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The effects of brief and elaborate mood induction procedures on young children's drawings

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Abstract

It has been claimed that children's drawings following brief mood induction procedures differ in size depending on positive or negative mood. However there are conflicting findings in the field as to the existence and direction of scaling changes. Such inconsistencies may be the result of methodological differences or may indicate that this phenomenon is unreliable. This study was designed to investigate the size of young children's (n=80, median age 6 years 1 month) human figure drawings. The focus was on both the surface area and height of drawings elicited in a clinical context using brief or elaborate mood induction procedures. Children drew larger pictures under both negative and positive affect conditions, relative to a prior baseline condition. Positive mood elicited slightly larger drawings than negative mood. However, such mood effects were only significant when the affect inductions were brief, and were not found when the affect inductions were elaborated. It is suggested that brief mood inductions can alter the young child's drawing response in predictable ways. The importance of considering the type of emotion eliciting procedure when interpreting children's drawings is discussed.

Introduction

Whilst the majority of research into children's drawings has focused on developmental trends in spatial planning abilities, the drawing context (Barrett, Beaumont & Jennett, 1985; Barrett & Bridson, 1983; Barrett & Light, 1976), and the role of motor-cognitive factors (e.g. Freeman, 1980; Thomas & Tsalimi, 1988), there is a growing body of research which has begun to systematically investigate the role of emotional factors in the drawing process (e.g. Burkitt, Barrett & Davis, 2003a, 2003b; Forrest & Thomas, 1991; Fox & Thomas, 1990; Thomas, Chaigne & Fox, 1989).

It is important to understand whether and how children's feelings towards the topics they draw can be interpreted from properties in their drawings as children's drawings are variously used and interpreted for meaning in both clinical and educational settings (e.g. Hammer, 1997; Lubin, Larsen, Matarazzo, & Seever, 1985; Watkins, Campbell, Nieberding & Hallmark, 1995). Practitioners continue to draw conclusions about the child artists' feelings about the figures they draw (e.g. Hammer, 1997; Malchiodi 1998; McNiff, 1992).

It has long been suggested that drawing size is altered as a function of how the child feels about the drawn topic (Craddick, 1961, 1963; Forrest & Thomas, 1991; Hammer, 1997; Joiner, Schmidt & Barnett, 1996; Jolley, 1995; Koppitz, 1968, 1969). It has been found that children often reduce the size of negatively salient figures (Burkitt, Barrett & Davis, 2003b, in press; Craddick, 1961, 1963) whilst draw relatively larger drawings of positively salient figures (Burkitt et al., 2003b; Fox & Thomas, 1990; Thomas, Chaigne & Fox, 1989). However, some studies have offered conflicting findings as to the existence of size changes in relation to affect (e.g. Jolley, 1995; Joiner, Schmidt & Barnett, 1996), which has led to the suggestion that size

changes in relation to either a positive or negative stimulus fairly are unreliable in an experimental setting (Thomas & Jolley, 1998). Consequently, the field has been left wanting for valid and reliable claims as to the effects of affect on the size of children's drawings.

It can be argued that the discrepancies in the field are due largely to methodological differences between the studies. Some studies have not clearly defined the type of affect under investigation (e.g. Machover, 1949; Koppitz 1968; Fox & Thomas, 1990; Jolley 1995) and some studies have not measured children's affect towards the drawing topic independently in order to verify that children did actually hold different feelings towards the figures that they were asked to draw (Cleeve & Bradbury, 1992; Craddick, 1961, 1963; Fox & Thomas, 1990; Jolley, 1995). It is thus plausible that children in some of the relevant research were not experiencing differential affect towards the drawing topics. To overcome this problem, the present study measured children's affect towards the range of figures.

Studies investing the impact of affect on drawing size have also employed different methods for inducing children's feelings towards the drawings topics. For example Cleeve & Bradbury (1992) asked children to draw familiar naturally occurring categories of people. It was assumed that children would feel more positively towards a parent than a class teacher. Aronsson and Andersson (1996) also compared the size of children's drawings of family teachers with children samples from cultural groups where teachers were more or less valued. More typically however, children's affect toward the drawing topics has been manipulated through brief task instructions that describe the figures as nice or happy, and or nasty or sad (Burkitt et al., 2003a, 2003b; in press; Jolley, 1995; Thomas, Chaigne & Fox, 1989). However due to conflicting findings between studies employing task instructions to manipulate affect (e.g. Burkitt et al. 2003b, in press; Jolley, 1995; Thomas, Chaigne & Fox, 1989) this approach has attracted the

criticism that such experimental manipulations are not strong enough to induce the desired mood towards the target figures (Thomas & Jolley, 1998) and that research manipulating mood through simple task instructions be discontinued. The present study was in part designed to address this issue, questioning whether different types of mood inductions, where mood is induced either through brief or elaborated instructions under experimental conditions, impact differentially upon the size of children's human figure drawings.

Conflicting findings as to the existence or impact of affect on children size may also be due in part to differences in the ways size has been measured and whether a between or within measures design has been employed. Most of the research providing a negative view of this line of research has looked at figure height and has compared changes in drawing size between groups (Joiner, Schmidt, & Barnett, 1996; Jolley, 1995). However studies that have measured size as both height and surface area using within-subject measures have begun to show reliable effects of the emotional character of the drawn figures in relation to children's feeling towards the figures on drawing size (Burkitt et al., 2003b, in press). Thus, size was defined as both surface area and height in the present study and size changes were compared both within and between children's drawings.

The main focus of the present study was to investigate the relevance of Thomas and Jolley's (1998) suggestion that the use of contrasting affective descriptions to manipulate children's affect may not induce a sufficiently strong or realistic affective state towards drawing topics to impact upon drawing size. Since early research in the area attesting to the influence of affect on cognition in adults (e.g. Velten, 1968), mood induction procedures have also been shown to effectively alter children's positive and negative feelings and behaviors in various domains (see Brenner (2000) for a comprehensive review of utilising mood induction procedures

with children). For example, positive mood has been found to increase children's helping behavior (Barnett, King & Howard, 1979; Clark & Isen, 1982), to improve recall of certain target items (Barlett & Santrock, 1979; Duncan, Todd, Perlmutter & Masters, 1985) and to promote creative thinking (Greene & Noice, 1988). It is clear that children are sensitive to the influence of various mood inductions yet the effects of contrasting mood induction procedures has not been systematically researched in relation to children's drawings.

The present study was therefore designed to directly compare the possible impact of contrasting mood inductions on figure size in children's drawings. Whilst both mood induction procedures were selected to increase the personal salience of the drawn figures in comparison with past research (e.g. Burkitt et al. 2003b, in press; Jolley, 1995; Thomas, Chaigne & Fox, 1989), the degree of elaboration of the mood induction scenarios varied. The brief (brief MI) was selected on the basis of past research that has uncovered effects of affect on children's drawings (e.g. Burkitt et al. 2003b, in press; Fox & Thomas, 1990; Thomas, Chaigne & Fox, 1989) whilst the elaborate mood induction procedure (elaborate MI) was taken from Meerum-Terwogt, Schene & Harris' (1986) procedure. The elaborate negative mood induction scenario was the same as that used by Meerum-Terwogt et al. and the elaborate positive mood induction scenario was based on this negative mood induction scenario yet adapted to ensure that there were equal numbers of emotional descriptors in each story. As Benner (2000) explains, emotional stories are a prevalent mood induction method for children of this age group. Terwogt et al.'s procedure was viewed as appropriate for the present research as it was age appropriate and of sufficient length to provide adequate contrast to the brief mood induction procedure.

In line with the cue-dependency model of children's drawings (Freeman, 1977, 1987) cues provided by task instructions have been found to greatly affect the final the form of the

resultant drawing. Barrett and Bridson, (1983) investigated how the amount of elaboration and length of instructions influenced the degree of visual realism in children's drawings. They found that children produced more visually realistic drawings in response to more elaborate task instructions. Barrett and Bridson found that it was the elaboration of information rather than the length of the instructions *per se* that influenced the resultant drawings. Thus although the present study involves two mood induction scenarios which varied greatly in length, there is reason to suppose that the degree of elaboration rather than the length of the instructions would be the determining factor.

It is however conceivable that a more elaborate mood induction scenario could impede children's drawing behavior. For example, if the character of the figures is over specified children may not use their imagination or empathetic abilities in conceiving the character of the figures. Hence it could also be argued that the brief mood induction would provide children with more scope to envisage the character of the figure in a way that was meaningful to them and not one which is overly specified by the provision of more elaborate scenarios. This present study was therefore also designed to assess this possibility.

It has been shown that drawing size alters as a function of the amount of detail children include in their drawings (Freeman, 1977, 1980). To isolate the influence of affect on figure size, as with previous research (e.g. Burkitt et al., 2003b; Thomas, Chainge & Fox, 1989), children were provided with a shaded outline figure to use as a guide to their drawings, and they were also instructed to refrain from including any details in their drawings.

In summary, the present study was designed to investigate whether the surface area and height of children's drawings would alter in drawings of neutrally, positively and negatively described figures and whether scaling changes would interact with the provision of either a brief

or elaborate mood induction procedure. It was also of interest to explore whether children rated the figures more positively following the positive mood induction task and more negatively following the negative mood induction compared to affect ratings towards the neutral figures and to assess whether these affect ratings varied as a function of the different mood induction procedures.

Method

Participants

80 children (39 girls, 41 boys) where selected from primary schools across the West Midlands, Surrey and Sussex, UK. The subjects where selected randomly from within age appropriate year groups. The median age was 6 years 1 month and ranged from 5 years 1 month to 7 years 1 month. Children were alternatively allocated into two experimental groups on the basis of class lists. Five children were reallocated on the basis of gender as there was an unequal gender split across the groups. One group underwent a brief mood induction procedure before completing each of the three drawings (the brief MI group, $N = 40$) and one group received a more elaborate mood induction procedure before each of the three drawing tasks (the elaborate MI group, $N = 40$).

Materials

Each child was given a pencil and a sheet of plain A4 paper, presented in portrait orientation for each drawing. They were shown a shaded outline drawing of a figure that was also presented on a sheet of white A4 paper (see Figure 1). A five point Likert scale was used to measure children's affect towards the three drawn figures (see Figure 2). The elaborate and brief mood induction scenarios were recorded onto audiotape and played to the children on a tape recorder. The negative elaborate mood induction scenario was taken from Meerum-Terwogt,

Schene, & Harris (1986) and the positive elaborate mood induction scenario was developed to ensure that there were equal numbers of emotional descriptors as in Terwogt et al.'s negative scenario (see Appendix 1 for the negative mood induction task, and Appendix 2 for the positive mood induction task).

Procedure

The children were all tested individually in a quiet area of their school. All of the children completed three drawings. Each child completed a baseline drawing task first, followed by two counterbalanced drawing tasks; preceded by either the positive or the negative brief or elaborate mood induction scenario. Each child completed the affect rating task immediately after completion of each of the drawing tasks. The mood induction scenarios and drawing task instructions for each group were as follows:

Brief MI group: Children in this group underwent the following procedure:

Baseline drawing: The outline figure was placed in front of the child. The children were instructed as follows: "I'd like you to draw this shape. Draw the whole figure as well as you can imagining that the figure is you. Do not include any details such as the face or the clothes."

Positive and negative brief mood induction: The baseline drawing was removed from the child's sight, and the model was left in place for the remainder of the test situation. All the children then drew two further copies of the model, a positive and a negative version in counterbalanced order, on separate sheets of plain A4 paper. The second drawing was always removed from the child's sight before the third drawing was produced.

The brief positive mood induction instructions were as follows: *"Now pretend that the shape is of you when you are in a very happy mood. Draw the shape in front of you,*

remembering what a happy mood you are in. Draw the whole figure as well as you can imagining that the figure is you but do not include any details such as the face or clothes."

The brief negative mood induction instructions were: *"Now pretend that the shape is of you when you are in a very sad mood. Draw the shape in front of you, remembering what a sad mood you are in. Draw the whole figure as well as you can imagining that the figure is you but do not include any details such as the face or clothes."*

Affect rating task: Immediately after completion of each drawing children were asked to rate how they felt bout the figure using a smiley face five point Likert scale (see Figure 1) The instructions for all three ratings were: *'I would like you to point to the face that shows how you feel at the moment. Here are the faces that you are going to be looking at (pointing to each in turn) The first one is a very sad face, the next one is sad, the next one is a bit sad, the middle one is just OK, the fourth one is a bit happy, the next one is happy and the last one is a very happy face. Which one do you feel about the figure most at the moment?'.* The children's responses were scored on a scale from 1 (very sad) to 5(very happy).

Elaborate MI group: This group underwent the following procedure for each drawing:

Baseline drawing task: The stimulus figure was first placed in front of the child and then the following instructions were given. *'I want you to draw the whole figure as well as you can imagining that it is you in the picture without including any details of the face or clothes. Can you do that for me?'*

Positive drawing task: The baseline drawing was removed from the child's sight and the child was then given the following instructions: *'In a moment I am going to play you two stories which are quite similar, but have very different endings so I need you to listen very carefully, OK? I*

want you to close your eyes and concentrate, imagining that the story is about you. I want you to pretend that it is you in the story, OK?" The stimulus figure was then placed in front of the child again and they were given the following instructions. *'I want you to draw the shape as well as you can imagining that it is you in the story. Do not include any details such as the face or clothes, and it is very important that you think about the story and imagine that it is you when you are drawing the picture OK?"* (see Appendix 2 for the full scenario)

Negative drawing task: The second drawing was removed from the child's sight and the child was then given the following instructions. *'I am now going to play you the other story. It is very similar to the first story but has a very different ending so I want you to listen very carefully OK? I want you to close your eyes and concentrate, imagining that the story is about you. I want you to pretend that it is you in the story OK?'* The stimulus figure was then placed in front of the child again and they were given the following instructions. *'I want you to draw the shape as well as you can imagining that it is you in the story. Do not include any details such as the face or clothes and it is very important that you think about the story and imagine that it is you when you are drawing the picture OK?'* After completion of these tasks the children were then read the negative mood repair story ending (for the negative mood induction task see Appendix 1).

Affect rating: Immediately after completion of each drawing, children in this group rated their affect toward the drawn figure using the procedure outlined above for the Brief MI group.

Measurements

All children refrained from including detail in their drawings. Surface area was measured using a program designed to count the number of pixels that were shaded. In order to do this, the drawings were first scanned. The images were then shaded and cleaned in order to allow the program to count only the shaded pixels within the outlines of the drawing. The pixels were then

translated into cm ^{2}. Five separate scans of 3 drawings were taken to determine the error of measurement between scans. Measurement differences were within less than 1% of error. The vertical distance was also taken using this program, with height of each drawing taken as the vertical distance between the highest and lowest extremity of the figure (Burkitt et al. 2003b, in press; Jolley, 1995; Thomas et al., 1989).

Results

All children completed the range of tasks. The data were screened for possible effects of the order of administration of the test sessions, and of the order of presentation of the positive and negative drawings drawing tasks. No main or interaction effects following ANOVA were found. The data were also screened using ANOVAs separately for effects of gender on drawing size and rated affect towards the drawn figures. No main or interaction effects were found. These factors were thus excluded from further analyses.

Drawing surface area

In order to ascertain whether children altered the surface area of the different drawings and whether experimental group interacted with drawing size a 2 (brief vs elaborate) x 3 (drawing types) two way mixed ANOVA was conducted with group (brief vs elaborate) as the independent measure and drawing type (baseline, positive, negative) surface area as the repeated measure. A main effect was found for drawing type ($\underline{F}$(2, 156) = 7.12, $\underline{p}$ = 0.01). The effect size was small ($\underline{\eta}^2$ = 0.08) with high-observed power ($\underline{P}$ = 0.93). Simple planned contrasts ($p<0.05$) revealed that the positive drawings were significantly larger than both the baseline and the negative drawings. The negative drawings were not reduced from baseline size. The means are also displayed in Table 1. This effect was qualified by an interaction effect between drawing type and group ($\underline{F}$(2, 156)= 7.40, $p<0.05$). Observed power was high ($\underline{P}$ = 0.94) for this large

effect ($\eta^2 = 0.8$). The means are shown in Table 1. Tukey tests ($p<0.05$) revealed that there were no significant differences between the surface areas of the three drawings for the elaborate MI group. *Post hoc* independent t-tests ($p<0.05$) showed that the elaborate MI group drew significantly larger baseline drawings than the brief MI group.

<div align="center">**INSERT TABLE 1 ABOUT HERE**</div>

Drawing height

To assess whether the type of mood induction influenced the height of the drawn figures, a 2 (brief vs elaborate) x 3 (drawing types) two way mixed ANOVA was conducted with group (brief vs elaborate) as the independent measure and drawing type (baseline, positive, negative) entered as the repeated measure. A main effect was found for drawing type ($F(2, 156) = 11.91$, $p<0.01$). Observed power was high ($P =1.00$) for this large effect ($\eta^2 = 0.13$). The means are shown in Table 2. Simple planned contrasts ($p<0.05$) showed that the positive drawings were taller than the negative and baseline drawings yet that negative figures were not reduced in height from baseline size.

An interaction between drawing type and group was found ($F(2, 156) = 12.93$, $p<0.01$), with a large effect size ($\eta^2= 0.14$) and high observed power ($P = 1.00$). As with surface area, simple planned contrasts ($p<0.05$) indicated that only children in the brief MI group drew the positive figures significantly taller than the baseline and negative figures. The means are also displayed in Table 2.

<div align="center">**INSERT TABLE 2 ABOUT HERE**</div>

Affect for drawn figures

A 2 (brief vs elaborate) x 3 (drawing type) ANOVA was conducted to assess whether children rated the three drawn figures in the anticipated direction. Affect was entered as the

repeated measure and group as the independent factor. A main effect was found for drawing type ($\underline{F}$ (2, 156)=307.03, $\underline{p}$=0.02). This effect was large ($\underline{\eta}^2$= 0.80) with high-observed power ($\underline{P}$ = 1.00). Table 3 shows the means, and simple planned contrasts ($\underline{p}$<0.05) indicated that, as expected, the positive figures were rated more positively than both the baseline and the negative figures, and that the negative figures were rated less positively than the baseline figures.

An interaction between drawing type and group was found ($\underline{F}$(1, 156) = 3.86, $\underline{p}$=0.02). The observed power was fairly high ($\underline{P}$ = 0.70) for this small effect ($\underline{\eta}^2$ = 0.08). The interaction was located through Tukey testing ($\underline{p}$<0.05), showing that the brief MI group rated the baseline and positive figures higher than the elaborate MI group. The elaborate MI group rated the negative drawing more positively than the brief MI group. The means are shown in Table 3.

INSERT TABLE 3 ABOUT HERE

Discussion

Representational size changes

The children in the brief MI group produced scaling changes in line with previous research (e.g. Burkitt, Barrett & Davis, 2003b, in press; Cleeve & Bradbury, 1992; Fox & Thomas, 1990; Thomas, Chainge & Fox, 1989). Drawn figures were increased compared to baseline figure size following the positive brief MI yet were not decreased from baseline drawing size following the negative brief MI. Counter to Thomas & Jolley's (1998) concern, these findings suggest that brief manipulations of mood in an experimental setting are sufficiently strong to induce the desired affect. The children in the elaborate MI group did not alter the height or surface area of their drawings. It seems that variations in drawing size are sensitive to the exact type of mood inductions employed in an experimental setting.

Both mood induction procedures induced the desired affect yet this did not translate into alterations of figure size for the elaborate MI group. It is interesting to speculate about why this might be the case. The elaborate MI has been shown to effectively induce the appropriate emotion and relate to other behavioural domains (Meerum-Terwogt, Schene, & Harris, 1986), yet it could be the case that the scenarios were too detailed for the child to imagine themselves as the target figures for the entire duration of the scenario. Children rated the appropriate affect after the completion of each drawing but this measure does not indicate that the affect required to activate changes in drawing production was sustained throughout the task of listening to the elaborate stories and then throughout the process of drawing construction. It could be argued that children in the elaborate MI group were confronted with higher task demands than children in the brief MI group. A further suggestion is that the elaborate stories placed too high a demand on children in terms of attending to the scenario, storing the content in memory and then producing a drawing whilst focusing on an outline model for a prompt. Future research could address the impact of cognitive load and memory on the role of affect in drawing production.

It could also be the case the more elaborate scenarios constrained children's ability to imagine themselves as the target figure compared with the children in the brief MI group. This is a sensible suggestion in light of research that shows the different contexts within which children are able to engender the appropriate empathetic response (e.g. Harris, 1989).

Future psychophysiological research could help to clarify two issues arising from the present study and suggest a possible explanation for the present findings. It could be argued that the MI procedures used in the current research did not activate affect in the same way or for the same duration for both groups of children. A physiological measure during mood induction and drawing production would show if the neurophysiological correlations of affect activation

differed between the group receiving more or less elaborate mood induction procedures. Ashby, Isen & Turken (1999) proposed that effects of alterations of positive affect, in adults at least, might be an effect mediated by the occurrence of rapid physiological changes, possibly caused by brief increments in dopamine levels. A neurological model could help to explain why a brief MI may outweigh a more elaborate mood induction procedure in influencing size change in children's drawings.

The instructions for the neutral drawing task were much shorter in length for the MI group than the negative and positive drawing instructions. Given that explicitness rather than length of instructions has been found to alter children's drawings strategies (Barrett & Bridson, 1983) it is likely that had the neutral instructions been of equal length the results would not have been altered. However future research could clarify this possibility by using baseline instructions matched in length yet not in emotional content to the two mood induction tasks. The point remains however that the negative and positive tasks were counterbalanced and did not show any relative differences in size in the elaborate mood induction condition, including when they were compared with positive and negative drawing size following the brief MI. The point that scaling changes occurred for the brief MI group on both measurements of size demonstrates that future experiments need to consider a variety of measurements, rather than height alone as in some previous experiments (Cleeve & Bradbury, 1992; Craddick, 1961, 1963; Fox & Thomas, 1990; Jolley, 1995).

The literature reveals two possible explanations for the size changes found in the present research for the children who underwent the brief MI procedure. Thomas, Chaigne & Fox (1989) proposed an appetitive-defensive theory to account for their finding that children increased the size of positive human figures whilst sometimes decreased the size of negative human figures.

They argued that children may be increasing the attractiveness of positive stimuli in order to increase the appeal of the drawn topics, whilst reducing the drawing size of potentially threatening topics in order to reduce the perceived threat of the stimulus. The present findings may offer support for the operation of an appetitive mechanism. An alternative explanation is that children may be using size changes as a result of learnt pictorial conventions in relation to affect (Burkitt et al., 2003b, in press). Future research including younger and older age groups could assess the possibility of the development of the influence of pictorial conventions and begin to assess, if any, the relative contributions of pictorial conventions and an appetitive mechanism on children's drawing development.

<u>Rated affect</u>

The experiment provides clear evidence for the effectiveness of both mood induction procedures for inducing the appropriate affect in the anticipated direction as in past research (Burkitt et al. 2003a, 2003b). The present findings did reveal an unexpected difference in how the children in the different groups rated their affect following the three mood inductions. The brief MI group gave more positive ratings after the neutral and positive procedures than the children in the elaborate MI group, whilst the latter group of children rated more positive affect following the negative MI than the children in the brief MI group. This group difference may reflect the point that the mood induction procedures had differential effects on inducting affect – a possibility that physiological measures could inform in future research.

It needs to be considered why the children in the elaborate MI group did not rate significantly more positive and significantly more negative affect following mood induction than the children in the brief MI group. One suggestion is that the children in the elaborate MI group were not reporting their own feelings but rather an empathic reaction towards the character

within the story should they find themselves in a similar situation. Feshbach and Roe (1968) noted that 6-7 year olds are capable of empathic reaction to lead character in emotion eliciting scenarios. Further studies employing additional measures of the children's perception of the drawing figures and the degree to which they relate to the characters in the scenarios may clarify the effect.

Implications

The present study provides support for the view that the size of a child's drawings can be used as an index of the child artists' positive emotional feelings towards the topic depicted (e.g. Di Leo, 1973; Hammer, 1997). If relatively brief mood induction procedures are used, the surface area and height of children's drawings could serve as an index of positive regard for the topics. As the exact cues in terms of the specific type of mood induction utilised in the drawing situation determined the resultant drawing, these findings urge caution when interpreting children's drawings for claims about how the child feels about the topics they draw. The findings of the present research have practical implications for the use of drawings in both clinical and educational settings. It seems that drawing size is affected differentially by the type of mood induction employed. Practitioners referring to children's drawings need to note the context under which the drawings were produced, the type of drawing requested (see Ball, 2001; Burkitt et al., 2003a, in press, for a full review of the impact on figure size of copied, spontaneous and free-hand drawing tasks) and the exact measures of size referred to in order to approach an informed claim about the significance of drawn figures to the child artist on the basis of figure size.

Far from indicating that this line of research should be discontinued in view of conflicting findings in the field and the suggestion that manipulating mood through brief mood induction procedures are ineffective in this line of research, the present findings indicate that the

method of enquiry needs to be developed to incorporate mood inductions, the effects of which can be further verified and understood by the use of additional measures of affect (an approach recommended by Brenner, 2000) and physiological measures which could indicate precisely when affect is activated.

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Tables and figures

Figure 1: Likert scale used to ascertain children's affect toward the drawn figures

Figure 2: Outline model stimulus (not to scale)

Table 1: Mean surface area ($\underline{cm}^2$) and standard deviations ($\underline{SD}$) for each drawing type for each group

	Drawing type			Grand means
Group	Baseline	Positive	Negative	
EC	20.96	35.72	27.20	27.38
	($\underline{SD}$=20.22)	($\underline{SD}$=26.40)	($\underline{SD}$=23.02)	($\underline{SD}$=20.04)

MI	34.20	34.92	34.63	34.34
	(SD=22.76)	(SD=19.49)	(SD=22.34)	(SD=18.07)
Grand means	26.75	35.37	30.45	30.86
	(SD=22.23)	(SD=23.47)	(SD=22.88)	(SD=19.28)

Table 2: Mean height (<u>cm</u>) and standard deviations (<u>SD</u>) for each drawing type for both groups

	Drawing type			Grand means
Group	Baseline	Positive	Negative	
EC	10.48	15.86	12.29	12.88
	(<u>SD</u>=5.84)	(<u>SD</u>=6.31)	(<u>SD</u>=6.16)	(<u>SD</u>=4.88)
MI	10.78	10.64	10.59	10.67
	(<u>SD</u>=2.78)	(<u>SD</u>=3.10)	(<u>SD</u>=3.10)	(<u>SD</u>=2.52)
Grand means	10.63	13.25	11.44	11.77
	(<u>SD</u>=4.55)	(<u>SD</u>=5.60)	(<u>SD</u>=4.92)	(<u>SD</u>=4.01)

Table 3: Mean affect ratings and standard deviations (<u>SD</u>) towards each drawing type for each group

	Drawing Type			Grand means
Group	Baseline	Positive	Negative	
EC	3.70	4.93	1.6	3.42
	(<u>SD</u>=1.04)	(<u>SD</u>=0.26)	(<u>SD</u>=0.77)	(<u>SD</u>=0.48)
MI	3.45	4.70	1.98	3.38
	(<u>SD</u>=0.96)	(<u>SD</u>=0.56)	(<u>SD</u>=1.07)	(<u>SD</u>=0.60)
Grand means	3.58	4.81	1.80	3.40
	(<u>SD</u>=0.96)	(<u>SD</u>=0.45)	(<u>SD</u>=0.95)	(<u>SD</u>=0.54)

Appendix 1

Negative Mood Induction Task

You have just moved to a new town with your family. You used to live in a small village where you had lots of friends. You went to the local village school which you loved; the teachers were very nice and all your friends went there too. But now you have moved far away from everything that you loved.

In the new town you have only made one new friend. You are very happy to have a friend in the new town. You go everywhere together. At school you sit together in the classroom, play together in the playground. At the weekend you sometimes go swimming and sometimes you play in the park, but most of all you love to play computer games together. Your friend has their very own computer on a desk in their bedroom. Your friend has lots of games to play on the computer.

One day you are playing your favourite game at your friend's house. The game is very exciting and you really want to win. But you get so excited you jump up and by accident you knock the computer off the table. The computer smashes with a loud crash on the floor. Your friend is very angry at you. Your friend thinks that you broke the computer on purpose and they shout at you telling you that you will never be friends again. Your friend tells you that they are going to play with their other friends from now on and not be your friend anymore.

You are very upset. You have lost your only friend, you don't know anyone else. You walk home slowly, crying a little and thinking about what has happened at your friend's house. You walk home so slowly that you are late and your mum is angry at you for being late. You are too upset to tell your mum what happened at your friends house. Because you don't explain why you are

late your mum becomes even more angry and sends you to your room and tells you that you are grounded for a month.

You go to your room. You feel so unhappy. You have lost your only friend and your mum is very angry with you. You feel that there is nobody who cares about you in the world. You just lie on your bed and cry.

Mood Repair Story Ending

It is now the morning after you broke your friends computer. You still feel very upset about what happened. You go downstairs and your mum stands up and gives you a hug. She tells you that your friends mum rang last night and explained what happened. Your mum tells you that she understands why you were late and that she isn't angry anymore. Then the doorbell rings. Your mum answers the door and its your friend. Your friend comes in and says she is sorry for being so angry at you and they ask you if you can still be friends. You feel so much happier now, everything did work out in the end.

Appendix 2. Positive Mood Induction Task

You have just moved to a new town with your family. You used to live in a small village where you had lots of friends. You went to the local village school which you loved; the teachers were very nice and all your friends went there too. But now you have moved far away to a new place and you are very excited.

In the new town you make lots of new friends. You have one best friend whom you do everything with. At school you sit together in the classroom, play together in the playground. At

the weekend you sometimes go swimming and sometimes you play in the park, but most of all you love to play computer games together. Your friend has their very own computer on a desk in their bedroom. Your friend has lots of games to play on the computer.

One day you are playing your favourite game at your friend's house. The game is very exciting and you really want to win. You are both doing well and your friend is winning. But then your friend gets so excited that they jump up and drop the controls. You are now winning the game and as you pass the winning line you both start to laugh. You are both having so much fun but you have to go home now. You promise to play again tomorrow.

You walk home and as you walk you imagine that you have your very own computer and that you could invite your best friend to play on your computer. When you get home your mum greets you with a big hug and tells you to close your eyes. She tells you that she is so proud of you for finding new friends so quickly and for doing so well at school. She says that your dad and her have a surprise for you. You walk into your bedroom with your eyes shut and and when you open them you see a brand new computer with a big bow on it. It is even better than the one at your friend's house and has lots of games to play. You can't wait to get to school tomorrow so that you can tell your friend and invite them over to play after school. You go to bed. You feel so happy. You have got so many friends now and a best friend and your mum and dad have bought you a computer. You feel that your mum and dad must really love you. You lie on your bed and dream about playing games with your friend tomorrow.