polygraph to detect deception is often not allowed in court, the practice of polygraphing adult suspects as part of a criminal investigation is commonplace (Goldzband, 1999). Most state law enforcement agencies have access to a polygraph examiner, and utilize them for a variety of purposes including clearing of suspects or as a prelude to the interrogation process (Honts & Perry, 1992). In addition, many courts require periodic polygraph tests as a condition for parole or as a component of treatment for sex offenders (Blasingame, 1998). The results of periodic polygraph testing of the offender hold weight in the decision to continue parole and treatment. Over the past 25 years, there has been a substantial body of research conducted to examine the validity of using physiological changes, as measured by the standard polygraph test, to detect deception in adults (Honts, Raskin, & Kircher, 2002). Research on the use of the polygraph has examined multiple techniques including the relevant/irrelevant test, guilty or concealed knowledge test (GKT), control questions test (CQT), and more recently the directed lie test (DLT). This research had included highly controlled laboratory simulations and detailed analysis of field data (for reviews see Honts et al., 1995; Kircher & Raskin, 1992; Raskin, 1986). However, the primary focus of this research has been on applying the polygraph to an adult population.

While the number of juveniles being investigated for serious crimes has declined since its peak in the early 1990s, a significant number of violent crimes involve juvenile suspects and garner significant public attention (Office of Juvenile Justice and Delinquency Prevention, 2000). As greater attention and resources are being focused on the issue of juvenile violence and juvenile offenders, it is reasonable to infer that law enforcement may be interested in using the polygraph to detect deception in suspects from this population. Juveniles suspected of criminal activity could be asked to submit to a polygraph test, and then have the results of the test used against them

during the interrogation process. It is also possible that passing the test may eliminate them from suspicion. In addition to potential investigative use, the polygraph is being utilized as a part of juvenile probation, particularly for sex offenses (Oregon Administrative Rules, 1995). Some juvenile suspects have taken a polygraph test and attempted to introduce the results in court to support their innocence, successfully in some cases (Adang, 1995) and unsuccessfully in others (*Commonwealth of Mass. v. A Juvenile*, 1974; South Carolina, *In the Interest of Robert R.*, 2000). The present study explores the use of the polygraph with juveniles, under what circumstances it has been used, and if polygraph examiners have identified any potential limitations. There are no set national guidelines for the use of the polygraph with juveniles nor is there a minimum testing age.

Steven Adang, a law enforcement polygraph examiner, identified two cases where juvenile polygraph results had been admitted in court (1995). Adang argues that competency of the juvenile is of primary concern, and that "Assuming that the requirements for competency are met, proper state of mind can be found for the polygraph examinee" (p. 262). Adang also surveyed six "seasoned" polygraph examiners and their use of the polygraph to detect juvenile deception. The examiners reported the youngest juvenile they had given a polygraph to was between the ages of 6 and 14 (Mean 11.5) and the number of juvenile polygraphs ranged from 4 to 300. Examiners reported a cutoff age for the polygraph from 6 to 16 (Mdn 12.5), and that attention span was the primary concern in administering a test with these juveniles. It is important to note that one of the examiners surveyed did ethically object to the use of the polygraph with juveniles, except for criminal investigations. Most issues identified by the examiners were also considered to be issues with adult examinees as well, and very few modifications in the polygraph test given to juveniles were reported. One examiner expressed concern over the use of control questions as being ineffective because they are not understood by the child or may not be a "probable lie for the minor."

To date, there is a remarkable absence of research regarding the use of the polygraph with juveniles, particularly those under 16 years-of-age. From the existing handful of studies addressing the issue (Abrams, 1975; Craig, 1997; Lieblich, 1971; Voronin, Konovalov, & Serikov, 1969) only Craig (1997) and Abrams (1975) have conducted a laboratory simulation of the polygraph consistent with the use of the polygraph in an investigative context. Voronin et al. (1969) used a card/number deception task with subjects from 6 to adult; using skin resistance (SR) to identify the memorized target. For the 6- to 7-year-olds, no targets were correctly identified, and for the 8- to 12-year-olds, only 12% were correctly identified; both were significantly lower than identification rates for the older populations. Lieblich (1971) administered an information detection task, similar to the GKT, to 3- to 4-year-old Israeli children. Skin resistance (measured as GSR) was the only physiological measure recorded during the test. Lieblich found that the detection rates, based on adult criteria, did not differ from chance.

In the Abrams (1975) study, 40 juveniles between the grades of 4 and 8, approximately 9 to 13 years of age, were subjected to a GKT regarding whether they had been given a pack of cherry-flavored Life Savers. If successful in deceiving the examiner they would be allowed to keep the candy. Those who did not receive any candy were

told to respond truthfully to the question. Detection rates were averaged across two judges, with the lowest rates reported for those in the 4th and 5th grades (69% & 57% respectfully). Detection rates for older juveniles (6th, 7th, and 8th grade) were between 83% and 94%. Based on these findings, Abrams recommended caution when using the polygraph to detect deception in those under the age of 11. Abrams expressed particular concern regarding average intelligence of the juvenile, though he did not measure intelligence level in his study. In addition, Abrams failed to report whether the errors in detection were false positive or false negative. While there are limitations to the Abrams study, including a small sample size, relative weak manipulation, and use of the GKT (a test not commonly used in the field), it does raise important questions and concerns regarding the effectiveness of using the polygraph with juveniles.

In Craig (1997), 9 to 15 years-olds participated in a mock crime scenario where the juveniles were accused of tearing a page from a book. Half of the subjects had torn the page out and were instructed to deny their involvement; the other half truthfully denied the act. All participants were given three tickets to a movie theater and were instructed that in order to keep the tickets they needed to convince the examiner they had not torn the book. Participants were given a Directed Lie Test (DLT) polygraph exam regarding the book. The DLT uses control questions that specifically instruct the participant to lie to them, compared to the probable lie Control Question Test (CQT), where the participant's lying to the question is generated through the manipulation in the pretest interview (Horowitz, Kircher, Honts, & Raskin, 1997). Thus, the DLT was selected, based on the researcher's concerns over the potential inability of younger children to meet the cognitive demand of the more common probable lie CQT. All participants were allowed to keep the tickets regardless of performance during the polygraph exam. Using the CPS scoring algorithm developed by Kircher and Raskin (1988) for scoring adult polygraph exams, 72.9% of the juveniles were correctly identified. This scoring method was more accurate at detecting innocent subjects (88.1%) than guilty (57.1 %). These error rates are inconsistent with the higher false positive rates found in adult studies (Horowitz et al. 1997). Craig (1997) produced a discriminant function based on the juvenile data for determining deception. The function, equally effective at detecting both the deceptive and truthful cases, correctly identified 73.8% of the participants.

With such a dearth of research on the topic and the potential for the active use of the polygraph with a juvenile population, there is a need for examination of the topic. There are a variety of potential issues that may impact the effectiveness of using a polygraph with juveniles. First, the test asks a series of questions that require a certain level of cognitive sophistication to be effective, a concern raised by Abrams (1975) and Craig (1997). Next, developmental changes in attention span and ability to remain still for a significant period of time may impact the validity of the polygraph test (Craig, 1997; Lieblich, 1971). In addition, there may be physiological differences between adolescents and adults that may alter the test. These changes include the way the responding organ functions (i.e. increased skin resistance reactivity in juveniles and reactivity of the cardiovascular system) and the neurological mechanisms that drive the physiological changes (for a review of developmental psychophysiology see Porges & Fox, 1986). Some researchers have even questioned if birth order might influence the ability of the polygraph to detect deception (Waid & Orne, 1982; Budnick, Love, & Wisniewski, 1983). One of the first steps in understanding the use of the

polygraph with juveniles is to assess how often it is used with this population, the methods of testing that are most often used, and if any special alterations are being made. In addition, it is important to assess if those who are giving the exams have identified any limitations in using the polygraph with juveniles and if they have a minimum age for testing. The present study attempts to assess these questions related to the use of the polygraph with juveniles in an investigative setting, using information obtained via anonymous survey from law enforcement examiners across the United States.

Methods

Participants

A sample of 101 polygraph examiners was obtained as a result of sending 400 anonymous surveys to local and state law enforcement polygraph examiners. Survey recipients were identified via a membership mailing list obtained from the American Polygraph Association. Respondents included 93 males and 8 females all of whom reported working for either a local (77%), state (21%) or federal (1%) law enforcement agency. Respondents' ages ranged from 27 to 64 (M = 45.24, SD = 8.10), they had between 1 and 30 years experience conducting polygraph tests (M= 8.9, SD = 7.5), and had conducted between 4 and 750 polygraph examinations of adults in the past year (Mdn = 82, Interquartile Range = 39 - 200). The majority (57.4%) reported having a bachelors or higher degree, with all but 3% having some college education. Most examiners reported having attended one of three polygraph training programs: Reid & Associates 22.8%, Backster School of Lie Detection 20.8%, and Argenbright International Institute 19.8 %. There were a number of other schools and programs mentioned but none with over 3% of the respondents having been trained there.

Materials

A survey was developed which requested demographic information such as the examiners' age, sex, and educational background, as well as formal training and years of experience. The survey asked the examiner to report the "Number of Juveniles (under 16 years of age) you have given a polygraph" including the age of the youngest juvenile tested and to identify the number of adults they had tested. Specifics were requested regarding what age they considered a juvenile too young to be tested and what limitations, if any, they perceived may be influential when testing a juvenile. In addition to the open-ended request for potential limitations, examiners were asked to rate on a 7-point scale the importance of 12 specific items in determining whether or not to conduct a polygraph with a particular juvenile. The questions from the questionnaire are shown in Table 1. An additional set of questions asked examiners to select the percentage of juvenile polygraphs they had conducted related to specific types of crimes from the following ordinal scale: none, 1%, 5%, 10%, 25%, 50%, 75%, 90+%. Types of crimes included property crime, drug crimes, murder, sexual assault, child sexual abuse, gang activity, as well polygraphs as a condition of probation or parole and polygraph of a juvenile witness.

Table 1 Questions From Survey Of Polygraph Examiners

In your opinion is there a cut-off age, where you feel a polygraph should not be given or is ineffective?

Age:

Why?

In making a determination on whether or not to polygraph a juvenile how important are each of the listed factors about the juvenile?

	Not Important			**Neutral**			**Very Important**
Attention span	☐	☐	☐	☐	☐	☐	☐
Ability to sit still for extended period	☐	☐	☐	☐	☐	☐	☐
The juvenile having ADHD	☐	☐	☐	☐	☐	☐	☐
Understanding of the truth vs. a lie	☐	☐	☐	☐	☐	☐	☐
Lower than average intelligence	☐	☐	☐	☐	☐	☐	☐
The juvenile having older siblings	☐	☐	☐	☐	☐	☐	☐
The juvenile having younger siblings	☐	☐	☐	☐	☐	☐	☐
Previous experience with a polygraph	☐	☐	☐	☐	☐	☐	☐
A history of telling lies	☐	☐	☐	☐	☐	☐	☐
Difficulty in school	☐	☐	☐	☐	☐	☐	☐
A history of aggressive behavior	☐	☐	☐	☐	☐	☐	☐
Having been abused	☐	☐	☐	☐	☐	☐	☐

Procedure

Members of the American Polygraph Association, identified via address as working in the legal system, were sent a package containing the anonymous survey and a self-addressed prepaid return envelope. The cover page of the survey identified researcher's affiliation, gave a brief explanation of purpose of the survey, addressed anonymity of responses, and requested the recipient participation. No follow-up requests or additional measures were taken to increase response rate. To ensure confidentiality the surveys were numbered in the order by which they were returned.

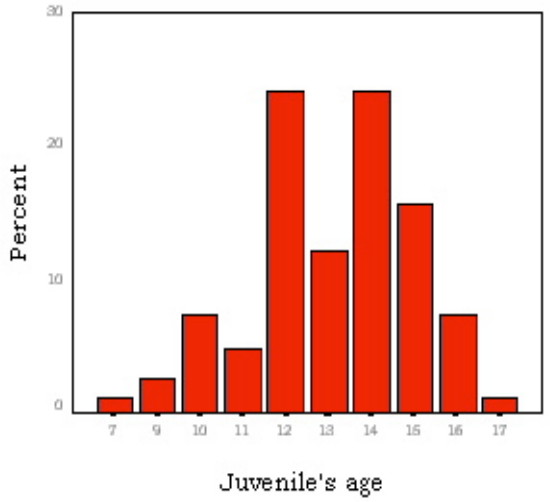
Written responses to the question regarding the limitations in testing a juvenile below the minimum age listed by each examiner were coded to identify the specific type of limitation the examiner felt was significant. A coding system with 8 independent criteria was developed which categorized responses in separate domains. The domains coded for included cognitive limitations, moral development, training, and ethical concerns (Table 2). Two raters coded a total of 101 written statements for the presence of the 8 criteria resulting in a total of 140 coded remarks; a single statement could be coded with more than one criteria. The raters achieved an 80% agreement (Cohen's Kappa .765). Any differences in coding between the two raters were resolved through discussion.

Results

Analysis of the 101 law enforcement polygraph examiners responses indicates that 74.3% reported having tested at least one juvenile (under the age of 16), with those examiners having given between 1 and 1000 juveniles a polygraph test in their careers

(Mdn = 6, IQR = 3 - 50). Figure 1 presents the age of the youngest juvenile examiners reported testing, M= 13.10, SD = 1.91. For those examiners who reported having given a polygraph to a juvenile, 66.7% reported making no special alterations in the test. Examiners reported an average of 78.8% (SD 24.5) of juvenile polygraph subjects were male. In response to the predominant ethnicity of juvenile subjects tested, examiners reported 81.5% White, 12.3% Black, 4.94% Hispanic, and 1.2% Asian. During the last year, examiners reported having tested significantly more adults (*Mdn* = 82) than juveniles (*Mdn* = 6, Wilcox test, *W* = 453, *p* <. 001). When asked to list the type of test they have used with juveniles, 81.2% reported using the Control Questions Test, 7.9%, a Guilty Knowledge Test, 7.9%, a Relevant-Irrelevant test, and 3% a Directed Lie Test.

Figure 1. Age of the youngest juvenile ever tested by the respondents.



Only 26.7% of the examiners reported doing any form of pre-screening to identify if the juvenile would not be a good subject for the polygraph. The mean reported minimum age for conducting a polygraph examination was 12.84, *SD* = 1.79. Figure 2 illustrates the minimum ages reported for actual examination.

For the 140 coded responses to the limitations in giving a polygraph to a juvenile below the minimum age the examiner specified, a significant difference was found for the types of limitations cited (χ^2 (8, N=140) = 79.85, p < .05). Examiners identified insufficient cognitive skills as the most common concern (30.7%) as to why the polygraph may be ineffective with a juvenile. Frequencies of the various concerns about juvenile are presented in Table 2. In response to an open ended request regarding any changes made in the control questions when testing juveniles, 35.8% adjusted language to age appropriate and relevant levels and 24.5% of those making alterations reported changing or eliminating the time bars. Other less frequently mentioned alterations included using directed lie controls or being sure of probable lie (15.1%), and more clarification of questions in the pre-test interview (7.5%).

Figure 2. Reported minimum ages for polygraph tests

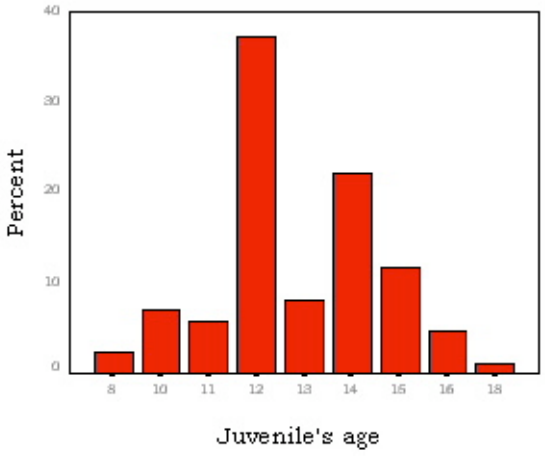


Table 2. Frequency of Reported Limitations

	Frequency	Percent
Cognitive limitations	43	30.7
Inability to comply with the requirements of the test	22	15.7
Moral development limitations	19	13.6
Regulations	10	7.1
Physical limitations	8	5.7
Trained not to test below that age	3	2.1
Ethical or personal prohibitions	2	1.4
No limitations reported	18	12.9
Other	15	10.7
Total	140	100.0

A principle factor analysis using varimax rotation of importance ratings for the 12 specified limitations revealed three separate factors (Eigenvalues > 1.0) accounting for 67% of the variance in the data. A loading cut of .50 for inclusion of a variable in interpretation of a factor was used. The first factor was loaded with items related to either the juvenile having been abused or their ability to conform to societal expectation. The second factors captured cognitive/attention issues, and the third addressed presence of siblings (Table 3). The third factor was dropped from further analysis

Table 3. Factors For Examiner Responses To Potential Limitations Importance Ratings.

Factor 1	Rotated Factor Loading			Communalities
Having been abused	.868			.779
A history of aggressive behavior	.860			.839
A history of telling lies	.824			.699
Difficulty in school	.780			.735
Understanding of the truth v. lie	.513			.423
Factor 2				
Ability to sit still for extended period		.806		.651
Attention span		.772		.628
The juvenile having ADHD		.622		.534
Lower than average intelligence		.602		.491
Factor 3				
The juvenile having younger siblings			.957	.948
The juvenile having older siblings			.948	.946
Eigenvalues	4.50	1.95	1.61	
% of Variance	37.50	16.20	13.40	

since examiners felt the juvenile having a sibling was unimportant regarding the polygraph tests (93% reporting Neutral to Not important). A composite score was produced for each factor by calculating the averaged importance ratings (1 unimportant to 7 very important) for each (Chronbach's alphas .90 & .81, respectively) and analyzed using paired sample t-test to identify which factor investigators felt was of the greatest concern when polygraphing a juvenile. Consistent with the analysis of the coded responses, the cognitive/attention factor (M= 5.93, SD = .09) was rated as significantly more important (t (92) = -11.93, p<.001) than moral understanding/behavior or whether they had been abused (M = 4.40, SD = .13).

A Friedman test identified a significant difference (χ^2 (11, N=87) = 156.24, p < .001) in the responses regarding the types of crimes juveniles had been polygraphed fort. A post-hoc Bonferroni-Dunn analysis of the difference of the sums of ranks scores (Table 4) identified three crime types for which examiners most often conducted

Table 4. Significant Post-Hoc Comparisons Of Sums Of Ranks For Precipitating Reasons For Juvenile Polygraphs In A Law Enforcement Context.

Type of criminal activity suspected		Sum of Ranks	Sum of Ranks Difference
Property Crime		714.27	
	Murder or attempted murder/assault		178.35
	Robbery		166.17
	Selling drugs/drug trafficking		222.72
	Drug use		242.73
	Gang Activity		238.28
	Witness		187.05
	Condition of Probation/parole		201.84
Rape or sexual Assault		711.66	
	Murder or attempted murder/assault		175.74
	Robbery		163.56
	Selling drugs/drug trafficking		220.11
	Drug use		240.12
	Gang Activity		235.77
	Witness		184.44
	Condition of Probation/parole		199.23
Child sexual abuse		662.07	
	Selling drugs/drug trafficking		170.52
	Drug use		190.53
	Gang Activity		186.18
		$CD_{F\ (n=87,\ k=12)}$ =	161.23 p < .05

polygraph with juveniles: property crime (Mean Rank = 8.2), rape or sexual assault (Mean Rank = 8.1), and child sexual abuse (Mean Rank = 7.6). Polygraphs for both property crime and sexual assault were significantly more likely than seven of the

other crime types: murder, robbery, drug use, selling drugs, gang activity, being a witness, and probation/parole. The reported occurrence of a juvenile polygraph regarding an accusation of child sexual abuse was significantly more likely than three of the other crime types: drug use, selling drugs and gang activity. There was no significant difference between property crime, sexual assault, and child sexual abuse.

Discussion

The results indicate that law enforcement examiners are actively using the polygraph to detect deception in juveniles. While examiners test significantly more adults in a single year than the number juveniles they have tested in their careers, a substantial number of juveniles are being given polygraph tests. In addition, several examiners used the polygraph with early adolescent populations including juveniles as young as 7. It is important to note that more than half of the respondents do not use any special modifications when testing a juvenile, treating them exactly like an adult during the test. The alterations examiners did report making when using the polygraph with juveniles focused primarily on the issues of time bars or linguistic alteration in the control questions to make them more developmentally appropriate.

While most examiners do not make special modifications when using the polygraph with a juvenile, examiners did identify specific limitations for testing this population. Based on these perceived limitations, many examiners believed that a polygraph should not be used with anyone below the age of 12. Some of the most frequent limitations cited were that juveniles lacked cognitive skills and moral understanding to produce meaningful physiological responses to the various polygraph questions. These perceived limitations correspond with the fact that the most commonly used polygraph test indicated was the Control Question Test, a rather cognitively sophisticated test. Research using less cognitively demanding tests procedures, like the Directed Lie Test or the Guilty Knowledge Test might be useful in addressing these perceived limitations.

Decisions as to whether or not to give a test, the type of test employed, and any modifications that might be made are often left to the discretion of the individual polygraph examiner. ASTM Standard Guide for PDD Examinations (ASTM, 2000) requires only that "The examiner shall ensure that the examinee is a fit subject for testing to the extent legally practicable. (p. 816)" The American Association of Police Polygraphists (AAPP, 2001) asserts that examiner has final authority regarding the validity of using the polygraph with a juvenile. Only three respondents reported a department policy on testing (one prohibited tests on juveniles, one the minimum age was 13, and the other the minimum age was 10). In the jurisdiction that did not allow testing of juveniles, the respondent noted that this was due to state law that required the presence of the parent during the test. Ultimately, there is no uniform set of guidelines as to how the polygraph should be used with juveniles, what specific factors an examiner should look for in making their determination, or a set minimum age.

Future research should focus on the types of tests commonly used with adults to determine if they are accurate when conducted with juveniles; potential limitations identified by these examiners should be addressed by such research. The criminal contexts under which juveniles are given polygraph tests are also of interest. With the

dearth of empirical research, examiners are left without a firm foundation on which to advocate the use or nonuse of the polygraph with juveniles. Since there is a potential impact of both cognitive and physiological development on the legitimacy of using a polygraph with a juvenile population, examiners should approach testing juveniles with caution.

In recent years the notion of trying a juvenile as an adult has become increasingly common. Many states have amended their juvenile justice laws and have adopted adult criminal sanctions pertaining to certain crimes where the juvenile may be treated as an adult (Griffin, Torbet, & Szymanski, 1998). In addition, the use of the polygraph as a tool either in therapy or to monitor juvenile sex offenders is of concern. If there are developmental barriers that limit the effectiveness of the polygraph, then additional testing and measures may need to be used to ensure the test is being implemented appropriately. Working from a perspective that juveniles will perform the same as adults on a polygraph is, at this point, unsupported by research, thus the validity of such an assertion is uncertain. Ultimately, it may be that the polygraph is an effective tool in detecting juvenile deception, it may not be, or it may need to be altered to accommodate for developmental factors; only with more empirical and field research will the answer be known.

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Manuscript Submitted: 10 June 2002

Revision Accepted for Publication: 28 August 2003

Published 17 November 2003