

## AN EXPERIMENTAL INVESTIGATION OF THE FUNCTION OF FILLED PAUSES IN SPEECH

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Filled pauses have been described as a product of anxiety, and have also been explained as attempts by the speaker to maintain control of the 'floor'. The latter hypothesis is tested directly, by altering the pressure on the subject to continue speaking. Possible confounding effects of anxiety are controlled for. Filled pauses do not increase, as pressure to continue speaking increases. It is suggested that the 'control' hypothesis may apply only to monologues; evidence concerning the relative frequency of filled pauses in monologues and dialogues is presented.

### INTRODUCTION

Two distinct theories have been advanced to explain the occurrence of *filled pauses*—*er, ah, um* and variants in speech. It was originally suggested that filled pauses function like other speech disturbances, as an index of anxiety (Boomer, 1963; Mahl 1956) but later work has not shown this (Kasl and Mahl, 1965). Maclay and Osgood (1959) have suggested a different explanation. They presented data showing that filled pauses occur before content words—nouns, verbs, adjectives, rather than before function words—pronouns, particles, etc. They suggest that filled pauses enable the speaker to maintain control of the "conversation ball" while organising his thoughts. On the other hand, Goldman-Eisler (1961) found that filled pauses did not vary with degree of abstractness of the material, which reflects the need of the speaker for organising time. However Goldman-Eisler's experiment has been repeated by Paivio (1965) who did find more filled pauses when the material was abstract.

Kasl and Mahl (1965) have recently observed that filled pauses increase when speakers cannot see each other. This has been replicated by Cook and Lallgee (1967). This is further indirect evidence for the Maclay and Osgood theory. There are visual means of "holding the floor"—if these are unavailable, then more use would be made of non-visual means, such as filled pauses.

All the evidence quoted for the Maclay and Osgood theory is indirect. It is assumed that in certain circumstances subjects will feel a pressure to continue speaking—but having nothing organised to say, will fall back on filled pauses. A more satisfactory test of the Maclay and Osgood hypothesis would involve direct manipulation of the subject's desire to continue speaking. The present experiment was conceived to do this, both by inducing a set in the subject and by variations in the behaviour of a confederate. If the subject feels that the moment he ceases speaking, the other person will start, he will be under greater pressure to continue speaking. Hence according

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to the theory he will produce more filled pauses. It is assumed the actual ability to produce meaningful speech is constant.

An alternative explanation of such a result would be possible however. The manipulation could increase the subject's tension. If filled pauses are related to anxiety, as has been suggested by some authors, they would increase as a result of such tension. However other types of speech disturbance, known collectively as the *Non-Ah* ratio (see Mahl, 1956, for a description of categories, etc.) should also increase as a result of anxiety produced by the manipulation. Hence the possible alternative can be checked by measuring the *Non-Ah* ratio as well as filled pauses.

## METHOD

### *Subjects*

Subjects were 14 male Oxford University students, who were asked to participate and who were paid 5/- per hour. All were native English speakers, free of obvious speech defects or peculiarities.

### *Matching*

A matched groups design was used because repeated measures designs, while more sensitive, involve serious order problems. The subjects' rates of filled pauses and their readiness to speak were measured in a 5 minute preliminary non-directive interview given by one of the experimenters (M.C.) The transcripts of the interviews were scored for filled pauses, which are expressed as a ratio, Filled Pauses/Words Spoken. The subject's readiness to speak was taken as the amount he said in response to 5 set questions, or in 5 minutes, whichever was the shorter. Subjects were matched on both measures.

### *Induction*

The pressure on the subject was manipulated in two ways. The subjects all interacted with the same confederate, who was instructed to behave in one of two ways. In the high pressure group, he was instructed to interrupt the subjects three times in the first two minutes, and thereafter to start speaking immediately the subject stopped or paused. For the low pressure group he was instructed not to interrupt as far as possible, (i.e. not deliberately) and always to wait until the subject had quite finished what he had to say. In addition the subjects were given different instructions for the two conditions. For the low pressure they were simply told they would be asked to talk to another student subject about a given topic, on which they disagreed. The high pressure group were given similar instructions, but the experimenter added, apparently casually, "I should mention that the other subject is a very fluent speaker,

so you might have difficulty in getting a word in. Nevertheless we would like you to do your best to get a fair share of the conversation, and if possible to change his views”.

### *Experimental Interaction*

The subject and the confederate talked for 10 minutes of which only the final 5 minutes were used, to avoid the possibility of the interruptions affecting the subject's speech. They were asked to talk about a political or social topic, from a list that the subject had previously seen and checked. The topic chosen was one in which the subject expressed a fair degree of interest (2 out of 3 on a 0-3 scale) and which the confederate felt able to argue about readily.

### *Coding*

The interactions were recorded, each voice separately on a twin channel tape recorder. The recordings were transcribed and all *Ah* and *Non-Ah* speech disturbances and all interruptions were coded by both experimenters together. No distinction was made between types of *Non-Ah* speech disturbance. As there is some uncertainty about whether the category “repetition” belongs in the *Ah* or the *Non-Ah* groups, it was scored separately.

## RESULTS

All results are presented in Table 1.

TABLE 1

Mean scores, of all measures, for High and Low Pressure groups

	HIGH PRESSURE	LOW PRESSURE	
Mean verbal output of subject and confederate combined	788	635	$t = 3.71, p < 0.01$
Mean number of times subject interrupted confederate	8.29	2.57	$t = 3.81, p < 0.01$
Mean ratio, FP/words	0.02781	0.03359	$t = 0.32, n. s.$
Mean ratio, <i>Non-Ah</i> /words	0.02608	0.03966	$t = 1.43, n. s.$
Mean ratio, repetitions/words	0.01588	0.02705	$t = 1.56, n. s.$

### *Validation of Pressure Induction*

The total verbal output of the subject and confederate together is higher in the high pressure group, a mean of 788 words as opposed to 635 in the low pressure. The difference is significant ( $t = 3.71$ ,  $p < 0.01$ ). The number of times the subject interrupted the confederate was higher in the high pressure condition, 8.29 as opposed to only 2.57 in the low pressure condition ( $t = 3.81$ ,  $p < 0.01$ ).

### *Control for anxiety*

The *Non-Ah* ratio of the low pressure group was higher than that of the high pressure group. The difference is not significant ( $t = 1.43$ ).

### *Filled pauses*

The filled pause ratio of the low pressure group was slightly higher than of the high pressure. The difference is not significant ( $t = 0.63$ ).

### *Repetitions*

The repetition ratio of the low pressure group is higher than that of the high pressure group. The difference is not significant ( $t = 1.56$ ). Including the repetition data in either *Ah* or *Non-Ah* category has no effect.

## DISCUSSION

Although the induction had a significant effect on the interaction, indicating it was fairly successful, there is no tendency for filled pauses to increase, when pressure to speak and continue speaking is higher. There is a non-significant tendency for the opposite to occur.

Evidently Maclay and Osgood's theory is not correct, at least for the situation studied. There is one difference between the situation used in this study and that Maclay and Osgood used to obtain their data. They used recordings of speakers at a conference, rather than discussions—a monologue rather than dialogue. Whereas the speaker at a conference is not usually subject to frequent interruptions, the discussions in the present experiment were usually lively and often heated. While there was certainly a pressure to carry on speaking, it was possibly not the same type of pressure as that experienced by a conference speaker. If the subject faltered, the confederate jumped in, whereas in the conference, if the speaker paused noticeably, there was an embarrassing silence. It seems reasonable to suggest therefore that Maclay and Osgood's theory applies only to monologues. In dialogues, a different type of pressure is felt and means

other than filled pauses are used to cope with it. Raising the voice might be such a means. Some support for this suggestion comes from the data from the non-directive interview used to match subjects. These were essentially a monologue by the subject. The mean filled pause ratio for the preliminary interviews was in fact higher than in the experimental discussions, 0.03894 as opposed to 0.03080, although the difference is not significant.

Another experiment with 16 subjects has been performed by the authors using a non-directive interview followed by a dialogue (Cook and Lallgee, 1967). In this a similar but larger difference was found—0.04559 against 0.01975—which was significant ( $t = 4.14$ ,  $p < 0.001$ ).

These considerations lead to a suggestion for another check on Maclay and Osgood's theory, using monologues not dialogues. If the subject were asked to talk either to a person, or to a tape-recorder which he could switch off, when he wished to gather his thoughts, he would in the one case be subject to a pressure not to allow any silences, but in the other would not.

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