WHEN IN ROME ..... A Test of Boyd and Richerson's

small. Latane (1981) states ' the first person added to a social setting is expected to have the most impact' (Latane 1981 p 345). Mann's (1977) study differs from the aforementioned ones as he directly observed behaviour. He found that queue-joining in Jerusalem (where queuing is not the norm) required that a stimulus queue of six accomplices be present before there were significant levels of queue-joining behaviour.

Deutsch and Gerard (1955) distinguished between (1) normative social influence, where an influence to conform to the positive expectations of another person or group can lead to solidarity and (2) informational social influence, which is an influence to accept information obtained from another person or group as evidence about reality. Mann (1977) used Deutsch and Gerard's (1955) theory of social influence to try to determine the motivation of the queue-joiners in Jerusalem. He suggested that 'recruitment into the queue could be based either on normative social pressure (if the commuter was motivated out of concern for the threat of censure from others present) or informational influence (if the appearance of a queue suggested to the person that an appropriate custom had emerged at Jerusalem bus stops)' (Mann 1977 p 441). Mann (1977) pointed out that informational influence would occur under conditions of ambiguity, where an individual is uncertain of how to behave. He concluded that this was not the case in his study, as the dress and manner of the commuters suggested that they were residents of the city and not tourists or strangers It was therefore probable that normative social influence was an important factor.

When uncertainty about how to behave in an ambiguous/uncertain situation is a potential factor, then informational social influence may play a greater part in influencing behaviour. Most social psychologists looko49.4402o5aaerson4dsef how

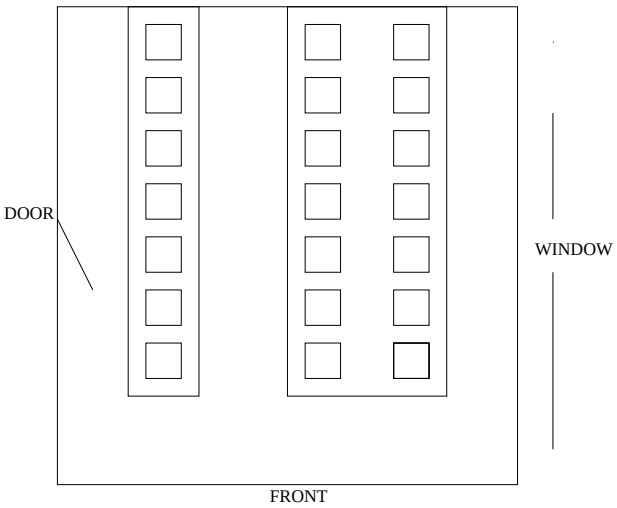

Figure 1: The laboratory showing positions of the computers

five individuals obeyed the instructions). The first part of the procedure was the same across all eight groups. Each subject was stopped at the door of the computer laboratory by the tutor, asked to sign their name in the register and then questioned about a photograph (for administration purposes). This delaying tactic was sufficient to enable the experimenter to observe each student enter the room separately.

Groups A and D were the control groups. The purpose of having a control group was in order to demonstrate that putting a keyboard cover on top of the computer was a rare behaviour. For group A; two computers at either end of the row of seven computers opposite the window had an 'OUT OF ORDER' sign on them. For group D; three computers at the furthest end of the row had the 'IMPORTANT' sign on them and the other four had out of order signs on them. Td(sign7ATd(ORDER')T'IMPOI

The number of subjects that followed the instructions placed on the computer screens was recorded. The number of subjects in the middle and furthest row, that placed their keyboard cover on top of their computer was recorded. The sex of all subjects was also recorded.

For groups B and C; three computers in the row opposite the window had the 'IMPORTANT' sign on them and four had the 'OUT OF ORDER' sign on them. The subjects who sat at these computers became the (unknowing) stooges. The remainder of the procedure was identical to condition one.

For groups E, F, G, and H, the first five computers in the row opposite the window (starting with the furthest one) had the 'IMPORTANT' sign on them. The remainder of the procedure was the same as condition one, apart from the fact that five subjects (the unknowing stooges) were directed to sit in the row opposite the window.

2.4 DESIGN

This study used naturalistic observation with experimental manipulation. The subjects were not informed that an experiment was taking place and it was subsequently discovered during debriefing that the students were unaware that they had taken part in an experiment.

The first experimental hypothesis was that subjects in a group will imitate a rare behaviour if there are a number of models of that behaviour. This is a necessary condition for conformist transmission to occur. An independent subjects design was used and the independent variable was the number of models of the behaviour, while the dependent variable was the number of subjects who imitated the behaviour.

The second experimental hypothesis was the conformist transmission hypothesis which states that the conformist rate would vary directly but non-linearly with the relative frequency of models of a behaviour. The precise function relating conformity to frequency of models was proposed by Boyd and Richerson as follows: when there is a cultural variant c, which has two variants c or d, and the frequency of c in the set of models is greater than one half, the probability that a naive individual acquires c with frequency-dependent transmission is greater than at the same frequency with unbiased transmission (where an individual randomly adopts a model). When tTJ014.4TJ43.44. to(When)-0Td.an(he)Tj21.6990Td(a(he)19.91(samlT7a(he)19.91(s

creates a force increasing the frequency of the more common variant in the population. That is, if $p > 0.5$, then $p' > p$, and if $p < 0.5$, then $p' < p$. This means that when there is a predisposition to imitate the most common behaviour i.e D is greater than 0 and the proportion that are producing the behaviour is greater than half the population, then that behaviour will be more likely to be adopted than if an individual had randomly chosen a model to imitate. It can be noted that if the frequency-dependent bias parameter D = 0 then cultural transmission is unbiased and transmission leaves the frequency of traits unchanged.

Stated more informally; a naive individual in an uncertain environment is more likely to look around to see what other people are doing and imitate the most common behaviour.

For the first hypothesis there was a single, simple independent variable: whether models were present at the beginning of each session. For the more precise test of the conformist transmission model the independent variable varied by subject rather than by group. For each individual subject the independent variables were: the frequency of the models of the target behaviour, total group size and proportion of group size (the number of models of the behaviour). The dependent variable was whether that individual conformed or not.

3 RESULTS

3.1 Imitation and Model Frequency

The first section focuses on whether or not subjects in a group will imitate a rare behaviour if there are a number of models of that behaviour. In the control condition there were no models of the behaviour. In group A (n =13) no subjects were instructed to place their keyboard covers on top of their computer and no subjects placed them there without instructions. In group D (n=13) three potential 'stooges' were instructed to place their keyboard covers on top of their computers. These people failed to comply with these instructions (they were talking and failed to notice the instructions). These three individuals were not included in the data analysis. The remaining thirteen subjects were included as a second control group and no subject within this group placed their keyboard cover on top of their computer. The placing of a keyboard cover on top of a computer can therefore be categorised as a rare behaviour.

In the three model condition, which consisted of two groups, there were three unknowing stooges in each group who followed the instructions and placed their keyboard covers on top of their computers. In group B (n=10) and group C (n=8) no subjects imitated the behaviour of

keyboard covers on top of their computers. In group E (n=9) one subject imitated the behaviour of the models, in group F (n=10) and group G (n=8) three subjects imitated the behaviour in each group. In group H (n=8) four subjects imitated the behaviour. The number of subjects per group who imitated the behaviour of the models is shown in table 1.

Table 1: Number of models, subjects and subjects who imitated the behaviour per group

GROUPS	MODELS	SUBJECTS	IMITATORS
A	0	13	NA
B	3	10	0
C	3	8	0
D			

are doing and imitate the most common behaviour. Table 3 identifies each subject (C) that imitated the behaviour and their seating position within the laboratory. Subject number one would have been seated opposite an empty seat (if an 'OUT OF ORDER' sign was on the screen) or a model of the behaviour. The seating positions of the models are indicated by (M) in the table and the dots indicate that a subject who was not a model was sitting in that position.

Table 3: Table showing seating positions of models and subjects in the laboratory C = Conformist, O = Out of order, M = Model, '.' = subject

Subject	A	B	C	D	E	F	G	H
1	O	O	M	.	M	M	M	M
2	O	O						

4 Discussion

Boyd and Richerson's (1985) conformist transmission model predicts that if an individual joins a group, the probability of that newcomer adopting the most common of two behaviours is greater than if that individual had adopted the behaviour randomly. These predictions were not

ory where they underestimate the value of of imitative behaviour 'They treat the disposition to imitate as a constraint on the epigenetic rule system rather than as an epigenetic rule itself. A

is questionable whether the particular behaviour in this experiment was adaptive or co-operative but the mechanism that caused the subjects to adopt the rare behaviour is an adaptation. The findings from this study do not fulfill the predictions of Boyd and Richerson's model in every case but they do demonstrate that we have a predisposition to imitate the most common behaviour (even if that behaviour is rare). Conformist transmission is a simple mathematical model that leads

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