INDIVIDUAL DIFFERENCES BETWEEN INTERVIEWERS AND THEIR EFFECT ON INTERVIEWEES' CONVERSATIONAL BEHAVIOUR.

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I. INTRODUCTION.

FLEXIBILITY in adjustment on the part of the interviewer is commonly regarded as one of the main qualifications for good interviewing and part of an interviewer's skill. The high estimation of the spontaneity of the interviewing situation, which has been one of the main reasons why the interview as a technique has retained its popularity against more standardized and reliable methods, rests largely on the presupposition that skilled interviewers can adjust their own behaviour and steer the interviewing situation freely so as to obtain optimum rapport and maximum information. Thus Oldfield (5) considers changes of topic, attitute and tempo of great significance for the conduct of the interview. He particularly stresses the importance of changes of tempo; pauses in the conversation, he says, if " badly chosen may easily break the trend of the relationship which is being built up. On the other hand, if well chosen, they may contribute markedly to the success of the interview." No evidence, however, exists to show to what extent skilled interviewers actually are free to adjust themselves to any particular interviewing task or which aspects of their interviewing behaviour are more subject to adjustment than others.

The present research is concerned with a particular approach to the study of interviewing based on the objective measurement from a chronograph record of the time sequences of activity (talk and gesture) and silence in conversation. Two press buttons, each setting off a separate pen drawing lines on a tape, are allotted to the two people in the conversation. As soon as a person speaks, nods, or smiles in response, the corresponding button is pressed down by the observer; as soon as this person falls into inaction it is released (2). The lines drawn on the paper thus record the durations of the successive actions and silences for both partners in the conversation. These measurements are the basis for derived measures, such as the total amount of time of action or silence, the frequency or number of actions or silences, the average duration of actions or silences, the amount of time spent in mutual silence or double action, and the various relations arising from these data. This method was developed by E. D. Chapple (1). It was also described at greater detail by the writer in a previous article reporting an earlier experiment along these lines (4).

In the latter it was shown that conversational behaviour of individuals was consistent in respect of certain relationships between durations of actions (speech and gesture) and silences and their frequencies, independent of partner and topic. In the light of such a result the question of the degree and quality of interviewers' flexibility seems more than ever in need of clarification. Admittedly, the consistency of certain aspects of individuals' conversational behaviour under varying conditions is not transferable to interviewing. The situation recorded in the above experiment was such as to give scope for the free expression of personality in highly spontaneous interaction, while in interviews we are dealing with situations which, at least, demand far more controlled behaviour and considerable adjustment on the part of the interviewer. Nevertheless, the question remains whether, in fact, a skilled interviewer's flexibility is such as to open wider ranges of variation in his conversational behaviour, or whether, as was shown to be the case in the ordinary individual's conversations, his conversational activity remains confined within certain limits characteristic for the range of his personality. In the particular case of the psychiatric interview, the assumption is met with frequently that experienced

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psychiatrists' manner of speech and silence is the result of adaptation to the type of patient and to the needs of therapeutic and diagnostic situations. It may be asked whether this view can be maintained if examined in terms of the objective measurements of the time taken up in speech and silence.

An experiment was designed to throw light on this problem, and also on that of the influence, if any, of different interviewing styles, on patients' reactions. As to the latter point the question presenting itself is whether the amount of time taken up in speech, the duration of the individual periods of talk and silence, the timing and frequency of interruptions or silences, create reactive attitudes in the interviewee which manifest themselves in the amount of information given, in the manner of responding to the interviewer, and the quality of information yielded. (The question of the relation of time to quality of information is not dealt with in this paper.)

II. Experiment.

Three senior psychiatrists of the Maudsley Hospital (who will be referred to as D1, D2, and D3), took part in the experiment. They were chosen for the experiment on the basis of a judged difference in their conversational activity, the experimenter predicting essentially different scores for D1 on the one hand, and D2 and D3 on the other. A group of patients, five reserved (four cases of depression and one of uncertain diagnosis), and five talkative (four cases of anxiety, and one uncertain), were then selected to be interviewed by all the three doctors in rotation. There were thus 30 interviews altogether. Any errors arising from the order of interviewing, that is, from the fact that patients would respond differently according to whether they were interviewed for the first, second, or third time irrespective of the interviewers, were controlled by randomizing the order. The three interviewers were thus compared against a constant stimulus background.

Further, in order to make the interviews comparable a common aim was set, namely to give a description and diagnosis of the patients' present mental state. The doctors were, within those limits, given freedom to suit their own personal technique and approach. Care was also taken that none of the doctors concerned should have seen any of the patients previously. Just before each interview took place the doctor was given a short summary of the patient's history to read, exclusive of any information imparted by the doctor in charge about the patient's present mental state. Interviewing patients in order to diagnose their mental state is for psychiatrists at a mental hospital very much a routine procedure, and apart from the above experimental safeguards they acted in much the same way as they are used to in their day's work.

These interviews were also recorded on a speech recorder with a view eventually to relating the time aspect of conversational behaviour to the content This material will be reported elsewhere.

Measures.

The data contained in the chronograph record, that is, the durations and frequencies of actions and silences, were combined into the following relationships :

(a) the bs/ds ratio, bs designating the number of silences below five seconds and ds the number of silences above five seconds.

(b) the amount of action time, i.e. the percentage of the total time spent in action by each speaker during the whole interview, which we shall call AT, and

(c) A + S, i.e., the average time, in seconds, elapsing from the starting of one action to the starting of the next and comprising an action and its subsequent silence. (Obviously each action is followed by a silence.)*

III. Results.

The bs/ds Ratio.

The bs/ds ratio in interaction gives us the proportion of the number of short silences to long silences. This time the definition of short and long silences was

* Chapple termed this period an " interaction unit " on the assumption that each silence coincided with the partner's response, thus representing a kind of stimulus-response arc in conversational interaction. This condition, of course, holds only where there is good adjustment.

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different from that in our first experiment. Long silences were those above five seconds instead of twenty seconds, a change derived from the fact of the quicker alteration of question and response in the interview than in ordinary conversation and confirmed by our inspection of the frequency distributions of duration of actions and silences. If the numerator contains the frequency of short silences and the denominator that of long ones, it means that a small bs/ds value indicates a proportionately large number of long silences and a large value a small one. Or, in other words, a person who listens for long periods would have a small value while one who could rarely maintain silences lasting longer than five seconds would have a high value for bs/ds. That is, he would have a poor listening ability or a high level of conversational activity.

In our previous experiment (4) measuring the times of actions and silences in seven series of conversations between normal subjects whereby seven individuals talked with ten different partners, the bs/ds ratio proved to have considerable stability for individuals under varying conditions, i.e. changing topics and partners in conversation.

The question was whether in the changed circumstances of this experiment and with the different type of personnel involved, (i.e. psychiatrist and skilled interviewer on the one hand and patient on the other), the above result could be confirmed. Would the interviewer show a consistent tendency with respect to the proportions of long periods of silence in his speech no matter what type of patient he interviewed ? Would patients' conversational activity as measured by the bs/ds ratio retain its basic tendency independent of the interviewer, whoever he was ?

The means and standard deviations of the bs/ds scores for the three interviewers are given in Table I.

TABLE I.

	Mean bs/ds.	σ.
D1	1·78	0·68
D2	3·79	3·55
D3	4·21	1·26

Diagram I shows the frequency distribution for each of them.

How far the tendency of these measures to be concentrated within a definite range for each of the interviewers was significant was tested by an analysis of variance. As the bs/ds scores had a skewed distribution they needed to be normalized and their variance equalized in order to satisfy the necessary assumptions for this procedure. This was done by transforming them into logarithms. The mean log bs/ds scores are shown in Table II.

TABLE II.

	Mean log bs/ds.	σ.
D1	0·434	0·079
D2	0·611	0·226
D3	0·707	0·079

An analysis of variance of the interviewers' log transformations of bs/ds scores (Table III) takes account of three sources of variation : the interviewers, the type of patient interviewed, i.e., whether he belonged to the reserved and depressed, or the talkative, anxious group, and any possible interaction between the two. The division into the two groups was made on the basis of the judgment of the psychiatrist in charge.

It will be seen that the variation between the interviewers is well beyond the one per cent. level of significance. The interviewers' mean scores are, however, not affected to any significant extent by the extreme differences in talkativeness displayed by the two groups of patients. The interaction variance is also insignificant, and about equals the error variance. It can therefore be concluded that interviewers tend to be consistent in their conversational behaviour as measured by the bs/ds ratio, if by consistent is meant that there is considerable reliability for this behaviour under comparable stimulus conditions.

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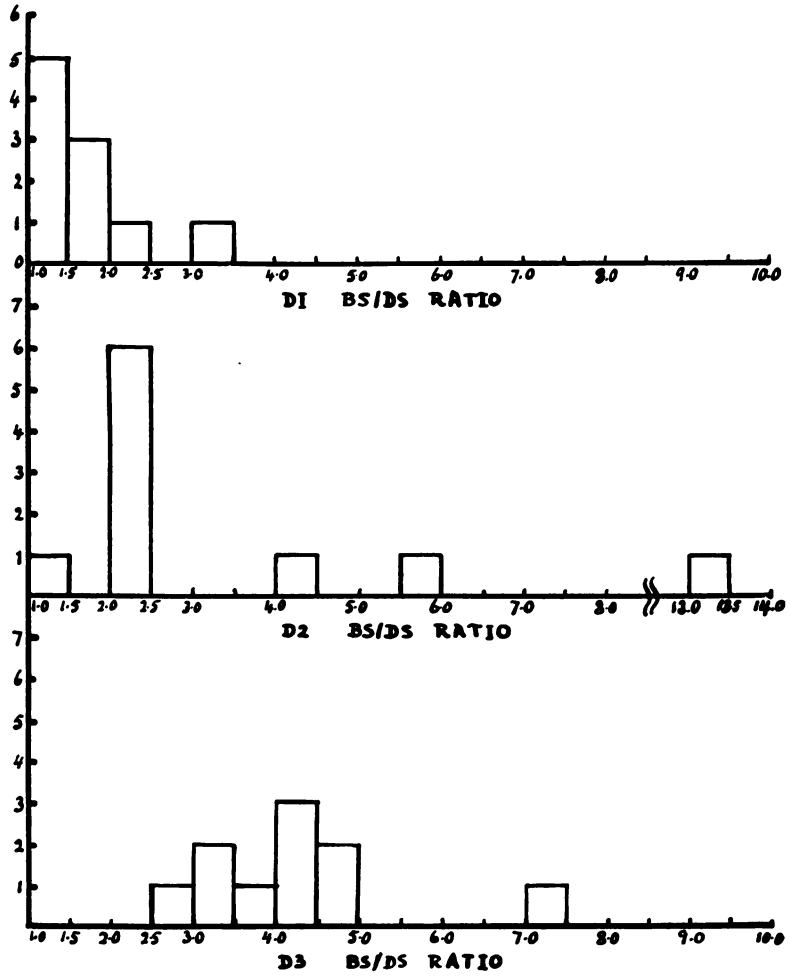


DIAGRAM I.—Frequency distributions of bs/ds ratios for D1, D2, D3.

TABLE III.—*Analysis of Variance on Interviewers' Log Transformations of bs/ds Scores.*

Source.	Degree of freedom.	Sum of squares.	Mean square.
Between interviewers	2	·382	·191
Between groups of patients	1	·060	·060
Interaction (Interviewers × patients)	2	·048	·024
Error	24	·541	·023
	29	·031	

Interviewers/Error . $F = 8 \cdot 30$ (F for 2 and 24 dfs at ·01 level = 5·61; at ·001 level = 9·34).

Groups of patients/Error $F = 2 \cdot 61$ (F for 1 and 24 dfs at ·05 level = 4·26.)

The Interviewees (Patients).

The question of the stability of conversational activity (bs/ds) on the part of the interviewees as well as that concerning the effect of the interviewer on the conver-

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sational activity of the interviewee must be considered, bearing in mind that the interviewing situation between doctor and patient establishes for the doctor by its very nature a position of dominance and initiative.

To answer this question the ten patients interviewed were again divided into the two groups of depressed and talkative individuals. The two groups were relatively homogeneous within themselves. Their mean activity scores (log transformations) were analysed for the effect of the interviewers.

TABLE IV.—*Analysis of Variance of Patients' Log Transformations of bs/ds Scores.*

Source.	Degree of freedom.	Sum of squares.	Mean square.
Between interviewers	2	·407	·204
Between groups of patients	1	1·620	1·620
Interaction (Interviewers × patients)	2	·055	·028
Error	24	·807	·034
	29	2·889	

Between interviewers/Error . F = 6·05 (F for 2 and 24 dfs at ·01 level = 5·61.)

Between groups of patients/Error F = 47·65 (F for 1 and 24 dfs at ·001 level = 14·03.)

The analysis given in Table IV shows that the variation of the patients' bs/ds log scores comes from two significant sources, the bulk of it being accounted for by the differences between the two groups of patients and being independent of the interviewer. However, another source of variation in the patients' scores, though not of such high significance, is the differences between the three interviewers. That is to say, while the personalities of the patients find consistent expression in their conversational activity as measured in terms of the log bs/ds ratio, their bs/ds log score taken separately for each of the two groups of depressed and talkative patients shows modifiability under their interviewers' influence to a significant extent. This is indicated by the means in Table V.

TABLE V.

	Mean log bs/ds.		
	D1.	D2.	D3.
Depressed	1·844	2·127	2·873
Talkative	4·268	3·895	5·665

In other words, with respect to the bs/ds ratio the interviewees have responded to the varying approaches of the different interviewers, although within the limits set by their own personality.

Amount of Action.

It is a common observation that some people consistently talk more than others irrespective of whether their individual periods of action are of short or long duration. AT, i.e., the amount of time spent in action or the total sum of all the periods of action in an interview measures this aspect of activity in conversation.

The question was asked in what way the amount of action taken as a whole might actually be influenced as a result of interaction, and to what extent any individual tendency relating to this aspect could maintain itself with different partners in the interview, and for the different roles of interviewer and interviewee.

Although the doctors had been asked to make all interviews last 30 minutes, they did not follow the instruction and there was considerable variation in the lengths of interviews as shown below :

	Mean time of interviews (in minutes).	Range.	σ.
D1	22·9	15·7–35·2	5·37
D2	22·7	18·8–27·6	2·20
D3	17·3	9·6–30·8	7·76

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There had been perfect readiness on the part of the doctors to comply with the instruction concerning the length of interviewing, and their difficulty in keeping it the same with different patients seems to indicate that a natural and spontaneous interviewing style is not easily compatible with a rigid time limit, and that, among other aspects, the total time of interviewing seems to be also affected by adjustment in interaction.

The absolute time of total action for doctors and patients was therefore transformed into percentages taken from the total interviewing time. These percentages do not necessarily add up to 100 per cent. for it is quite possible that long spells during the interview are passed in mutual silence, in which case the summed action time would amount to less than 100 per cent., that on the other hand there are periods during which both parties talk simultaneously, in which case, the action time of both would sometimes add up to more than 100 per cent.

The question of the consistency of behaviour of individuals with respect to their total action time in interviews was thus investigated on the basis of relative and proportionate rather than of the absolute and actual time.

In order to answer this question an analysis of variance was carried out for both interviewers and patient. Again, in order to satisfy the assumptions for this procedure the percentages of total time had to be transformed into angles (of Fisher and Yates, 3).

TABLE VI.—*Analysis of Variance of AT (Amount of Time Spent in Action by Interviewer) Based on Angular Transformations of Percentages of Total Time.*

Source.	Degree of freedom.	Sum of squares.	Mean square.
Between interviewers	2	463·24	231·62
Between groups of patients	1	667·41	667·41
Interaction (Interviewers × patients)	2	38·90	19·45
Error	24	632·13	26·34
		1801·68	

Between interviewers/Error . $F = 8·79$ (F for 2 and 24 dfs at ·01 level = 5·61; at ·001 level = 9·34.)

Between groups of patients/Error $F = 25·34$ (F for 1 and 24 dfs at ·001 level = 14·03.)

From the analysis in Table VI we can see that the differences of the mean AT (angles) have two highly significant sources. Primarily the amount of time spent in action by the interviewers depended on the type of patient interviewed. All three interviewers decreased the volume of their conversation as they passed from the depressed to the talkative patients, but while they adjusted themselves to the different types of patients their *relative* talkativeness remained constant. As may be seen from Table VII, the decrease in AT when passing from the depressed to the talkative patients, varies only little around 40 per cent.

TABLE VII.—*AT Values of Interviewers, D1, D2, D3, Talking to Depressed and Talkative Patients.*

	Depressed patients.	Talkative patients.	Decrease of AT from depressed to talkative (per cent.).
D1	25·6	15·4	40
D2	45·8	25·0	45
D3	35·8	23·0	36

Thus while the adjustment from one group of patients to the other was a radical one it was general and took place from the baseline of each individual interviewers' conversational personality leaving the mutual relation between the interviewers intact.

The AT values for the three interviewers were in the very similar proportions of 1 : 1·77 : 1·38 for the depressed and 1 : 1·62 : 1·49 for the talkative patients. Diagram II illustrates this position graphically.

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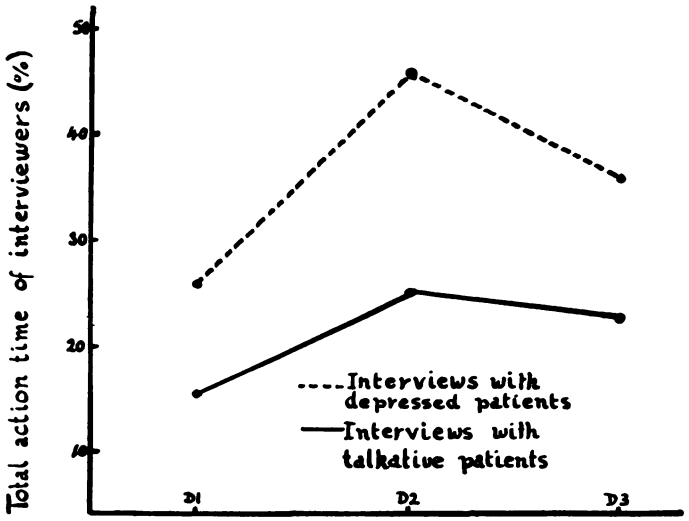


DIAGRAM II.

With respect to the amount of talk on the part of the patients, our expectations were guided by the following line of reasoning. If variation due to the influence of the partner in conversation means adjustment, extreme invariance or constancy would indicate the opposite, namely rigidity. We might therefore expect that the amount of talking done in the interview by maladjusted people, as patients are, would be less dependent on the individual interviewer than the interviewer's total action time had been on the type of patient interviewed. That our data are in line with this expectation is shown in Table VIII.

TABLE VIII.—*Analysis of Variance of AT (Amount of Time Spent in Action by Patients) Based on Angular Transformations of Percentage of Total Time.*

Source.	Degree of freedom.	Sum of squares.	Mean square.
Between interviewers	2	79·88	39·94
Between groups of patients	1	5116·11	5116·11
Interaction (Interviewers × patients)	2	89·79	44·90
Error	24	1499·20	62·47
		6784·98	

Interviewers/Error	F = 0·64 (F for 2 and 24 dfs at ·05 level = 3·42.)
Groups of patients/Error	F = 81·9 (F for 1 and 24 dfs at ·001 level = 14·03.)

The analysis in Table VIII shows that the only significant source of variation is the patients themselves. The variation in the amount spoken by patients due to any influence of the interviewer is less than error, that is less than the variation in interviews with the same interviewer from patient to patient within the same patient group. In other words, the patients have, as a group, rigidly resisted stimulation and have remained unadjusted within the very narrow limits of their basic activity. However, before we may draw any conclusions to the effect that individual styles of interviewers make little difference to the amount of talk elicited, examination of our data in greater detail may be rewarding. We thus find (Table XII), that while the talkative group seems to be little affected, the mean AT values for the depressed group vary from interviewer to interviewer, D1 eliciting least in amount, and D3 most. The F ratio (0·64) based on both groups of patients was not significant.

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Conversational Tempo.

By " tempo " in conversation we mean the alternation between the periods of action and silence. The quicker a person changes over from action to silence and from silence to action, the more numerous will be the A + S periods (average action plus average silence), or " interaction units." The more numerous these periods are, i.e., the more often a person starts talking, or ceases to be silent, the shorter the durations of these periods will be. Our measure of conversational tempo which is derived from Chapple's Speed Curve (1), will therefore be the average action plus average silence (A + S), i.e., the average time elapsing between the starting of each action and the next. As previously this measure was subjected to an analysis of variance for interviewers as well as for patients.

TABLE IX.—*Analysis of Variance of A + S (Conversational Tempo) for Interviewers.*

Source.	Degree of freedom.	Sum of squares.	Mean square.
Between interviewers	2	56·12	28·06
Between groups of patients	1	0·17	0·17
Interaction (Interviewers × patients)	3	11·28	3·76
Error	23	68·91	3·00
	29	136·48	
Between interviewers/Error	F = 9·35	(F for 2 and 23 dfs at ·01 level = 5·66; F for 2 and 23 dfs at ·001 level = 9·47.)	
Between groups of patients/Error	F = 0·05	(N.S.)	

TABLE X.—*Analysis of Variance of A + S (Conversational Tempo) for Patients.*

Source.	Degree of freedom.	Sum of squares.	Mean square.
Between interviewers	2	21·28	10·64
Between groups of patients	1	7·01	7·01
Interaction (Interviewers × groups)	3	4·11	1·37
Error	23	111·95	4·87
	29	144·35	
Between interviewers/Error	F = 2·4	(F for 2 and 23 dfs at ·05 level = 3·42.)	
Between groups of patients/Error	F = 2·0	(F for 1 and 23 dfs at ·05 level = 4·28.)	

As far as the interviewers' scores are concerned there is only one significant source of variation: the differences between the interviewers themselves. These are approaching the 0·1 per cent. level of significance. Thus, of the three aspects of conversational behaviour so far considered, conversational tempo as measured by A + S is the most consistent one as the interviewer moves from patient to patient, and it does not enter into his adjustment process.

For patients, however, the situation is different. The two main sources of variation, i.e., interviewers and the patient groups, do not reach significance, and we have a large error variance. The interaction variance being quite insignificant the possibility presents itself that (a) the groups are not as homogeneous with respect to A + S as with the other measure, and (b) that while interviewers seem to have an influence on some patients' conversational tempo, others remain unaffected. An inspection of Diagram III showing the A + S scores of doctors and patients side by side for each interview illustrates the degree of flexibility for each patient under the influence of each doctor.

Obviously there are great individual differences with respect to the pliability of patients' conversational tempo in their response to the interviewers' tempo. For example, P1, P2, P3, P6, and P7 seem more flexible in adjusting themselves; while P5 and P9 seem quite rigid and unresponsive. This observation invites speculation

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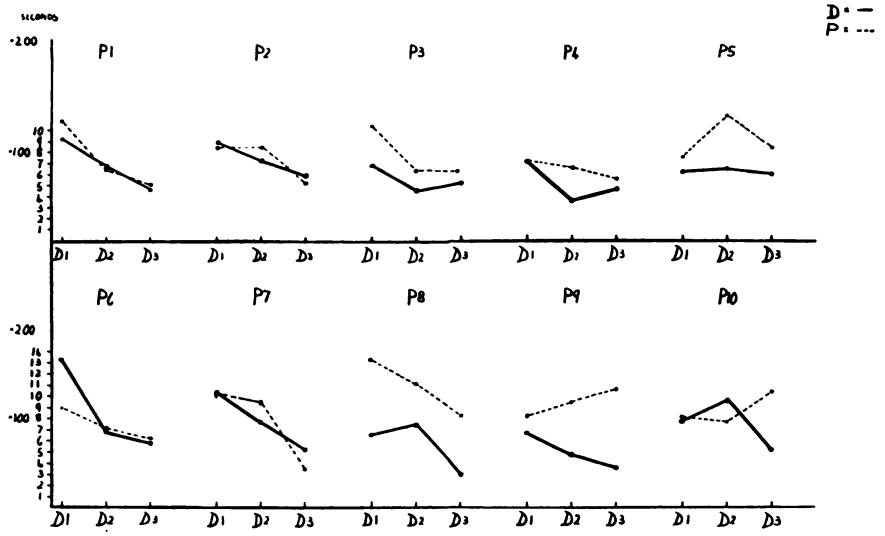


DIAGRAM III.—A + S Scores for doctors (D) and patients (P).

as to the diagnostic significance of the degree of flexibility in social interaction as measured by the response to changes in timing. However, our data so far are too scanty to support any suggestion even at the speculative level.

The fact that there is flexibility in the patients' scores while those of the interviewers do not vary with the different patients is not unexpected. There are three ways in which the average length of an A + S unit may be modified. A period of activity may be cut short in interaction by interruption, or a period of silence shortened by prodding or encouraging. Both these modifications are possible only as a result of active interference in the natural timing of actions and silences.

The interviewer being, in the nature of things, the active element in the interview situation, has the initiative, enabling him to effect the interviewee's timing. In the usual way, he himself of course would be suffering little external interference.

Besides, little internal manipulation or control of the timing of talk and silence was exercised by the three interviewers recorded; whereas, with respect to the amount of time spent in talking, interviewers had exercised control and showed themselves flexible in adjusting to the different types of patients.

The reason for this contrast might perhaps be sought in the fact that an individual is usually more conscious of how much he talks over the whole conversation than of how often he starts and stops talking, and a conscious form of behaviour is more easily controlled than one that is unconscious.

Individual Differences between the Three Interviewers, D1, D2, D3.

The three interviewers in the experiment were selected on the basis of different activity rates as judged by the experimenter. Thinking chiefly in terms of the bs/ds ratio, D1 on the one hand, and D2 and D3 on the other, were considered to represent two essentially different activity levels. It was also felt that differences existed with respect to some other aspects of conversational activity but this could not at that stage be clearly defined.

An analysis of our data was undertaken with a view to ascertaining the extent and nature of interviewers' individual differences as regards conversational activity (bs/ds log score), and conversational tempo (A + S).

For this purpose " t "-tests were computed examining the differences of means between each of the three interviewers with respect to the above measures. The results are given in Table XI.*

* It should be noted that as we are testing all the possible differences between these means the comparisons were not independent and that therefore the significance levels are slightly inflated.

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TABLE XI.—*Interviewers' Score.*

	Activity level Log (1 + bs/ds).		Amount of time (AT). Angular transformations.		Tempo A + S (in seconds).	
	Mean.	σ.	Mean.	σ.	Mean.	σ.*
D1	0·434	0·079	26·68	2·22	8·32	2·00
D2	0·611	0·226	36·24	7·26	6·60	1·57
D3	0·707	0·079	32·43	6·51	4·97	0·54

$$\frac{1}{(p-1)}\left(\frac{7}{6}\sum_{i=1}^{p}(x_i-\bar{x})^2+\frac{1}{6}\sum_{i=1}^{p}(y_i-\bar{y})^2+\frac{1}{6}\sum_{i=1}^{p}(z_i-\bar{z})^2-\frac{1}{6}\sum_{i=1}^{p}(x_i+y_i+z_i-\bar{x}-\bar{y}-\bar{z})\right),$$

when $\bar{x}$, $\bar{y}$, and $\bar{z}$ are the mean values (over p readings) of the x_i, y_i and z_i; similarly for the second and third doctors (2).

"t's" for mean differences.

	D1–D2.	D1–D3.	D2–D3.
Log (1+bs/ds)	$t=2\cdot85$ ($P=\cdot02$)	$t=6\cdot66$ ($P=\cdot001$)	$t=3\cdot11$ ($P=\cdot02$)
AT (angular transformations)	$t=3\cdot96$ ($P=\cdot01$)	$t=2\cdot52$ ($P=\cdot05$)	$t=1\cdot35$
A + S	$t=2\cdot40$ ($P=\cdot05$)	$t=5\cdot32$ ($P=\cdot001$)	$t=3\cdot66$ ($P=\cdot01$)

* If the readings of the three doctors for the ith patient ($i = 1, 2, \ldots p$) are denoted by x_i, y_i, and z_i respectively the estimate of the first doctor's error variance, which has been used is σ

From Table XI we can see that D3 leads in conversational activity (bs/ds) and tempo (A + S), but is second in the amount of his activity (AT) to D2. In other words his pressure for activity is high, there is a relatively small proportion of silences over five seconds, and his conversational tempo is a quick one. In fact, not only does he not keep long silences, he is also quick in terminating his actions. In the actual amount of action, however, it is D2 who leads. When we consider the differences between the three interviewers we can see that the greatest contrast prevails between D3 and D1, the means being significantly different at the ·001 level of probability on two counts, log (1 + bs/ds) and A + S, and the ·05 level on one, namely AT. The difference between D1 and D2 also reaches high significance although for log (1 + bs/ds) and A + S at a lower level of probability. AT discriminates between D1 and D2 at the ·01 level of probability. D2 and D3, on the other hand, belong as far as AT is concerned to the same population universe, while they differ significantly in respect of their pressure for conversational activity (log 1 + bs/ds) and of tempo (A + S). D1, however, seems to represent an altogether different conversational type. This manifests itself in his ability to listen and to wait for responses for considerably longer periods (bs/ds), than D2 and D3, in the smaller amount of time taken up in speech (AT), and in his tempo in conversational interaction (A + S).

The Validity of Interviewers' Scores.

It was with some hesitation that we decided to use, as an alternative for bs/ds and A + S, designations beyond their operational description, namely conversational "activity level" and "tempo". It was felt that while the operational description corresponded to a considerable extent to what was usually meant by these concepts an external validation was needed to test the justification of such terminology as well as to illuminate the relation of conversational activity and tempo to activity and tempo in general behaviour. Therefore seven psychiatrists of the hospital, who are in daily contact with the three interviewers, were asked to rank them for speed or tempo and five of these psychiatrists (the other two were not available at the time) to rank them for activity level. All seven ranked D3 first in speed making remarks to the effect that D3 far exceeded D2 as well as D1 in this respect. Four psychiatrists ranked D2 second and D1 third, and three D1 second and D2 third. The values for tempo in Table XI show that this proportion corresponds to the position of the time measurements. The tempo scores for D3 are significantly different from those of D2 and D1. D2 has a quicker tempo than D1, but the difference is not highly significant,

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a situation corresponding to the disagreement among the judges with a majority ranking D2 first.

Also five judges were asked to rank the three interviewers for activity level or energy and did so with complete unanimity in the following order: D3, D2, and D1. The order is the same as that of their bs/ds scores.

Modification of Patients' Score effected by Individual Interviewers.

Having described the three interviewers in the experiment in terms of our three measurements we are now in a position to examine further the question of patients' variability or flexibility with reference to the influence of individual interviewers.

Table XII gives the mean values for both groups of patients for their interviews with each of the doctors.

TABLE XII.—*Patients' Scores.*

	Patients.		
	D1.	D2.	D3.
Reserved (depressed) . .	1·844	2·127	2·873
Talkative (anxious) . . .	4·262	3·895	5·665
	6·106	6·022	8·538
AT (angular transformations):			
Reserved (depressed) . .	134·2	158·3	174·6
Talkative (anxious) . .	288·9	282·5	287·3
	423·1	400·8	461·9
A+S (tempo):			
Reserved (depressed) . .	149	134	107
Talkative (anxious) . .	163	158	132
	156	148	119

The above table shows that for all three measures D3 has the greatest modifying influence. In other words, the interviewer with the highest bs/ds ratio (conversational activity) and the lowest A + S score (quickest tempo) seems to elicit in the patient not only a characteristically higher activity (bs/ds) and a quicker tempo of response (A + S), but also a greater amount of action (AT). However, it must be kept in mind that only with respect to log (1 + bs/ds) did the interviewers' influence prove to be a significant source of variation. Examining the two separate groups of patients, it will also be observed that with respect to AT, this influence extends to the depressed group only, the anxious group talking most with D1 who himself talked least of the three. This points to the possibility that there may be different optima for interviewers' conversational activity according to the different types of patients. Thus it would seem from the above that the depressed patient responds best to active stimulation, and the one who talks easily gets the best chance with the passive interview technique. This would, of course, refer only to the amount of time spent by the patient in talking. The question of the value, and level of the information elicited can be answered only after the analysis of the content of these interviews which will be reported elsewhere.

IV. SUMMARY.

1. Individuals had previously been shown to be relatively consistent in conversational behaviour with respect to certain relations in the duration of their actions (talk and gesture) and silences which can be measured objectively.

2. The question arose whether trained interviewers could adjust their conversational behaviour, as measured in the above terms, when dealing with different types of interviewees achieving greater flexibility than was the case in normal conversation, or whether for them, these time relationships remained constant irrespective of the interviewee.

Linked with this was the question of the influence of different interviewing styles on the interviewee's conversational behaviour as measured in the above terms.

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3. An experiment was designed in which three senior psychiatrists interviewed a group of ten patients, five reserved and five talkative ones. There were 30 interviews altogether, each patient being interviewed by each of the three interviewers in rotation. The common aim set for these interviews was the assessment and diagnosis of their mental state.

4. Three measures were used to answer the above questions: (*a*) The logarithmic transformation of the bs/ds ratio, bs signifying the number of short silences below 5 seconds and ds the number of long silences exceeding 5 seconds; (*b*) the angular transformation AT, the total amount of time which was spent in action (talk and gesture), expressed as a percentage, and (*c*) A + S, the average period comprising an action plus its subsequent silence. bs/ds was also referred to as conversational activity and A + S as conversational tempo.

5. The statistical method used in the treatment of the data was that of analysis of variance.

6. Interviewers showed themselves consistent irrespective of the type of patient interviewed with respect to bs/ds and A + S. Concerning AT they showed themselves consistent in relation to each other, but all adjusted themselves about the same amount when passing from one group of patients to the other.

7. The patients' conversational behaviour was consistent with respect to bs/ds (log (1 + bs/ds)), and AT (angle AT); while the latter value, i.e., the amount of time spent in talking, proved independent of the interviewers, the bs/ds log score showed itself sensitive in response to the individual interviewers. The analysis of variance dealing with the patients' conversational tempo yielded no significant results.

8. To test the justification of applying the designations of activity level as bs/ds and of tempo A + S, the interviewers were ranked for activity level and tempo in general by other psychiatrists in the same hospital. Their rankings and rank order of the scores were in complete conformity.

9. The individual differences between the three interviewers with respect to the measures used in this investigation were described in terms of the *t*-test and examined with reference to any possible modifying effect on the patients' conversational behaviour. The interviewer with the highest activity level (bs/ds) and quickest tempo (A + S) in conversation had the greatest modifying influence on the patients' conversational activity level (bs/ds) and on their tempo (A + S).

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