

I Introduction

Social facilitation is said to occur when one animal increases or decreases its behaviour in the presence of another animal which does not otherwise interact with it. Typically, a chicken might be found to eat more when another chicken is present, even if this other chicken does not reinforce, communicate, exhibit eating behaviour, or compete for food. Likewise, social facilitation is said to occur when humans run faster, read less, type quicker, or do fewer arithmetic problems in the presence of another person, but only if the other person does not reinforce the behaviour, show how it is done, set a performance standard, or compete.

These changes in behaviour were first studied as a phenomenon in 1898, and have since become known as social facilitation, whether the changes in behaviour are an increase or a decrease. In research, a human subject will perform a task alone and in the presence of another person, and the two types of conditions are compared.

It can be seen that social facilitation is defined through exclusion: it is said to occur when no other explanation (competition, reinforcement, cueing, cooperation) is possible. This makes it difficult to say exactly what social facilitation is, except by demonstrating that a behaviour has increased or decreased in the presence of another animal and that other explanations are not possible.

Put in these terms, it might be wondered why anyone would bother studying such finicky and elusive effects. The fact is, however, that social facilitation is one of the oldest topics in social psychology, and lays claim to being the first topic studied in experimental social psychology. In 1898, Triplett conducted a study in which children performed a task either alone or else with another child doing the same task. This was probably the first experimental study in social psychology (see Chapter 2).

Historical precedence does not, of course, fully explain why social facilitation effects should be studied at all. There are several other reasons for this. The most important of these, I believe, is that it deals with the minimal conditions for social behaviour: the difference between doing something alone and doing the same thing with another person present who is not influencing you in any direct way. That is, social facilitation tries to study the

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difference between behaviour in non-social settings and behaviour in social settings.

It is true that even when alone, we can be influenced by what other people have said to us, or how they have treated us in the past. It is also true that in real life we rarely perform a task when alone and then again with someone else present, but social facilitation is more concerned with finding out the most basic responses when other people are present than with how often this might occur in real life.

These two points mean that the study of social facilitation becomes abstract and somewhat artificial at times, but the theoretical points that come out of it outweigh, I believe, the remoteness from direct applications. Until social psychologists can dig down and find the underlying mechanisms by which people come to influence each other, the larger applications and conceptualizations of 'real' social behaviour will merely cover up fundamental mechanisms which are not understood.

Goals of the book

There are three goals I have had in writing this book. The first is to review all the work done in social facilitation from 1898 to the present. This involves reviewing the many theories that have been put forward and showing how they relate to one another, as well as examining the many experimental studies. I have approached this task with a taxonomic method, of collecting the many theories and experimental studies, collating them into groups on the basis of explicitly stated characteristics, and then comparing the groupings of theories to the groupings of experimental results.

In carrying out this first goal, I have tried to group together theories which can explain exactly the same experimental results or observations. Many social psychologists have suggested reasons for the differences found between acting alone and acting in the presence of another person, but few have tried to collate all the different theories and compare them. It will be shown that many of the theories can explain the same results, so they are merely talking about social facilitation using different words. This means that we only have pragmatic grounds for deciding which is the best theory, since they have not been (and probably cannot be) shown to be better or worse by experimental methods. It is for this reason that the results of the many experiments are discussed separately from the theories.

I have also added one more perspective on social facilitation by presenting a new theory in Section 5.5. While the social facilitation theories of the 1960s used the Hull-Spence version of behaviourism, a theory based on modern behaviour analysis has not been outlined in detail before. Modern behaviour analysis is not closely related to the old forms of behaviourism, although few psychologists or psychology textbooks seem to know this. I

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hope this new perspective can be developed further in social psychology since it also provides an excellent basis for applied social psychology, as well as a good foundation to general psychology.

My second goal was to outline some of the history of social facilitation. Besides making fascinating reading in itself (I think), we can use it to follow the development of social psychology from its sociological, philosophical and educational backgrounds, through the beginnings of the experimental methods in the 1920s, to the modern period of social cognition and the experimental analysis of social behaviour. All the major changes which have occurred throughout the history of social psychology have been reflected in the study of social facilitation, since this spans the whole development of social psychology. For this reason I believe that social facilitation makes an excellent platform for teaching the history of social psychology. I would be gratified if this book could make a small contribution towards this, since we are approaching the centenary of its foundation by Triplett (1898).

The final goal of the book was to use social facilitation as a test case to examine social psychology as it is today: what are its strengths and weaknesses; what does it leave out; and does it have a future? Originally, social psychology promised to explain and predict all social behaviour: where is that promise today? What does it mean that many of the theories can explain the same phenomena using different words, and that we have no way of deciding between these theories? Is social psychology unique in this?

Most importantly, I hope that examining both the history and present-day status of social psychology can suggest ways of improving and redirecting its growth, so that it becomes more applicable and more explanatory. In this I hope to see a new social psychology which can directly come to terms with, and help to shape, the study of social behaviour in the next century.

Plan of the book

The plan of the book is quite straightforward, although I depart from the traditional approaches to social facilitation in many ways. The first section deals with the development of social facilitation research from the very earliest work of Triplett (1898) up to the major paper of the modern period, that of Zajonc (1965), which revitalized research and had a huge impact in producing new theories and experimental studies. With few exceptions (e.g., Blank, 1979), the story has been that the early research was poor in content. I wish to depart from tradition and suggest that almost all the phenomena and explanations for social facilitation were identified prior to about 1935. The experimental tests before this time were, however, ambiguous and do not tell us much about social facilitation.

The second section of the book examines the different theories which have been proposed for social facilitation effects, and groups them into three

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categories. Some of the conceptual links between the theories are developed during the presentation in those chapters, but more are given in Chapter 9, which examines the theories as a whole and suggests which phenomena can be found in the social facilitation effects.

I depart again from the traditional approach in an interesting way when looking at all the theories of social facilitation together. The traditional view has been that there is a phenomenon of social facilitation whereby an animal increases or decreases its behaviour in the presence of another animal, and that this phenomenon is related to some other areas of social psychology. My view, after examining all the theories and data, is that the only thing which can distinguish social facilitation is the setting itself. The responses of the organism are purely functions of the setting and past experiences in that setting. The responses are the same as those that occur in other related areas of social psychology, the only difference being that those other areas change the setting slightly, and therefore change the parameters. In this rather strange sense, *the phenomenon of social facilitation is in the setting rather than in the animal's responses*. This will hopefully become clear throughout Chapters 9, 10 and 11.

The third section of the book reviews the experimental studies of social facilitation, looking very carefully at the smallest details of procedure. Included in this is a review of the studies which have used nonhuman animals. This has not been fully reviewed before, and shows some effects (such as disinhibition) which are hardly ever suggested as explanations for human social facilitation effects. There has been little animal social facilitation research over the last ten years, and I hope that this review might stimulate further work. To help with this, criteria for definitions of the different phenomena found in the animal studies are given in section 7.1.2.

Chapter 8 then reviews all the experiments using human subjects, with the taxonomic method of defining criteria and classifying the studies. Also included in the third section are studies comparing behaviour alone and behaviour in front of a mirror, in front of a camera, and with a computer. These have not been reviewed together before.

The final section of the book discusses the relationships between social facilitation and other areas of social psychology. These include many studies which come close to being social facilitation studies but which look at slightly different variables and settings. A comparison between these effects and social facilitation effects is useful to both areas of research. The concluding chapter summarizes the position of modern social psychology, using social facilitation as the test case.

It is hoped that by the end of the book the reader will have a broader understanding of social facilitation research, the history of social psychology, and of the future of social psychology itself.

I The history and development of social facilitation research

2 The early history of social facilitation

This chapter reviews the history of research into social facilitation, which has a long tradition extending back to 1898. Figure 1 shows a cumulative record of all the social facilitation studies from 1898 up to 1983. The major seminal papers on social facilitation were written in 1898 by Norman Triplett, in 1920 by Floyd Allport, and by Robert Zajonc in 1965. Figure 1 shows the increase in publications which occurred immediately after those papers.

There are a number of points which will be emphasized throughout this chapter about the historical development of social facilitation research. They will be made here first.

(1) The first point is that the definition of social facilitation keeps changing. In the very early work the term was not used at all. Allport (1924a) coined the term to refer to effects of the 'sight and sound' of another person doing the same activity (now called *co-acting* or *co-working*). Later the term was used for the effects of an *audience* as well. In the work with animals the term referred to many other processes including *imitation*.

One reason that 'social facilitation' kept changing its meaning was that the field of social psychology was developing rapidly during this period. Indeed, the first social facilitation experiment has often been called the first social psychological experiment. As social psychology changed so did the terminology and the topics of interest. In tracing these changes we will, in fact, trace the whole development of the discipline: from the early work based on German educationalists; through the introduction of experimental methods; to modern experimental social psychology.

(2) The second point stressed is that the major explanations of social facilitation that have been put forward in recent years are already to be found in the earlier literature – even if only in a most rudimentary form. Most of these early ideas were not followed up with data collection, and when they were, the experiments were usually inadequate by present day standards.

(3) The final point of emphasis will be to show that a number of phenomena were confounded in the early experimental work. The events that the early writers were trying to explain contained a number of phenomena which in recent times have been treated as separate processes. A major point of the whole book is that there is no single social facilitation

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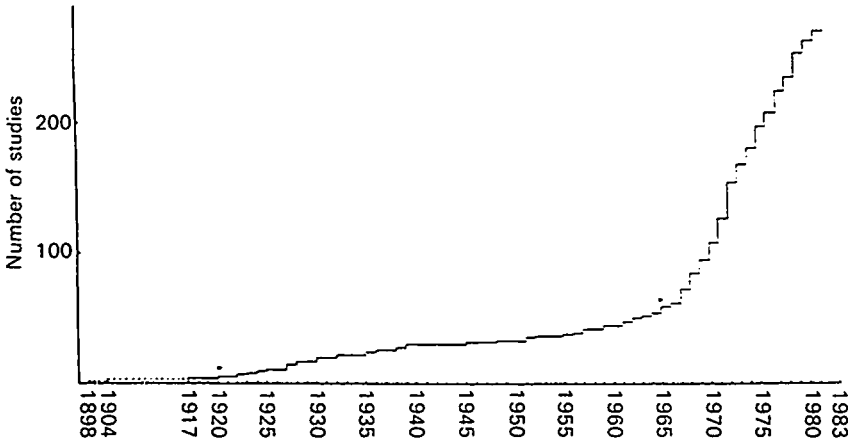


Figure 1. Cumulative graph of the social facilitation experimental studies from 1898 to 1983

phenomenon. It consists of a number of separate processes. This means that almost none of the early experimental work contains clearly interpretable results.

2.1 The early work of Triplett

Triplett's (1898) pioneering experiment has often been called the first social psychological experiment, although this has been queried (Haines and Vaughan, 1979). I will also break from tradition here and suggest that Triplett's experiment was really about competition rather than social facilitation (Vaughan and Guerin, 1992).

Triplett was interested in the observation by many cycling fans, including himself, that paced cycling results in faster times than unpaced cycling. Paced races have a much faster tandem or quod (four people on the one bike) riding at the same time as the cyclist in order to set a quick pace. Faster times seemed to occur when there was pacing as compared to both riders in competition against other riders and to riders racing alone – purely against time.

A second observation Triplett discussed was that the foreriders in paced races did not very often win in unpaced races. So strong was this belief amongst riders, that in unpaced competition races, the riders often held back because they knew the 'pace setter' would not be the one to win. Triplett mentions that for this reason these races are often called 'loafing' races. It is interesting to compare this with the 'social loafing' effect identified by Williams, Harkins and Latané (1979) (see Chapter 10.)

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Using cycling records of the Racing Board of the League of American Wheelers, Triplett provided evidence that pacers led to quicker racing times. He also set out a number of explanations as to why paced cycling might be faster and he conducted some laboratory studies to investigate the phenomenon in greater depth. These will be outlined in turn.

Triplett's explanations

Of the reasons given by Triplett for paced cycling being faster, some are more plausible than others. The first reasons he gave were mechanical ones: the pacer in front provided shelter from the wind or provided a suction to pull the rider behind along and so help to conserve energy.

He also suggested some psychological reasons. Encouragement might have played a role since friends usually rode as the pacers and could thus encourage the other cyclists. The 'brain-worry' theory argued that the pace setters in an unpaced race did poorly because they worried more about whether they were going fast enough and when the others were going to commence their spurts. Triplett claimed that this worry exhausted both the brain and the muscles. It was also suggested that riders following a pacer could be hypnotized by the wheels in front, meaning that they rode in an automatic fashion, leaving more energy for a later controlled performance when they were in front.

In terms of more recent theories of social facilitation, Triplett suggested the possible effects of social consequences (encouragement), social comparison with the other riders, distraction, and automaticity. He believed that these all played a rôle in the phenomenon, but he was most interested in the effect of competition.

The theory of competition favoured by Triplett was a *dynamogenic* one. He listed three components to this. One was based on the contemporary thought of Féré (1887) that: 'the energy of a movement is in proportion to the idea of that movement' (Triplett, 1898, p. 531). Just the sight or sound of another rider is sufficient to increase the idea of riding movements and thus increase the energy of such movements.

In the psychology of Triplett's day it was thought that to perform a movement there had to be an 'idea' of that movement present; this idea 'suggested' the action to be performed. The stronger the idea – the stronger the movement. So the effect of a pacer in front was to suggest a higher speed which led to 'an inspiration to greater effort'. (p. 516)

Such theories were common at this time (see James, 1910), and although they no longer have credence in modern psychology, there are concepts around today which are very similar. One of the most influential theories of

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social facilitation, for example, is that the presence of others leads to an increase in 'arousal' or alertness which leads to a greater effort in responding. 'Arousal' is probably not too far removed from the 'ideas' of Féré. Another recent theory suggests that we compare our behaviour with 'standards' of behaviour. This mechanism is also not far removed from Féré's 'ideas'.

The second of the dynamogenic factors proposed by Triplett was that the other racers can lead to a release of nervous energy which the rider cannot release alone. Again, although 'nervous energy' is no longer a term used in psychology, it is close to the idea of arousal as a general level of activity of the nervous system.

The last of the dynamogenic factors was that the presence of another rider was a stimulus to arouse 'the competitive instinct'. This would today be referred to as a competition effect, the term 'instinct' no longer being used since it adds nothing by way of explanation. While the effects of competition on behaviour are now considered distinct from those of social facilitation, they may be equally important determinants of human behaviour. Furthermore, many experiments in social facilitation have probably found results due to competition rather than social facilitation.

Triplett's experiment

Triplett investigated these dynamogenic factors by using an apparatus consisting of two fishing reels which turned silk bands around a drum. To complete one trial, a flag sewn to the silk band had to travel four times around the wheel – the equivalent of sixteen metres. The time taken to do this was measured. Triplett presented the results for forty children who had six trials each. The trials alternated between working alone and working two at a time in competition. The results were broken down into those who performed slower in competition, those who performed faster in competition, and those little affected. Of the forty children, twenty were faster in competition, ten were slower, and ten were not affected.

While these results do not suggest an overall positive effect of competition, Triplett drew some conclusions from the data. He interpreted the faster twenty subjects as showing the effects of both 'the arousal of their competitive instincts and the idea of a faster movement' (Triplett, 1898, p. 526). For those who were slower in the trials, he presented observations that they were overstimulated, in 'going to pieces' during the race and in 'not being able to endure the nervous strain'. Accompanying this was 'laboured breathing, flushed faces and a stiffening or contraction of the muscles in the arm' (p. 523). Unfortunately, it was not recorded how often this occurred in the other groups. Another feature of the results was that the twenty who showed the strongest effects were also those who were initially slower. So the

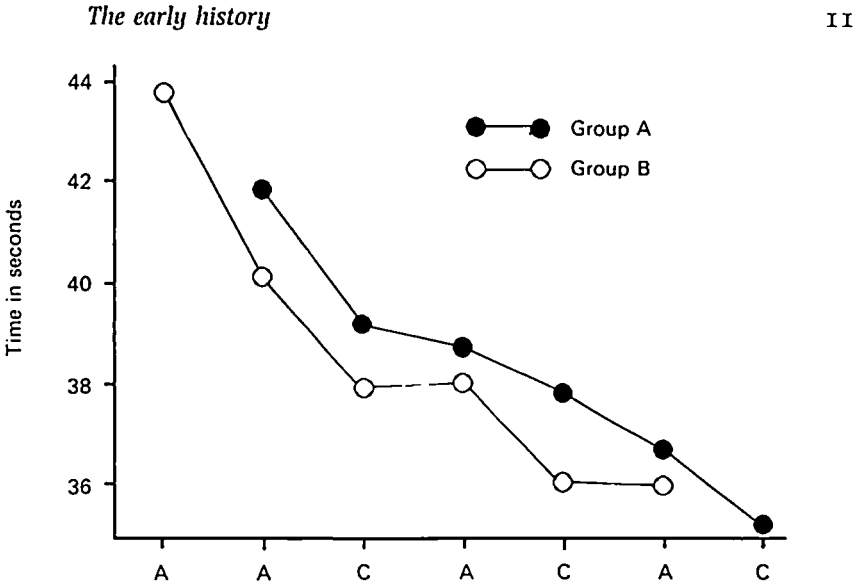


Figure 2. Time in seconds per trial for turning reels alone (A) or in competition (C) for groups A and B. (Data drawn from Triplett, 1898)

conditions may have affected these children more, or there may have been ceiling effects on the method used.

The mean results for Groups A and B are graphed in Figure 2. Overall, there was a tendency to do better on each trial, probably due to practice. When the differences between first, doing a trial alone followed by a trial together are compared with doing a trial together followed by a trial alone, then more of an effect can be seen. Looking only at Group B – as Group A had an extra trial Alone – the three mean differences between Alone (A) followed by Together (C) are 2.52, 1.14, and 1.51. The two mean differences between Together followed by Alone are 0.09 and 0.62. Clearly then, subjects did better going from an Alone condition to a competition condition. Given the emphasis on competing, which is evident in his descriptions of individual performances, it is likely that Triplett's results are due to effects of competition rather than the presence of a co-worker. In present day terms they are not evidence of social facilitation effects at all, since competition is considered to be a separate phenomenon.

The importance of Triplett

While Triplett did not control for all factors, his report is important for some of the distinctions he made in discussion. First, he distinguished between effects due to competition, rivalry and the desire to win, and effects due to just the