The Clinical and Forensic Value of Information that Children Report While Drawing

EMILY MACLEOD[1]*, JULIEN GROSS[2] and HARLENE HAYNE[2]

[1]*Department of Psychological Medicine, University of Otago, Dunedin, New Zealand*
[2]*Psychology Department, University of Otago, Dunedin, New Zealand*

Summary: Drawing is commonly used in clinical interviews to help children talk about their experiences. Research has shown that drawing increases the amount of information that children report about some emotional experiences. Here, we aimed to investigate the use of drawing in interviews about other, clinically relevant emotions, and the clinical and forensic relevance of the information that children report while drawing. To do this, sixty 5- to 6- and 11- to 12-year-olds drew and told, or told, about prior experiences that had made them feel happy, angry, proud (confident), and worried (nervous). For all emotions, drawing and telling increased the amount of forensically relevant, episodic details (e.g., who was there and what happened) that children reported relative to telling alone. In contrast, drawing and telling did not alter the amount of information that children reported about clinically relevant details (e.g., thoughts and emotions). We discuss the implications of these findings for using drawing in interviews with children. Copyright © 2013 John Wiley & Sons, Ltd.

In a number of different psychological settings, adults need to interview children about their prior experiences. In forensic settings, for example, a child may be the sole witness to or victim of a crime. In clinical settings, hearing from the child client is a necessary part of the assessment process (American Academy of Child and Adolescent Psychiatry [AACAP], 1997; Carr, 2006; Holmbeck, Greenley, & Franks, 2004; Rutter, 1997; Söderbäck, Coyne, & Harder, 2011). When interviewed appropriately, by using open-ended and non-leading questions, children as young as preschool age can report highly accurate information in simulated clinical and legal contexts (Ceci & Bruck, 1993; Gordon, Baker-Ward, & Ornstein, 2001; Hayne, 2007; Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012; Peterson, 2012). Children's limited communication skills, however, often mean that they fail to report enough information, or the level of detail, that adults require (Hershkowitz et al., 2012; Hutcheson, Baxter, Telfer, & Warden, 1995; Orbach et al., 2000; Powell & Guadagno, 2008).

Given the brevity of children's accounts in response to general open-ended questions, it is important to identify ways to help them to report more information about their prior experiences. In the past, researchers have attempted to use additional interview techniques, such as specific questioning, the use of props, or re-enactment, to enhance the amount of information that children report about their experiences (Bierman, 1990; Garven, Wood, Malpass, & Shaw, 1998; Gee & Pipe, 1995; Salmon, 2006; Wesson & Salmon, 2001). Although these techniques can increase the amount of information children report, they can also lead children to report inaccurate information (Bruck, Melnyk, & Ceci, 2000; Ceci & Bruck, 1993; Gee & Pipe, 1995; Melinder et al., 2010; Poole, Bruck, & Pipe, 2011).

One interview technique that has been shown to reliably increase the amount of information that children report, without decreasing accuracy, is drawing. Drawing is often used in clinical and forensic settings as a technique to encourage children to report information about significant events, such

as trauma or abuse (e.g., Bierman, 1990; Cohen-Liebman, 2003; Boyd & Hunsberger, 1998; Driessnack, 2005; Katz & Hershkowitz, 2010; Lev-Wiesel & Liraz, 2007; Oppawsky, 1991; Sourkes, 1991; Wakefield & Underwager, 1988). Although the use of drawing as a tool to enhance communication preceded any empirical evidence that it was effective, there is now a growing body of research showing that, if children are offered the opportunity to draw, they report more verbal information compared with telling alone, with no decrease in accuracy (Butler, Gross, & Hayne, 1995; Driessnack, 2005; Greco-Vigorito et al., 2005; Gross & Hayne, 1999; Gross & Hayne, 1998; Gross, Hayne, & Drury, 2009; Wesson & Salmon, 2001).

In the initial experimental research on drawing, researchers explored the possibility that drawing could be used as a tool to augment communication with children in forensic settings. The goal of these studies was to examine whether drawing might help children to describe details about unique, forensically relevant experiences, such as a visit to the police station. The research focused predominantly on younger children, generally up to the age of 6 years, for whom verbal communication in interview settings is most limited. In most of this research, children initially participated in a unique event. Following a delay, children were then asked to draw and tell, or simply tell about that event. Under these conditions, drawing augmented the children's verbal reports about their experiences, even after delays of up to 1 year (Butler et al., 1995; Gross & Hayne, 1999; Wesson & Salmon, 2001). That is, children as young as 3- to 4-years reported more information in a draw-and-tell condition than in a tell-only condition (Butler et al., 1995). Importantly, when children were interviewed using only open-ended questions, drawing increased the amount of information reported without decreasing accuracy (Butler et al., 1995; Gross & Hayne, 1999; Gross & Hayne, 1998).

Although the research on children's drawing in simulated forensic settings suggests that the technique holds considerable promise, one potential limitation of this research is that the target events were staged by the experimenters and were designed to educate and entertain the children. In actual clinical and legal contexts, children are interviewed about events about which the interviewer is not omniscient. In addition, the goal of many

*Correspondence to: Emily Macleod, Department of Psychological Medicine, University of Otago, PO Box 913, Dunedin 9054, New Zealand.
E-mail: emily.macleod@otago.ac.nz

interviews is to find out information about an event that is emotionally significant to the child. To more closely approximate these conditions, Gross and Hayne (1998) examined the effect of drawing on children's reports of their own emotional experiences. They asked 3- to 4- and 5- to 6-year-old children to draw and tell, or simply tell, about a time when they were happy, sad, scared, and angry. The accuracy of the children's reports was verified, point-by-point, with their parents. Overall, children in both age groups reported more than twice as much information when they were given the opportunity to draw as they did when they only told. Consistent with the findings obtained using staged events, the increase in the amount reported by children who drew was not accompanied by a decrease in accuracy. Subsequent researchers have replicated and extended Gross and Hayne's findings, showing that drawing helps 5- to 12-year-olds to talk about their prior emotional experiences (Patterson & Hayne, 2011; Salmon, Roncolato, & Gleitzman, 2003; Wesson & Salmon, 2001).

Why does drawing help children to report information about their experiences? Initially, researchers posited that drawing may work by helping children to structure their verbal narrative (Butler et al., 1995) or because drawing allows children the opportunity to generate their own retrieval cues, which helps them to remember and report additional details (Butler et al., 1995; Gross et al., 2009). Although these factors may play a role, many researchers have argued that the major factor associated with an increase in the amount of information reported during drawing interviews is the interviewer's supportive verbal behaviour (Gross et al., 2009; Patterson & Hayne, 2011; Willcock, 2004). Research has consistently shown that when children are interviewed using the draw-and-tell technique, interviewers use more minimal responses (non-directive encouragers to maintain rapport and the flow of the conversation) than they do when interviewing children using telling alone (Gross et al., 2009; Patterson & Hayne, 2011; Salmon et al., 2003; Wesson & Salmon, 2001). Furthermore, there is a significant relation between the number of minimal responses by the interviewer and the amount of information that is reported by the child.

The correlation between minimal responses and the amount of information that children report is not unique to drawing. Even when children only tell, the interviewer's minimal responses are correlated with the amount that children report. Given the correlational nature of the relation, it is impossible to know whether drawing causes interviewers to provide more minimal responses, which in turn causes children report more information, or whether children report more information because of the drawing per se, allowing interviewers to use more minimal responses. The fact remains, though, that across a number of published studies using a range of different interviewers, when drawing is added to an interview, the interviewer makes more minimal responses, and these responses are associated with augmenting children's reports.

Because the original work on drawing focussed on very young children, the emotions that the children were asked to describe were very basic (i.e., happy, sad, angry, or scared). As children become older, however, they begin to experience a range of different emotions that might be particularly relevant to clinical settings. For example, when children move into puberty and adolescence, the risk of mental disorders such as depression and anxiety begins to steadily increase compared with earlier in childhood (Beesdo, Knappe, & Pine, 2009; Birmaher et al., 1996; Fergusson & Horwood, 2001; Jaffee et al., 2002). We know from past research that drawing helps children to talk about their experiences of being sad (Gross & Hayne, 1998; Patterson & Hayne, 2011; Wesson & Salmon, 2001), but children who experience anxiety and depression also have problems with a variety of other emotional experiences, including worry, nervousness, self-esteem, and confidence. At this stage in the research, we do not know whether drawing also helps children to talk about these other clinically relevant emotions as well.

In addition, although research has consistently shown that drawing helps children to report *more* information, it is not yet clear *what type* of extra information they report. For example, in prior research on drawing, when drawing interviews have been used in circumscribed, laboratory-based settings, the extra information that children have reported while drawing has been associated predominantly with objects, items, and general descriptions, rather than people, places, emotions, or actions (Barlow, Jolley, & Hallam, 2011; Gross & Hayne, 1998; Wesson & Salmon, 2001; but see Katz & Hershkowitz, 2010). Given that drawing requires children to visually represent an event, it is possible that the drawing may be limited to helping children to discuss the physical components of an event, such as objects or environmental descriptors (e.g., 'there were five chairs', 'the grass was green', and 'the table was round'); extra information of this type would have some forensic value, but in forensic settings, an interviewer typically wants to know many more specific details about an event that a child can recall, such as the timing of what happened, who was there, and what the location looked like. This kind of episodic information helps the interviewer to understand what, when, how, or why an event occurred. The degree to which drawing facilitates these other aspects of a child's report that might be forensically valuable (e.g., who was there, what happened, and how it happened) is not yet known. Furthermore, in clinical settings, the clinician is also interested in information about children's thoughts, emotions, and perceptions of their personal experiences. On the basis of the extant data, it is also not clear whether drawing helps children to report this type of evaluative information.

With this background in mind, the aims of the present research were twofold. First, prior research has consistently shown that drawing increases the amount of information that 5- to 12-year-old children report about events that made them feel happy, sad, angry, or scared (Gross & Hayne, 1998; Patterson & Hayne, 2011), but there has been no research examining other, potentially important emotional events. Given this, the first aim of the present research was to replicate the finding that drawing increases 5- and 6- and 11- and 12-year-old children's reports of events that made them feel happy or angry and to extend this finding to include events that made them feel worried (or nervous) or proud (or confident). The second aim of the present research was to examine the type of information that children report during a drawing interview. Specifically, we were interested in whether drawing would help children to report forensically relevant episodic details and to report clinically relevant evaluative information about their emotional experiences.

METHOD

Participants

Thirty 5- and 6-year-olds (14 male and 16 female; mean age = 6.22 years, *SD* = .56) and thirty 11- and 12-year-olds (15 male and 15 female; mean age = 12.11 years, *SD* = .60) were recruited from two schools in a small town. The participants were predominantly of European descent and came from middle-income socioeconomic backgrounds. All children had written parental consent to participate.

Materials and procedure

Interview

Each child was interviewed individually by a female experimenter in a room adjacent to the classroom. To establish rapport, the interviewer engaged in a child-led conversation with each participant. When children spontaneously began a conversation, the interviewer encouraged this conversation. If the child did not spontaneously initiate a conversation, the interviewer prompted a neutral conversation, using open-ended questions that were based on the interviewer's knowledge of current school-related events or topics that other children had volunteered. For example, the interviewer sometimes asked the child about what he or she was doing in class or what his or her plans were for the holidays.

When the child appeared comfortable (e.g., reduced or no signs of nervousness, or the child indicated that he or she wanted to start the activity), the interviewer began the formal interview. The child was asked to provide a narrative account of four personal, emotional experiences. In particular, children were asked to describe four specific events; two that were associated with positive emotions (a specific time when they were happy and a specific time when they were proud or confident) and two that were associated with negative emotions (a specific time when they were angry and specific a time when they were worried or nervous).

For one positive emotion (happy or proud/confident) and one negative emotion (angry or worried/nervous), the child was asked to tell about the experience in as much detail as possible. For the other positive and negative emotions, the experimenter gave the child 10 coloured crayons and a piece of white A4 construction paper and asked him or her to draw and tell about the time when he or she had experienced the emotion in as much detail as possible.

The experimenter first ascertained that the child understood the emotion that he or she would be asked to describe. The experimenter asked the child 'Can you tell me about the types of things that make people your age feel angry [nervous (worried); proud (confident)[1]; happy]?' After the child had provided appropriate examples, indicating that he or she understood the basic context of the emotion, the child was asked to describe a specific time when he or she had personally experienced that emotion. The experimenter asked each child the following question: 'Can you think of a time when you felt really, really angry [nervous (worried); proud (confident); happy]?' Once

[1] To increase the likelihood that children would identify an appropriate emotional experience, an additional descriptor was used to describe the more complex emotions of nervous (worried) and proud (confident).

the child indicated that he or she could think of a specific time, the experimenter said 'I'd like you to draw/tell me everything that you can remember about that time.' Previous research has indicated that children spontaneously narrate as they draw (Butler et al., 1995). Very few children failed to describe the event while they were drawing; in these rare instances, the interviewer prompted the child to talk by saying, 'Tell me about what you're drawing.'

The experimenter maintained conversational flow by saying 'uh huh' or 'cool', or by repeating a portion of the child's previous utterance. The only additional prompts provided by the experimenter were variations of the original prompt, for example, 'Draw/tell me more about the time you felt really, really angry [nervous (worried); proud (confident); happy]?' or 'What else can you draw me?' If a child indicated that he or she was unable to think of a time that he or she had felt the target emotion, the experimenter asked the child to think of an event involving the next emotion. At the conclusion of that narrative, the experimenter returned to the emotion that the child was unable to describe and repeated the question. The order in which children were asked to draw or tell about the emotional experiences was counterbalanced. Children completed the two draw emotions consecutively, and the two tell emotions consecutively. Children always finished drawing or telling about a positive emotion, but the order in which the children were asked about the remaining emotional experiences was counterbalanced across participants. The interview lasted approximately 45 minutes.

Emotional intensity

To determine the strength of the child's emotional experience, the experimenter presented the Feeling Thermometer (developed by Stallard, 2002) at the conclusion of each narrative. The scale shows a cartoon-style thermometer with 0 at the bottom, 10 at the top, with increments of 1 in between. Labels are attached to some of the numbers: 0 = *Nothing happening*, 3 = *Pretty weak*, 5 = *Medium*, 7 = *Pretty strong*, and 10 = *Exceptionally strong*. The experimenter said to the child, 'Using this scale, can you tell me how angry [or nervous (worried); proud (confident); happy] this event made you feel?' After the child indicated a number representing the strength of his or her emotion, the experimenter then asked the child about the next emotional experience.

Coding

All of the interviews were video and audio recorded and transcribed verbatim, and these transcripts were parsed into clauses. A clause was defined as a phrase that contained a verb (explicit or implicit) describing actions, sensations, or states of being. Both the child's and interviewer's contributions were parsed in this way.

Next, for the children, we determined whether a clause was interview relevant or not. Clauses were coded as interview relevant if they pertained to the child's nominated emotional experience. Clauses were coded as interview irrelevant if they included off-topic information, repeated information, responses that indicated that a child was finished, minimal responses or comments that did not provide any information (e.g., um and mm-hm), and inaudible responses. Interview-irrelevant information was removed prior to the analysis.

The child's interview-relevant clauses were further coded into more specific information categories: Evaluative and Event. On the basis of an adaptation of a coding scheme developed by Lyon, Scurich, Choi, Handmaker, and Blank (2012), a clause was coded as Evaluative information if it included information about a child's feelings and emotions relevant to the emotional experience, the child's affective evaluation of his or her experience (e.g., 'I was crying', 'I'll draw me with a smile on my face', 'we laughed', or 'it was cool.'), or a thought, idea, or expectation (e.g., 'I couldn't stop thinking, what if…', 'I expected it to be easy', or 'I knew he would say that').

A clause was coded as Event information if it included more concrete, factual aspects of a child's emotional experience that added to the interviewer's understanding of what, when, how, or why an event had occurred. Event information was further categorized as either Object information or Episodic Detail information. A clause was coded as Object information when a child made a reference to an object, thing, place, or physical component present during his or her experience, or if an object or inanimate thing was the subject of the clause (e.g., 'it was on the concrete', or 'I'll draw the couch.'). A clause was coded as Episodic Detail information if the clause added detail about the child's experience and what happened (e.g., 'then we went inside', or 'he said he didn't want to go anymore'). Clauses that contained information about people were also included in the Episodic Detail category (e.g., 'my mum was there', or 'a boy was bullying me').

The interviewer's clauses were also coded from the transcripts. The first step was to assign each clause into either an interview-relevant or interview-irrelevant category. Interviewer clauses were coded as interview irrelevant if the clauses included any off-topic information. Interview-irrelevant information was removed prior to the analysis.

Interviewer clauses were coded as interview relevant when the interviewer took a turn that was relevant to the child's report about his or her emotional experience. When the interviewer took a turn during the interview, she engaged in two types of interview-relevant verbal behaviours: interviewer prompts or interviewer minimal responses. A turn was coded as an Interviewer Prompt when the interviewer used a directive question, probe, or instruction that prompted the child in relation to the nominated emotional experience (e.g., 'tell me everything that you can remember about that' or 'what else can you draw me?'). A turn was coded as an Interviewer Minimal Response when the interviewer used a non-directive encourager or response to maintain the flow of the conversation (e.g., repeated part of a child's utterance or verbal encouragers such as 'mm-hm' and 'cool!').

Reliability

To determine the reliability of our coding scheme, two experimenters independently coded 25% of the transcripts. First, we counted the total number of clauses that each experimenter assigned to each child's transcript. A Pearson product-moment correlation indicated that the interrater reliability for parsing information into individual clauses was .99. Next, we calculated the reliability of the experimenters' assignment of clauses to specific codes (i.e., Object, Episodic, and Evaluative). Cohen's Kappa indicated that the interrater reliability for coding information into categories was .94.

RESULTS

Preliminary analyses

Preliminary analyses indicated that there was no effect of the order in which children drew and told or told. There was also no effect of the order in which children reported about the emotions. Given this, the data were collapsed across order for all subsequent analyses. In total, across all of the interviews, the interviewer used only two leading questions (defined as questions that implied or suggested an answer or included information that the child had not previously volunteered). Given the rarity of this type of question, these two leading questions and the responses that they elicited were removed prior to the analyses.

Emotional intensity

Overall, children rated their emotional experiences as relatively strong; on average, their ratings on the Feeling Thermometer exceeded 7 on a 10-point scale ($SE = .25$). Importantly, there were no differences in children's ratings for experiences that they drew-and-told about compared with experiences that they only told about (largest $t(28) = 1.94$, $p = .50$). In both age groups, children rated the intensity of the happy ($M = 8.91$, $SE = .17$) and proud (confident) ($M = 9.03$, $SE = .19$) emotions more highly than the intensity of the angry ($M = 7.22$, $SE = .29$) or worried (nervous) ($M = 6.63$, $SE = .32$) emotions (smallest $F(3, 115) = 8.84$, $p < .01$, partial $\eta^2 = .19$).

Amount of information reported

The amount of information that children reported was analysed separately for each emotion using a 2 (Interview Condition: Draw, Tell) × 2 (Age: 5- and 6-year-olds, 11- and 12-year-olds) analysis of variance (ANOVA). The data are shown in Figure 1 as a function of age, interview condition, and emotion.

Consistent with prior research, drawing increased the amount of information that 5- and 6- and 11- and 12-year-olds reported about events that made them feel Happy or Angry (Figure 1). For both of these emotions, children given the opportunity to draw and tell reported approximately twice as much information as did children who were only

Figure 1. The mean number of clauses of information (+1SE) reported by 5- and 6- and 11- and 12-year-olds in the draw-and-tell and tell conditions about each of the four emotional experiences

given the opportunity to tell (Happy, $F(1, 56) = 21.24$, $p < .01$, partial $\eta^2 = .28$; Angry, $F(1, 56) = 7.26$, $p < .01$; partial $\eta^2 = .12$). Furthermore, when describing events that made them feel Angry, older children reported more information than did younger children ($F(1, 56) = 5.39$, $p < .05$; partial $\eta^2 = .09$); there was no Age × Interview Condition interaction ($F(1, 56) = .03$, $p = .86$; partial $\eta^2 = .001$, observed power = .05). When describing events that made the children feel Happy, there was no effect of age ($F(1, 56) = .25$, $p = .62$; partial $\eta^2 = .004$, observed power = .08), and there was no Age × Interview Condition interaction ($F(1, 56) = 2.85$, $p = .10$; partial $\eta^2 = .05$, observed power = .38).

As shown in Figure 1, when children were given the opportunity to draw about events that made them feel Proud (confident) or Worried (nervous), they also reported approximately twice as much information as did children who only told (Proud, $F(1, 56) = 7.47$, $p < .01$; partial $\eta^2 = .12$; Worried: Tell, $F(1, 56) = 24.52$, $p < .01$; partial $\eta^2 = .30$). When asked to describe events that made them feel Worried (nervous), the older children reported more information than did the younger children, $F(1, 56) = 6.98$, $p < .05$; partial $\eta^2 = .11$. There was no Age × Interview Condition interaction ($F(1, 56) = .31$, $p = .58$; partial $\eta^2 = .005$, power = .09). When asked to describe events that made the children feel Proud (confident), there was no effect of age ($F(1, 56) = 1.53$, $p = .22$, partial $\eta^2 = .03$, power = .23) and no Age × Interview Condition interaction ($F(1, 56) = .21$, $p = .65$; partial $\eta^2 = .004$, power = .07).

Event and evaluative information

Next, we analysed the type of information that participants reported for each emotion separately using a series of 2 (Interview Condition: Draw, Tell) × 2 (Age: 5- and 6-year-olds, 11- and 12-year-olds) × 2 (Information Category: Evaluative, Event) ANOVAs with repeated measures over Information Category.

Figure 2 shows the amount of Event and Evaluative information that the children reported about each of the four emotional experiences as a function of interview condition. As shown in
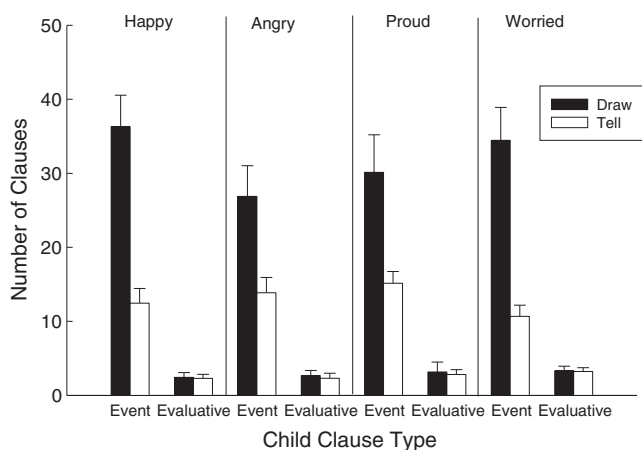
Figure 2, irrespective of age, most of the information that children reported was assigned to the Event category; significantly less information was assigned to the Evaluative category (smallest $F(1, 56) = 64.37$, $p < .01$, partial $\eta^2 = .53$). Across all four emotions, drawing enhanced children's reports of event-related information, but it had no effect on their reports of evaluative information (smallest $F(1, 56) = 6.15$, $p < .01$, partial $\eta^2 = .10$, largest $F(1, 56) = 18.08$, $p < .01$, partial $\eta^2 = .24$).

Amount reported: object and episodic detail information

To determine whether the extra information that children provided in the present interviews was forensically relevant, we further examined the nature of the Event information that children reported when they were drawing. The amount of Episodic Detail and Object information that participants reported was analysed for each emotion separately using a 2 (Interview Condition) × 2 (Age) × 2 (Event Information Category: Episodic Detail, Object) ANOVA with repeated measures over Event Information Category. As shown in Figure 3, irrespective of age, emotion, or interview condition, over 93% of the information that children reported was assigned to the Episodic Detail category; significantly less information was assigned to the Objects category (smallest $F(1, 56) = 67.19$, $p < .01$, partial $\eta^2 = .55$). Although the opportunity to draw increased the amount of Object information that children reported (smallest $t(58) = 2.86$. $p < .01$, $d = .75$), drawing had the greatest impact on the amount of Episodic Details (smallest $F(1, 56) = 67.19$, $p < .01$, partial $\eta^2 = .55$).

Interviewer turns

In the present experiment, we investigated whether interviewer prompts and minimal responses differed across the draw-and-tell and tell conditions. To do this, we first analysed the number of interviewer prompts and minimal responses separately for each emotion using 2 (Interview Condition) × 2 (Age) ANOVAs. Figure 4 shows that for interviewer prompts, the main effects of age (smallest $F(1, 56) = 19.75$, $p < .01$, partial $\eta^2 = .26$) and interview condition (smallest $F(1, 56) = 34.3$,

Figure 2. The mean number of clauses of Event, and Thought and Emotion information (+1*SE*) reported by 5- and 6- and 11- and 12-year-olds in the draw-and-tell and tell conditions about each of the four emotional experiences
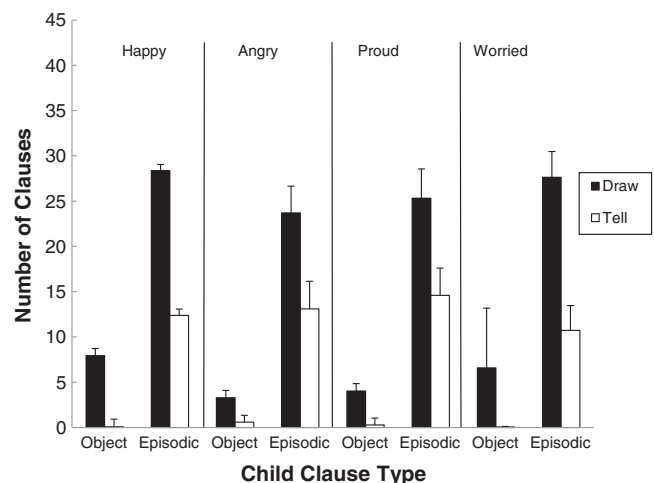

Figure 3. The mean number of clauses of Object and Episodic Detail information (+1*SE*) reported by 5- and 6- and 11- and 12-year-olds about each of the four emotional experiences
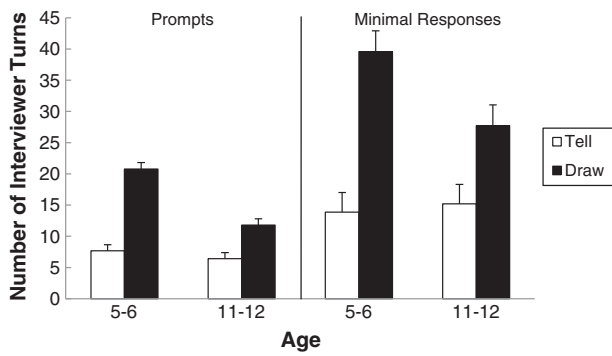
Figure 4. The number of interviewer prompts (+1SE) and minimal responses (+1SE) used as a function of group and age during reports about children's emotional experiences

$p < .01$, partial $\eta^2 = .38$) were qualified by a significant Age by Interview Condition interaction ($F(1, 56) = 10.26$, $p < .01$, partial $\eta^2 = .16$). That is, in the draw-and-tell interviews, the interviewer used more prompts with the 5- and 6-year-olds than with the 11- and 12-year-olds; in the tell interviews, on the other hand, the interviewer used a similar number of prompts with each age group.

By far, the predominant turn type used by the interviewer was minimal responses. Figure 4 shows that, across each of the emotions, the interviewer used more minimal responses in the draw-and-tell interviews compared with the tell interviews (smallest $F(1, 56) = 36.19$, $p < .01$, partial $\eta^2 = .39$).

Next, to determine whether there was a relation between interviewer turns and the amount of information that children reported, we conducted a series of Pearson product-moment correlations ($p < .05$). Table 1 shows the correlations between each interviewer turn type (minimal responses and prompts) and the amount of information that children reported. The correlations are reported across emotions, separately for each age group, and each interview condition. As shown in Table 1, regardless of interview condition or emotion, there was always a large and statistically significant correlation between the number of minimal responses that were provided by the interviewer and the amount of information that children reported (smallest $r = .59$, $p < .01$). There was also usually a significant relation between the number of interviewer prompts and the amount that the children reported, with one exception; when the older children drew-and-told, there was no significant relation between interviewer prompts and the amount that the children reported.

Table 1. The correlation between interviewer turns (minimal responses or prompts) and amount reported for each emotion for the 5- to 12-year-olds; correlations were analysed separately for draw-and-tell and tell conditions and for each age group

Emotion		Minimal responses	Prompts
5- and 6-year-olds	Draw	.87**	.43**
	Tell	.87**	.41*
11- and 12-year-olds	Draw	.66**	.16
	Tell	.59**	.40**

Note:
*$p < .05$
**$p < .01$

DISCUSSION

Taken together, the results of the present research replicated and extended prior research on drawing with 5- to 12-year-old children. Children who were given the opportunity to draw reported more information about events that made them happy or angry. These same effects were also observed when children were interviewed about events that made them feel proud (confident) or worried (nervous). Across all four emotions, children who were given the opportunity to draw reported approximately twice as much information as did children who only told. Many of the experiences that children described were psychologically relevant. By way of example, children in the drawing condition described experiences such as being worried about starting a new school, experiencing an earthquake, or fearing the dark. They also described experiences of being angry about being bullied or having an argument with a family member and about being proud about overcoming a fear of performing in front of others (refer to Appendix A for examples).

In general, children reported more information about positive emotional experiences compared with negative emotional experiences. From a developmental perspective, the younger children in particular had more difficulty discussing negative emotional experiences and required more prompting from the interviewer to draw and talk about their experiences. The developmentally interesting question is whether the younger children had less experience with these emotions to call on during the interview or whether they only had difficulty describing them. The answer to this question will require additional research. The point remains, however, that in clinical and forensic settings, it is generally negative emotional experiences that are the focus of communication. It is promising, therefore, that regardless of age, when participants were interviewed about their negative experiences (angry and worried/nervous), drawing was as effective in increasing the amount of information that children reported as it was when children were interviewed about positive experiences.

Given the potential constraints imposed by children's attention capacity, we restricted our investigation to a limited sample of emotional experiences; we chose emotions that were associated with anxiety and depression. In future research, it would be important to investigate the effect of drawing on children's reports about other emotional experiences. In particular, in forensic settings, children are often asked to talk about experiences that involve shame or fear of reprimand; for these experiences, it would be extremely useful to determine whether drawing would help children to disclose additional details.

In the present experiment, we assessed the clinical and forensic value of the extra information that children reported while drawing. We found that drawing increased the amount of forensically relevant information that children reported. That is, the extra information elicited by drawing was not limited to information about objects or physical details; children who drew also reported additional details about the 'who, what, when, where, how, and why' of their prior experiences. In contrast, drawing had no effect on the

amount of evaluative information that children reported, but at the same time, it did not interfere with the amount of evaluative information that children reported; across both tell and draw-and-tell conditions, children reported little information about their thoughts and emotions.

Given that providing information about thoughts and emotions is a self-reflective task that even most adults find challenging, the finding that drawing did not enhance the amount of evaluative information that children reported is not entirely surprising. In most adult clinical settings, for example, the focus of therapy is on helping adults to develop the skill of identifying and discussing their thoughts and emotions (e.g., Beck, 1995; Young, Klosko, & Weishaar, 2003). In the present research, and in most of the prior laboratory-based research on drawing, the interview was not designed specifically to elicit affective information. Interviewers were restricted to open-ended prompts that directed children to talk about the time that they had experienced a specific emotion. In this case, the interviewer's prompts may have encouraged children to report more general information, but it may not have been specific enough to elicit information about thoughts and emotions. It is still possible, therefore, that the draw-and-tell interview could be altered specifically to increase the amount of information that children report about their thoughts and emotions. Consistent with this possibility, Lyon et al. (2012) found that when children were interviewed about their experiences of suspected abuse, they were more likely to report evaluative information if they were specifically prompted to report that information. The next obvious step would be to combine these specific prompts with drawing to determine whether the effect would be even larger.

Recently, some researchers have altered the draw-and-tell technique to make it more analogous to clinical and forensic interviews (Barlow et al., 2011; Katz & Hershkowitz, 2010). For example, Barlow et al. (2011) developed and tested an interactive draw-and-tell interview technique, in which interviewers asked children to draw and describe specific experiences. In addition, interviewers followed up the details that the children provided with a series of pre-determined prompts (e.g., 'what is it?' or 'what happened?'). Barlow et al. tested their interactive draw-and-tell technique with 5- to 6-year-olds who had watched a video of a novel event. Barlow et al. found that, compared with an interactive tell interview, or the draw-and-tell or tell interviews from past research, the interactive draw-and-tell interview helped children to report more forensically relevant information (items). Furthermore, the extra information that children reported was accurate. The interactive draw-and-tell technique did not help children to report more affective information, but the interviewers did not specifically probe for this information. It is possible that, if interviewers asked specific questions about thoughts and emotions within an interactive draw-and-tell context, children may report additional clinically relevant affective information. This possibility remains to be tested.

One of the major factors associated with the increase in the amount of information reported by the children in the present experiment was the interviewer's verbal behaviour (Gross et al., 2009; Patterson & Hayne, 2011; Willcock,

2004). Consistent with prior research, when interviewing children about each emotional experience, the interviewer used more minimal responses when children drew, and the number of minimal responses was correlated with the amount of information that children reported. On the surface, these data support the conclusion that drawing increases the interviewer's minimal responses, and the minimal responses increase the amount of information that children report. Hence, drawing works via its effect on minimal responses.

In addition to the increase in minimal responses, drawing interviews are also consistently longer than standard tell interviews. Given this, the extra time, rather than the minimal responses per se, could explain why children report additional information when they draw. On the basis of our current data, the specific effect of minimal responses on the amount reported is hard to ascertain. In principle, the only way to directly measure the effect of minimal responses on children's reports independent of interview duration is to hold duration constant and to specifically manipulate the number of minimal responses. In practice, however, this kind of manipulation would be difficult to achieve. By definition, minimal responses must occur in response to something else. In our view, drawing works because it provides a natural context within which interviewers can provide minimal responses as the child draws or talks about what he or she is drawing. Simply adding or subtracting minimal responses from a conversation is likely to make the interaction artificial and uncomfortable, and rather than extending the interview, may actually decrease children's comfort levels and participation. Again, these possibilities remain to be tested.

In forensic contexts, the accuracy of the information that is gained during an interview is particularly important. In the present research, we did not measure the accuracy of children's reports, but in past research, when children were interviewed using the same procedure that we employed here, drawing helped children to report additional information, and the extra information was highly accurate (Butler et al., 1995; Gross & Hayne, 1998; Gross et al., 2009); we have no reason to believe that children's accuracy in the present experiment would be any different. As described earlier, the main difference between draw-and-tell interviews and tell interviews was the interviewer's use of minimal responses that involve non-specific encouragement for the child to say more without the opportunity for contamination from information provided in the question. More specific interviewer questions or directions are generally associated with an increase in children's errors (e.g., Ceci & Bruck, 1993).

The goal of forensic interviews is to extract as much information as possible from interviewees about their experiences. Taken together, the findings of our research and other research suggest that, in both lab-based and more realistic interview settings, drawing can enhance the amount of forensically relevant information that children report. In clinical settings, where the goal of a drawing interview is to extract clinically relevant information, however, the draw-and-tell interview style may need to be adapted; the current draw-and-tell and tell approaches

are likely to yield a similar, limited amount of affective information. Although an increase in evaluative information will continue to be a desirable clinical goal, in both clinical and forensic settings, episodic detail is also important for the adult's understanding and assessment of the child's experiences, and drawing appears to assist in increasing the report of this type of information. Given that drawing has shown such promise in research to date, it would be valuable to explore further how drawing could be helpful in both clinical and forensic settings.

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APPENDIX A
THE FOLLOWING EXCERPTS DEMONSTRATE HOW DRAWING TYPICALLY ENHANCED EACH CHILD'S NARRATIVE COMPARED WITH AN INTERVIEW IN WHICH THE CHILD ONLY TOLD.

Excerpt from the tell interview of an 11-year-old boy when he was talking about his experience of being Angry. The child rated the emotional intensity of the experience as 9/10.

Well um it was at home…and my sister she was like um she was just …she was being so rude and she…and it made me like so angry I felt like punching her but I didn't because it's mean…she was just kept going on and going on being rude, annoying me…and I was not well and… and I asked her to just pass me something and she didn't even want to do that and it made me angry…cause I had to move all this stuff that was on top of me and walk over and grab it…and then…I got in trouble a bit because I was yelling at her and she was yelling at me too…and I got real angry. I went like that (action)- I got angry and like grabbed like that to make a fist. My face changed because I was angry…my eyebrows got like into an angry shape in my face and I was really annoyed and angry at my sister because she was angry and I was just trying to speak nicely. I was trying to talk to her and she…she just walked away so I went over to her and talked and she just slammed the door and then she came out later and was speaking rude to me for no reason. When you are angry you feel different…you feel tough and strong.

Excerpt from the draw-and-tell interview of the same 11-year-old boy when he was talking about his experience of being Worried (Nervous). The child rated the emotional intensity of the experience as 10/10.

When my parents had this huge fight for ages and ages and it kept going on…we were in the house and one night umm when Dad came home umm Mum was angry…they were arguing about something and my Dad was getting real angry at her and they were chucking stuff and wrecking stuff and then my Mum looked so sad and she called her friend and then she came and picked my sister and me and my Mum up… and we drove for an hour and a half down to her friends place…and I didn't want to go because I wanted to stay with my Dad…and he had to stay home and yeah and then we stayed then for a while…for like a week and stuff and they were still fighting…(drawing) smashed things…that's the desk that the computer was on…and the computer was all smashed up…and that was a painting… and this is my sister and me…and we were scared and we were trying to stop them but then they kept like yelling and swearing at each other…um she um got some stuff so we could stay the night … then cause she was trying to calm Mum down…yeah for a bit and um so she took her over to a neighbour's house so they could have a cup of tea and start to calm down there…and I stayed with my Dad and um Mum's friend's husband came over and he was talking to my Dad…to try and find out what was going on and trying to stop her…and then um then we left and stayed out of school for a few days…and then we came back home and they got over it…they decided to start again. Because it was like one of the biggest fights they've had…my sister and me were hiding because… we didn't want to get hurt…this is my room…that's the bed…and I was…and that's the cupboard I was hiding in the cupboard and they were arguing out in the lounge…and they were just chucking stuff at each other and yelling…and swearing and that…the lamp….and this is my Mum's friend's house… and we all slept in the same bed…This is when my Mum got hurt…on the leg…that's me and my sister…we were worried about her… because we wanted to see if she was alright…I was sad when I saw my Dad crying and we had to leave…(drawing)umm faces of how people felt…that's my sister crying…and that's when my Dad was angry… that's when my Mum was angry at Dad…I was sad…because my Dad was arguing with my Mum and my Mum was arguing back…and I was also frightened that I was going to get hurt from the stuff that was being chucked.

Excerpt from the tell interview of a 5-year-old girl when she was talking about her experience of being Worried (Nervous). The child rated the emotional intensity of the experience as 10/10.

When the teenagers pretended that there was a ghost in the toilet…teenagers told um the middle school girls and they kept rushing into the girls toilets and screaming and coming back out…and whenever I go to the toilet with um by myself I always rush out of the toilet um after I wash my hands.

Excerpt from the draw-and-tell interview of the same 5-year-old girl when she was talking about her experience of being Angry. The child rated the emotional intensity of the experience as 10/10.

I felt saddest angry then and I just noticed that today… [dog] chewed my favourite blue bone…And now it's got teeth marks all over it…(drawing) need the blue,

oh I know, blue bone, can't draw bones that good but I'll just do it like that…I'll need the black…the teethmarks…It's got these little spots in the middle of it…Just in the middle but these are teeth marks and then then [dog]'s brown…She turned 3 a few days ago in dog years but she turned 22 in human years…[dog] felt happy…Coz she didn't know that I was angry…Now I will use the black…I'm saying "Bad girl"… [dog] and she's saying woof…Mummy… she's doing…she put her hands out…(drawing) she has very short hair so I'm doing this… "We saw her doing that"…Mummy… She's saying that …I remember the train was going round in circles when that happened…Ooh I remember empty box of chocolate drops for [dog] will be here… and doggy hair…Well there used to be these little chocolates in it and me and [sister] ate two of ate one each of the chocolate drops and it said these are only for dogs but it will be ok if someone eats these chocolate drops…And they didn't taste like different chocolate they tasted like chocolate chips.