

LAUGHTER IN CHILDREN AS A FUNCTION OF SOCIAL FACILITATION

BEVERLY-JEAN A. DE LA CRUZ

Department of Psychology
University of the Philippines

The study investigated the social facilitation of laughter. Independent groups of 5 to 6-year-old children listened on headphones to amusing material under three experimental conditions: the alone condition, wherein they listened in isolation; the audience condition, wherein they listened with a non-listening companion; and the coaction condition, wherein they listened with someone who also listened to the material. Sex differences were also investigated, thus giving rise to a 3 x 2 factorial design. Results were analyzed through the Analysis of Variance at an alpha level of .05. Total time spent laughing and smiling were highest in the coaction group, and were higher in the audience condition than in the alone condition. No sex differences were found and no interaction effects occurred between the two variables.

Social facilitation is said to be the oldest experimental paradigm of social psychology. It deals mainly with the consequences on behavior of the presence of other people. On the local scene, this area has not been explored fully. The experimenter thus hopes that this study could be a step forward in furthering research in this field.

Laughter is a phenomenon universal among men and although it is one of the important aspects of life, it has been neglected by empirical psychologists (Berlyne, 1969; Chapman, 1973). A lot of theories on laughter have been formulated by philosophers, writers and some psychologists, trying to explain all the facts about laughter. However, most have been limited to discussing it in terms of the nature of the humor stimulus only (Keith-Spiegel, 1972).

In the field of psychology, the majority of the recent research on laughter has been influenced by the psychoanalytic theory of laughter as an adaptive adjustment mechanism. In its most simplified form, the theory states that the pleasure received from a humorous

situation comes from a sudden release of at least partially repressed impulses and the corresponding release of the anxiety which normally inhibits the gratification of the impulses (Young and Frye, 1966).

The explicit behavior of laughter, is described as such: "during laughter, the mouth is opened more or less widely, with its corners drawn much backwards, as well as a little upwards, and the upper lip is somewhat raised. Wrinkles form under and at the outer corners of the eyes, and the eyes brighten," (Greig, 1969). Laughter is common to everyone, and while it can function as a humor response, it also may be produced by a non-humorous event. There are different causes for laughter, and in fact, may even in itself induce laughter in other persons.

The difficulty that has been met in the study of laughter is that there does not seem to be any common characteristic for the laughable. People say that such and such is funny as a matter of experience. They laugh because they have seen or heard something laughable. The laughable is what we laugh at

(Monro, 1951). Whatever the cause of laughter may be, it seems to remain relative to the person experiencing it. Nothing is laughable in itself: the laughable borrows its special quality from some person or group that happens to laugh at it. Unless you happen to know a great deal about this person or group, you cannot by any means guarantee the laugh beforehand. It is only people with the same social heritage who laugh easily at the same kind of jokes (Greig, 1969).

Laughter is a peculiarly social activity, and unlike many other human activities, occurs only within patterns of interaction. Laughter is shared; it is socially defined as a prime part of the interactive process, of the give and take of social life. Added to this, laughter must conform to certain requirements of life in common. It must have social significance (Coser, 1956). Thus, from what has been said, it appears that different types of humorous situations prevail in different types of group structures. In line with this thought, when laughter does occur in a humorous situation, it may not simply be a response to cognitive aspects of humor, but may also relate to social aspects of the situation (Chapman, 1973). It is a common assumption that certain events are perceived as laughable because of the situational material they represent.

Another approach to the analysis of reaction to laughable situations is one which suggests that the social situation in which the humorous events are perceived is an important determiner of the reaction (Malpass and Fitzpatrick, 1959). It is with this aspect that the present study was principally concerned. It was a replication of Anthony J. Chapman's experiment: *Social facilitation of laughter in children* (1973). The replication was done to verify whether the findings of the said experiment would apply in a Filipino context. The study primarily aimed to find out whether children who were presented aurally with laughter-provoking material laughed more when with a companion, whether or not the companion is able to hear the material, or

when alone. Thus, the study used modifications of the audience and coaction paradigms of social facilitation, and behavior when alone as the baseline for analysis. Secondary aims of the study included sex differences in laughter and smiling and the relationship of funniness ratings with laughter and smiling.

Laughter was operationally defined as "an inarticulate vocal sound of sufficient intensity to be audible when a recording of it, made at peak microphone sensitivity, is played back at maximum volume" (Chapman, 1973). It has been said that the smile is always the beginning of the laugh (Monro, 1951). A smile should be bilateral to be considered a genuine smile for a slight, one-sided contraction of the facial muscles is puzzling to the spectator and is not easily interpretable as a smile (Greig, 1969). In this study, a smile was operationally defined as "any spontaneous upwards stretching of the mouth, occurring without a vocal sound, but sometimes accompanied by a loud exhalation at its genesis" (Chapman, 1973). To facilitate ease in quantifying and comparing the responses of the Ss, a *mirth score* was employed and was defined as the aggregate of laughter and smiling times (Chapman, 1973). Funniness ratings were also employed to measure the attitudinal reactions of the Ss. A three-point scale (verbal rating) was used wherein the Ss were asked whether they thought the material was "not funny," "quite funny" or "very funny" (Chapman, 1973). These ratings were included in order to examine whether the relation between ratings and overt mirthful responses was variable across experimental conditions.

Since the study dealt with laughter as a function of social facilitation, it is but proper to discuss this paradigm. Social facilitation is said to be the oldest experimental paradigm of social psychology. It is mainly concerned with the consequences upon behavior of the presence of other individuals (Zajonc, 1965). Research in the area of social facilitation may be classified in terms of two experimental

paradigms: audience effects and coaction effects.

In the audience paradigm, the investigator manipulates the presence of passive spectators as an independent variable. In the coaction paradigm, the independent variable is the presence of others who work simultaneously and independently on the same task which the subject is working on. In both paradigms, the dependent variable is the task performance of individuals (Cotrell, 1972).

Experiments made on these paradigms have resulted in two different conclusions. While some showed the social facilitation of individual performance — individuals with others present performed better than individuals working alone, others found a performance decrement due to the presence of an audience and coaction — individuals performed better when alone than when others were present.

Robert Zajonc (1965) has offered a hypothesis integrating these two divergent results. He pointed out a rather subtle consistency in these conflicting results and suggested that the presence of an audience and coaction impair the acquisition of new responses and facilitate the emission of responses that are well learned or instinctive. Experiments that showed performance decrements due to the presence of an audience or coaction involved behavior that was new. They involved the learning of new responses. Those that showed social facilitation involved behavior that was already learned and instinctive (Cotrell, 1972).

The presence of an audience and coaction have a single effect upon behavior: they increase the probability of emitting a dominant response (that response that has the highest probability of being emitted as overt behavior). If the dominant response is the correct response, as in the case of well-learned or instinctual activities, then performance is improved, as in the studies which found social facilitation. If, on the other hand, the

dominant response is an incorrect response, then it too will be facilitated and performance will suffer because the emission of correct responses will be postponed or prevented (Cotrell, 1972).

The mere presence of others enhances the emission of dominant responses by increasing the individual's general drive level (Zajonc, 1965). Drives are produced by any operation that increases motivation. The general drive level of an individual is therefore a result of those variables that influence how frequently and vigorously he does a certain task.

The present study aimed to find out whether laughter could be socially facilitated. Based on the previous discussion, it was hypothesized that laughter would be socially facilitated since it is a learned and instinctive behavior common among men. As mentioned above, studies that show social facilitation dealt with such behaviors.

The audience and coaction paradigms were employed in this experiment. Audience effects deal mainly with the observation of behaviors when they occur in the presence of passive spectators (Zajonc, 1965). The experimental set-up for this paradigm would be the audience condition wherein the S would not hear the material.

The second paradigm of coaction effects involves the examination of behavior when it occurs in the presence of others also engaged in the same activity (Zajonc, 1965). It was employed in the coaction condition. Here the S would be accompanied by another participant who also listens to the material. This second paradigm is more complex than the first one since individuals who are simultaneously engaged in the same activity and who are in full view of each other are to be observed. It has been found that the activity of individuals in coaction is enhanced by social facilitation. The movements made by others who are performing the same task as the S serve as contributory stimuli and

increase or hasten the S's response (Cotrell, 1972).

Considering the secondary aim of the study, to determine whether sex differences would be present in the study, the findings of Chapman on this aspect should be noted. Girls tended to smile more than boys since they tended to be more concerned with sharing the prevailing social situation while boys tended to be more interested in the laughter stimuli embodied in the recording and in the companion's behavior (Chapman, 1973).

Based on the above discussion, the study aimed to test the following hypotheses:

- 1) Subjects in the coaction condition would laugh more than subjects in the audience condition;
- 2) Sex differences would be present in the study. Girls would show more overt responses (smiles and laughter) than boys;
- 3) Funniness ratings would be in agreement with the overt responses of subjects.

METHOD

Subjects:

The Ss consisted of 15 boys and 15 girls between 5 and 6 years of age and studying at the University of the Philippines Child Development Center. This age group was chosen based on a pre-test administered by the E. This pre-test involved the presentation of the laughter-provoking material to children of different age groups (children from CDC were also used for this pre-test) to determine which group would find it most amusing. Children of 5 to 6 years of age showed the most overt behavior (smiling and laughing) while listening to the material. Thus, this age group was used in the experiment proper. Assignment of children to the different treatment conditions was done randomly.

Materials:

The laughter-provoking material was tape-recorded and presented through headphones. It contained an amusing story and a song in Filipino interspersed with the laughter of children. The tape was 8 minutes and 32 seconds in duration.

Experimental Design:

There were three social situations used in a 3 x 2 factorial design, the Ss' sex constituting the second factor. Ss were tested in isolation (alone condition), or in like-sex dyadic conditions where the companion either could not hear the material (audience condition), or listened on a second set of headphones (coaction condition).

Procedure:

Ss listened to the stimulus only once. They were assigned randomly to the alone, audience or coaction conditions. An equal number of boys and girls were tested under the various experimental conditions. There were 10 Ss in the alone condition, 10 pairs of Ss in the audience condition and another 10 pairs of Ss in the coaction condition.

In the audience and coaction conditions, the E made use of Ss who had already listened to the material as confederates (as the audience or the listening companion). This was done since there were not enough subjects available to enable the E to make use of naive Ss as confederates. The confederates were assigned randomly to the two other experimental conditions to cancel out whatever effects may have resulted from their having been previously exposed to the material. The responses of the true subjects (those who had not yet listened to the stimulus) were observed and recorded for the final analysis.

Ss were tested in a reading room on their school premises under standard physical conditions. They were observed through a

one-way mirror. For each S, measures were obtained of the length of time that they spent smiling and laughing. These two measures were combined to obtain a mirth score. A tape recorder was positioned near the Ss to record their laughter. Cumulative stop-watches were used in conjunction with these recordings to obtain timed measures of their dependent behaviors. All the Ss in the three main conditions were asked to rate the stimulus as "not funny", "quite funny", or "very funny". This 3-point scale enabled the E to see whether there was a relationship between the behavioral responses of the Ss and their attitudinal reactions.

Since this was a replication study, the E deemed it proper to operationally define the dependent measures in the manner Anthony Chapman did. Laughter was therefore operationally defined as "an inarticulate vocal sound of sufficient intensity to be audible when a recording of it, made at peak microphone sensitivity, is played back at maximum volume." Smiling was likewise defined as "any spontaneous upward stretching of the mouth, occurring without a vocal sound, but sometimes accompanied by a loud exhalation of breath at its genesis." A mirth score was defined as the aggregate of laughter and smiling. The funniness-ratings consisted of a three-point scale wherein Ss would rate the stimulus according to the categories mentioned previously.

In this experiment, it was essential that the laughter-provoking material would be the only stimulus present to ensure that the differences obtained would be due to the treatment employed. Necessary controls were introduced into the set-up. The E observed the Ss through a one-way mirror, and the Ss were told that they were cooperating in the selection of material for their library. Thus, there was no reason for them to suspect that they were either being watched or that they were participating in a laughter experiment. Assigning of Ss and the confederates was done

in a random manner. The environment was kept constant and the apparatus used was the same all throughout. Since the experimental sessions were conducted throughout the day, it was necessary to divide them in half. The first half consisted of sessions that were conducted in the morning while the second half consisted of those conducted in the afternoon. Each experimental session contained an equal number of mini-sessions made up of five sessions employing the alone treatment, five sessions employing the audience condition, and five sessions employing the coaction condition. The male and the female Ss were likewise randomly assigned to the various sessions.

The laughter-provoking material was pre-tested to make sure that the subjects would be able to comprehend it. The Ss were also asked if they had heard the story before. Most subjects reported that they had heard the name of the character before (Juan Tamad), but that they were really not familiar with the story itself.

RESULTS

For the data analysis, the laughter and smiling scores were combined to obtain a mirth score. The mean mirth score for each group was computed (see Table 1). The three experimental conditions and the subjects' sex were combined in a 3 x 2 factorial design.

Table 1. *Mean Mirth Scores for the Male and Female Groups Under the Three Social Situations*

		SOCIAL SITUATION		
		<i>Alone Audience Coaction</i>		
SEX	Male	5.2	79.6	206.9
	Female	4.1	84.7	136.1

An analysis of variance was used to compare the mirth scores of the six groups.

At an alpha level of .05, mirth scores of the alone, audience and coaction subjects revealed highly significant treatment effect ($F = 34.79$, see Table 2).

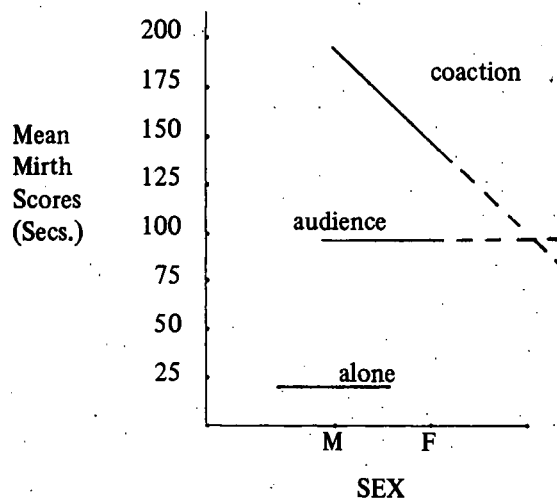
There were no main sex effects for mirth ($F = 1.856$). Likewise, no interaction effects between the two variables were obtained (as shown by the ANOVA in Table 2 and by Figure 1).

Table 2. *Complete Analysis of Variance of the Performance Scores*

<i>Source of Variation</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>
Among Groups	(152028.29)	5	69714.325	34.79*
between situations	139428.65	2	3718.52	1.856
between sex	3178.52	1	2003.743	2.216
interaction	8881.12	2		
Within Groups	4809.83	24		

* $p < .05$

Figure 1. *Mean Mirth Scores for Males and Females Under the Three Social Situations*



Visual inspection of funniness data indicate that the highest ratings tended to be given by children in the conditions under which the most laughter and smiling were solicited. The

chi-square statistic further indicates that the ratings given by the Ss were dependent on their attitudinal reactions (see Table 3).

Table 3. *Distribution of Funniness Ratings Under the Three Social Conditions*

Social Condition	R A T I N G S					
	1		2		3	
	f_o^*	f_e^*	f_o	f_e	f_o	f_e
Alone	6	2	4	4	0	4
Audience	0	2	5	4	5	4
Coaction	0	2	3	4	7	4

* f_o = observed frequencies

f_e = expected frequencies

$\chi^2 = 19.0$ ($p < .01$)

DISCUSSION

The results of the experiment clearly demonstrate that laughter in children can be socially facilitated. Ss in the coaction condition laughed more than Ss in the audience condition who also laughed more than those in the alone condition. This shows that overt expressive responses to human situations are not simply a function of the situational material, but are also a function of the social situation in which the humorous events are perceived.

The statistical analyses showed that significant treatment effects were present at an alpha level of .05. Direct observations made also support the social facilitation theory. In the alone condition, the Ss were observed to be restrained in their actions. Most of them just sat down the whole time they were made to listen to the stimulus with a minimum of movements. Not one subject laughed, and the mean duration of smiling obtained was only 4.65 secs. Considering that the whole tape had a duration of 8 mins. and 36 secs., this is considerably low.

Children subjected to the audience condition manifested more overt behavior, and had a higher mean mirth score of 82.15 secs. They were observed to be more active and

engaged more in other overt behavior aside from laughing and smiling. Most of the subjects were observed to converse with their companion. A brief interview with them revealed that they were trying to tell their companion the story.

The Ss in the coaction manifested the most overt behavior. Aside from engaging in the most smiling and laughing, they were observed to be vocal about their reactions to the story. The tape recorder which was placed near the Ss to record their responses revealed that most Ss engaged in conversations which revolved around the story. Some children repeated sentences and phrases which they heard and these were followed by laughter. The song that was incorporated within the story was repeated several times and it was observed that quite a number of the Ss tried to sing along. Some subjects even stood up from their chairs and acted out some parts.

With regards to the confederates, it was pointed out earlier that the E had to make use of Ss who had already taken part in the experiment. They were randomly assigned to either the audience condition or the coaction condition. All Ss who were first tested in the alone condition were then used in one of the other conditions. They displayed quite diverse behaviors as compared with their behaviors in the first condition. They were observed to be more lively and more engrossed with the stimulus. Those who were used as confederates in the audience condition even stayed beside the true subjects with their heads pressed against the headphones in an attempt to hear the material once more. This may have affected the response of the true Ss and therefore, may have been an extraneous variable.

The responses of the true Ss were observed to have indeed been affected by the presence of the confederates and by the actions of these confederates. As Zajonc (1965) pointed out, what are important in social facilitation are the consequences upon behavior of the

presence of other individuals. It is possible that some of the audience and coaction Ss' responses functioned according to Tolman's (1968) reflex, perceptual and motivational models of social facilitation. The confederates' responses may have served as a stimulus in eliciting laughter for the true Ss. It was observed that Ss who were accompanied by confederates who engaged in laughing and smiling most of the time, smiled and laughed the most too. This may be related to what is known as social laughter. The sound of others laughing or the sight of someone laughing increases the probability that an individual will exhibit overt expressions of amusement (Fuller and Sheffington, 1974).

It is also possible that the confederates' responses compelled the true Ss to listen more intently to the amusing parts of the stimulus, which otherwise would have passed unnoticed. However, this may not have aided so much in the perception of the laughter stimulus, since the stimulus used was not really subtle. As mentioned earlier, the material was pretested to make sure that it was comprehensible to 5- and 6-year-old children.

Furthermore, the results of the experiment support Zajonc's mere presence hypothesis in the social facilitation theory. Zajonc (1965) has suggested that the mere presence of a companion is sufficient to arouse drive and hence facilitate the emission of dominant responses. Other studies, however, contend that it is not presence as such, but evaluation apprehension which increases the individual's drive level and thereby improves task performance and impairs learning (Chapman, 1973). In this study however, it seems unlikely that evaluation apprehension could have occurred since it was made clear to the Ss that their companions could not make objective judgments on the appropriateness of their response. The Ss were also unaware that their responses were being recorded and observed. It was observed that the Ss enjoyed the experiment and no anxiety was present.

Thus, it seems unlikely that the treatment effects could have been caused by competition, collaboration, imitation or any of the other related processes which are often discussed as contaminating factors in audience and coaction studies (Chapman, 1973). It is safe however to attribute the differences in the Ss' responses across the different conditions to social facilitation, and primarily to the mere presence hypothesis in the audience condition.

Analysis of the funniness ratings show that there is no one-to-one correspondence between attitudinal reactions and laughter-provoking material and that ratings varied across conditions where the material remained the same. The statistical analyses indicated that the ratings given by the subjects were related to the amount of overt responses they manifested. The highest ratings were given by subjects who laughed and smiled most. This reveals a causal relationship between laughter and cognitive evaluation.

No significant sex effects were present in the experiment. Observation of other overt behavior however, aside from laughing and smiling, showed that boys were more vocal and displayed more of their responses than girls. Boys tended to act out what they were hearing while girls refrained from doing such. On the other hand, parallel to what Chapman had observed, girls tended to smile more than boys. The majority of the girl Ss did more smiling than laughing. According to Chapman, this was so because girls tend to be more concerned than boys with sharing the prevailing social situation with others, while boys tend to be more interested than girls in the laughter stimuli per se, which are embodied both in the recordings and in the companion's behavior.

This study has been an interesting research, and although not all the hypotheses made were proven true, the study affirms the past findings on the social facilitation theory. Laughter, being a learned and instinctive

response, would be facilitated by the presence of others. Things may seem funnier when shared with another.

BIBLIOGRAPHY

- Cotrell, Nickolaus
1972 Social facilitation. *Experimental Social Psychology*. New York: Holt, Rinehart and Winston.
- Chapman, Anthony J.
1973 Social facilitation of laughter in children. *Journal of Experimental Social Psychology*, 9, 528-41.
- Coser, Rose Laub
1956 Some social functions of laughter. *Human Relations*, 12(2), 171-82.
- Fuller, Raymond and Alan Sheehy-Sheffington
1974 Effects of group laughter on response to humorous material, a replication and extension. *Psychological Reports*, 18, 531-4.
- Greig, John Y.
1969 *The Psychology of Laughter and Comedy*. New York: Copper Square Publishers, Inc.
- Levanthal, H. and W. Mace
1970 The effects of laughter on evaluation of a slapstick movie. *Journal of Personality*, 38, 16-31.
- Malpass, Leslie and Eugene Fitzpatrick
1959 Social facilitation as a factor in reaction to humor. *Journal of Social Psychology*, 50, 295-303.
- McGuinness, Elliot
1970 *Social Behavior: A Functional Analysis*. Boston: Houghton Mifflin Company.
- Young, David and Margaret Frye
1966 Some are laughing, some are not -- why? *Psychological Reports*, 18, 747-54.
- Zajonc, Robert B.
1965 Social facilitation. *Science*, 149, 269-71.

Due to a backlog in unpublished manuscripts, the editorial board has included articles written in the years 1980-1982. This accounts for citations in some of them which may not coincide with the date of this issue.



Reg. No. 709



The Psychological Association of the Philippines gratefully acknowledges a grant from the National Science and Technology Authority in support of this issue of the Philippine Journal of Psychology. Arrangements for this subsidy were made by the Philippine Social Science Council, Inc.