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Performing a task in the presence of others versus alone: An exploration of the social facilitation theory according to cognitive and behavioural perspectives

Dr George Varvatsoulias
QTS FHEA PGCertHE CPsychol
CSci AFBPsS CBT Practitioner
RAPPS RoPSiP Expert Witness
High Intensity CBT Therapist
Merton IAPT/South London UK

Abstract
This empirical study deals with the theory of social facilitation. It presents and discusses the idea of performing a task in an audience versus a non-audience condition. To understand the hypothesis of the theory, there was conducted a within-participants study. Participants were asked to complete a star-drawing task by using their non-dominant hand. Half of participants completed the task in the observed condition and half of them in the non-observed one. Then, conditions were counter-performed, in order participants to complete the task in both ways. Through this task has been questioned the prediction how people perform in both conditions in terms of a cognitive-behavioural framework, i.e. how and whether the task performed was subject to cognitive elements of choice (decision-making) and vice versa. People in the observed condition were more motivated to complete the task –thereby, the element of choice as a behaviour affecting decision-making-, than in the non-observed. The error ratings, participants had scored in both conditions, distinguish that people tend to achieve more error scores when performing a task in the presence of others, i.e. when observed by others and what effect that has on decision-making; while they score lower in the non-presence condition, meaning that decision-making as a cognitive element of choice is an important aspect before a particular action to be performed. Also, participants perform better if that is a known task –decision-making as an element one to make a stable cognitive choice-, instead of a novel or complex one –where cognitive choice could be affected by performance observation.

Keywords: social facilitation theory, performance of a task, cognitive-behavioural therapy (CBT)

Introduction

The social facilitation theory is a theory of many aspects. Each one contributes to the same hypothesis, even examining it from a different point of view. As an indication are mentioned the social facilitation aspects of Triplett (1898), Allport (1920), Dashiell (1930), James & Gilbert (1955), Zajonc (1965, 1980), Wheeler & Davis (1967), Henchy & Glass (1968), Zajonc et al. (1969), Cottrell (1972), Zentall & Levine (1972), Borden (1975), Laughlin & Wong-McCarthy (1975), Baumeister (1982), Bond (1982), Carven & Scheier (1978, 1981, 1982), Bond & Titus (1983), Baron (1986), Guerin (1993), Blascovich et al. (1999), Aiello & Douthitt (2001) and

many others. Although, not all of the above refer to social facilitation directly, they do explain aspects relating to that. Such aspects include understandings about facilitation effects and impairment levels, emotions as performance impediments, interpretations about audience observations, pressure under the competition with co-actors, exercises regarding the potential value of individual perception, discussions concerning dominant responses, when a task is performed versus possible inhibitions during that performance, and so on. In this introduction, there will be presented three approaches, for they are considered to be as more referential in the field. These will be, the Triplett's one (1898), the one by Zajonc (1965) and the other by Aiello and Douthitt (2001)[1].

The social facilitation theory has a history of almost 120 years and was first induced by Norman Triplett (1898) in his article: "The dynamogenic factors in pacemaking and competition". In that article, Triplett attempted to explain the topic of Pacemaking and Competition. In order to discuss that subject and relate it to the aspect of social facilitation, he conducted two experiments. The first was about bicycle racers and the second about children turning a fishing reel. In the first experiment, he presented a chart with three curves: the lower represented the record of distances given in the non-paced efforts against time; the middle curve represented the paced race against time and the upper curve the best time in competition races (Appendix 1)[2]. The second one constituted of six trials, each of which had been practiced prior to conducting the main experiment. There were 20 subjects (children) taken part in the following order: first, there was a trial alone, then, a trial by competition and finally, the six efforts, three in the alone condition and three in the competition condition. After both experiments, he concluded that cyclists were performing their task faster, when with others versus cycling alone, whilst children were reeled faster when fishing with others, than otherwise. He also concluded that during both experiments the presence of others as co-actors, in relation to the individuals performing both tasks, was enhancing the performance of the rivals participating, thereby summarizing that, performance is different to a person, when it is acted with others instead being performed alone (Appendix 2: letter 'a' stands for alone; letter 'c' stands for competition).

The other presentation of social facilitation theory comes from Robert B. Zajonc (1965) through his article: "Social Facilitation: A solution is suggested for an old unresolved social psychological problem". Zajonc in his paper discusses the aspect of individual influences between actors and he looks to interpret the impact coming out of social relationships. He believes that the forms ensuing from relationships are very difficult to be explored, for they depend on inter-individual effects of each other's behaviour, as well as on aspects of competition and conformity to same or different group norms. Social facilitation theory, for him, refers to attempts made towards explaining inter-individual effects. He discusses the performance of people under various kinds of social norms and adaptability. Audience effects and co-action effects is the understanding of social facilitation, according to his respect. The social facilitation theory is related for him to the observation of behaviour taking place before passive presents. On the other, it refers to an active involvement of both the individual and others when performing the same terminus. For Zajonc, people engaged on a task in the presence of others are likely more adept towards performing a task than otherwise.

[1] References to the theory of social facilitation complete around 1990s. Explanation to this is this theory is not continued to be studied or researched simply because the understanding of it refers to behavioural aspects of observation and not cognitive ones. In the present paper, my aim is to show that cognitive elements to observation are important too, for they explain how behaviours in performing tasks take place.

[2] All appendices (apart from No. 4) refer to the tables used by the named authors of the papers. The reason is readers to have a look to the variables of the studies as well as the inferential results authors came across.

The final article, written by John R. Aiello and Elizabeth A. Douthitt (2001) is titled: "Social facilitation from Triplett to electronic performance monitoring". It discusses what up today has been said and proposed on that theory, as well their personal understanding and suggestions on the issue involved. The understanding of social facilitation in that paper refers to the personal performance skills, when others are absent compared to be present. Social facilitation hypothesis for them challenges a person's adjustment with or without others, when performing a task. Social facilitation deals also with performance impairments, when the task needed to be worked out can be considered as difficult as well-cognitively organized in order to be completed. For this theory to be accurately understood, it is taken into account a person's apprehension and evaluation of the task, as well as a number of potential mediators towards that objective. Such mediators are drives and cognitive processes, as well as trait factors that challenge the stability or not of a personality. Aiello and Douthitt consider that the aspect of social facilitation is currently impaired in itself, for it is limited to elaborate its understandings, because of the many and different parts of the theory in this field. In their article, they present a brief history of the theory. They describe many of its relative aspects, so to discuss where the theory in itself stands today. They also criticize the theory and describe its problems. On the other hand, they provide an account of its framework for future research and conclude their presentation by discussing the idea of electronic performance monitoring which extends social facilitation theory to contemporary human workplace (Appendix 3).

In cognitive-behavioural therapy, decision-making explains cognitive elements of choice related to particular actions. Decision-making processes differ when choices on tasks are performed in the presence of others versus alone (Yechiam et al., 2008). When individuals perform tasks on their own, thinking is triggering decision-making processes that are susceptible to choices of minimized success (Ariel, 2014). When individuals perform a task in the presence of others, thinking is triggering decision-making choices that enhance achievement and success (Mihyeon, 2011). In the first case, decision-making influences the outcome of the task; in the second, decision-making is influenced by performance anxiety, the outcome of which relies in the likeness or not of others (Newell & Shanks, 2014). Decision-making in a cognitive-behavioural perspective refers also to the idea of core beliefs individuals find themselves subject to. By 'core beliefs', it is meant one's understanding of oneself subject to personal schemas and early experiences which continue to influence an individual in the here-and-now, such as 'I'm a failure', 'I am not good enough', 'I am unlovable', etc. Core beliefs also explain one's understanding how others see him/her, such as 'others think I am stupid', as well as one's relationship to one's current environment –the environment one lives-, such as 'the world is against me', etc. The context of 'me, me and others, me and the environment' is the framework where decision-making takes place and whether problem-solving is believed to be effective or not (Wills & Sanders, 2013).

In this research, what will be attempted would be to investigate whether decision-making and choice have an impact on the performance of a task with or without the presence of social facilitation. For this reason, the hypothesis to be tested will question whether social facilitation theory refers to the aspect of performing a task with and/or without the presence of others. It will therefore be proposed that, people performing a task are likely more capable of doing that in the presence of others than carrying it all out by themselves. In this consideration, it is predicted that once the individual is familiar with the task, the inhibitions arousing by performing it before others will be less or none, and not the opposite. In line with the former, an individual performing before others 'succeeds' in more error scores versus alone. Also, by experiencing none or less inhibitions by efficiently performing the task, one is likely more vulnerable in 'stepping back from success', when the task is unfamiliar to oneself, thereby the concept of impairment and its connection to the theory of social facilitation (Uziel, 2007).

Method

Participants

Participants were students recruited from the UEL (University of East London), as well as personal contacts. Their mean age is 31 years. The number of males taking part was 8, whilst the number of females 24. There were more female participants compared to males the reason being the random sampling process followed. If it was a categorical sample, equal gender numbers would had been recruited. During random sampling, more females came to be recruited, for, on one hand, in this kind of sampling process equal numbers in gender is not the case, whilst on the other determination in recruiting same number of males and females might not always proportionately allocated (Hoffmeyer-Zlotnik & Krebs, 1996).

Design

There will be conducted a within-participants or a 'repeated measures/related design' experiment. That means each participant will perform both tasks separately. The 'within-participants' experiment, although more advantaged for the experimenter, it is nevertheless difficult sometimes to avoid order effects that are related to participants and the experiment itself. Order effects that could be pinpointed are familiarity with the task, or practice and boredom effects. In order for any confounding variable to be avoided, if possible, there will be introduced counterbalancing. Half of participants will try the 'observed' condition and half the 'non-observed'. To complete the experiment, participants will change turns. The second half will try the 'observed' condition and the first half the 'non-observed'. Through counterbalancing any effect will be spread across both conditions of the independent variable. Thus, it will not constitute confounding variable. The independent variable will be the experimental condition 'observed-not observed' and the dependent variable the errors scored.

Material

The material to be used for this experiment will be a star drawing –see Appendix 4- (two copies for each participant: one for the audience section and another for the non-audience).

Procedure

Participants were informed that the objective of the experiment is to question the effects of a specific task performance in an audience and non-audience condition. The task will be performed by drawing a star with a hand other than the dominant one. Participants will attempt to draw a line towards sketching the star as straight as possible. They will also be asked to do it as much as quickly as they can, attempting also to avoid errors of inaccuracy. Participants will perform the task both in the 'observed' and the 'non-observed' condition. Turns will change so to complete the task in both conditions. In the first condition, participants need to draw the star in a quick matter of time and then the experimenter will leave from their sight, so to repeat it all alone. Participants in the second condition will follow the other way around. When the task has been performed, the experimenter will thank participants for their participation and cooperation in the experiment. After the task has been accomplished, the experimenter will make a note of the gender of each participant, so to include it to the data analysis, as well as a note overleaf for each of both star drawings: one named as 'observed' and other as 'non-observed'. Upon completion of the experiment, the experimenter will count the error scores of both the 'audience-non audience' conditions, in order to mark two error scores for each participant that will be used for the results and presentation of data through the SPSS.

Results

Table 1: Descriptive Statistics

Mean and standard deviation of age, gender, audience/error scores and no audience/error scores of participants

	M	SD
AGE	31	9.42
GENDER	1.75	.43
AUDIENCE/ERROR SCORES	31.12	12.25
NO AUDIENCE/ERROR SCORES	12.40	5.72

The observation of both conditions (audience–no audience) leads to a further investigation of the relationship between data, in order conclusions to be drawn inferring to them. The second table presents statistics needed to be taken into account. The fact that participants have shown that performing in the audience condition, they score higher error rates versus otherwise outlines that observation is the parameter, or the predictor, as we will term it in the discussion section, influencing performance during both audience/no-audience conditions. The latter is evident by looking at the respective error scores achieved: 31.12 and 12.40.

Table 2: Inferential Statistics
Paired Samples t-test

95% Confidence Interval of the Difference		t	df	Sig. (1-tailed)
Lower	Upper	9.9	31	.000
14.8	22.5			

Through the descriptive and inferential statistics there has been made clear that:

2.1.1 The mean related to the age of participants is 31 and the standard deviation is 9.42.

2.1.2 The mean related to both genders is 1.75, whilst the standard deviation .43.

2.1.3 The mean error score for the audience condition is 31.12 and the standard deviation 12.25

2.1.4 The mean error for the non-audience condition is 12.40, whereas the standard deviation 5.72

2.1.5 It is stated that the 95% confidence interval for the estimated population mean difference will fall somewhere between 14.8 and 22.5.

2.1.6 The t-value (9.9) shows that the difference between the two conditions is not a result of sampling error.

2.1.7 In order to receive an exact probability of the obtained p-value (.000) it is needed to change the last figure (0) to 1. Once this has been changed it is appeared that the p-value is less than 0.001. That means that, there can be found only one chance in a thousand that this result is due to sampling error. The p-value, according to the results obtained, is less than 0.05. In other words, the likelihood of 0.001 is <0.05. The p-value refers to the probability of the obtained t-value, meaning that the result is an outcome of a sampling variation. It is also stated that, although SPSS is giving the significance level as two-tailed, by default, the results in relation to both conditions speak of a one-tailed hypothesis. That means, the experiment conducted, refers to a directional hypothesis (Dansey &

Reidy, 2011) which defines the prediction of a relationship between two conditions, in relation to ratings of error scores arousing under both of them.

2.1.8 The degree of freedom is 31 and implies that the error scores can vary without altering the sample size (32), thereby almost in equation. In other words, for a within-participants design, degrees of freedom will appear one figure less than the number of participants.

2.1.9 The presentation of the results obtained, according to an APA format, looks as follows:
$t(31)=9.9$, $p=0.001$
$0.001=1‰$ $p\leq0.001$
0.05 $p\leq0.05$
0.01 $p\leq0.01$

It is important to note in this instance that participants the way they have performed the task, and were found to support similar findings in earlier social facilitation studies, that it is not the task that affects performance in the presence or not the presence of others, but their observation when this task is carried out. In thinking of this instance differently, if in an audience condition, participants were performing a task, but without directly observed by others, i.e. if others were present while one was performing a task but indirectly observing the actor, scores during the presence of others would probably demonstrate low error rates as in the non-presence of an audience (Qu et al., 2015). An explanation to that could be that the presence of others, versus not, is not the condition that influences actors' performance, but whether their presence or non-presence is active in view to the degree of observation spent during watching the task performed.

Discussion

Though the hypothesis of the study it is supported, and the understanding drawn could lead to the conclusion that results obtained do not provide a better interpretation compared to original study-ies, what I would like to stress is that the new element incorporated in this study is the fact that cognitive and behavioural perspectives have been taken into account; an element that hasn't been explored by previous researchers with regards to social facilitation theory.

The latter explanation on one hand raises new considerations about social facilitation theory as to the reasoning individuals decide upon concerning performing a task in the presence and/or not of others; whereas on the other that the degree of performance may well be triggered by the predictor of observation, both if the audience is passive or active when watching actors performing tasks.

Such new consideration for social facilitation theory, though does not come with new evidence as to the support of hypotheses –since, so far all major studies on this topic have concluded the support of the initial hypothesis- it nevertheless provides a better cognitive elaboration in the explication of reasoning from a cognitive point of view in terms of decision making as well as behavioural integration –i.e. how performance of a task could relate to actions that are engaging individuals performing tasks in the presence or not of others.

The former explains that competitors, or performers, of tasks approach tasks having considered of possible outcomes of own performance, thereby the choice to endeavour and complete it. In other words, what is new in this study, and supports previous hypotheses on social facilitation theory, is that cognitive elements which integrate participants' competition on given tasks, such as observation during passive or active participation with or without the presence of others, predispose how competitors are going to perform before carrying out the task.

This new consideration refers to what this paper, on one hand, offers to a modern understanding on social facilitation theory: that of predisposing cognitions that relate to a perceived outcome of an action, which if successful competitors are likely to compete, whereas unlikely to compete if opposite case would be them to fail.

To support this idea is through the findings collected in this study, i.e. the fact that participants performed lesser in the presence of others, rather than performing the task otherwise, means that what makes participants to attempt a better effort when performing in the presence of others is analogous to the predisposing cognition that success will the case for their effort if they were to be minimally observed by an audience –an understanding about performing well so that decision-making to be predisposing the outcome to be constructive as to the behaviour undertaken so a task to be completed.

On the other hand, once the task has been decided to be performed, the focus of individuals to the behavioural integration of it, could mean an expectation of outcome to prove engaging against the effort to be spent. In keeping that in mind, individuals who commit to a performance, observed by others, could assist performers in struggling more efficaciously in completing the task with less possible losses.

In taking the above discussion into consideration, the fact that the number of participants is small does not need to explain gender sensitive results, first because the aim of the study conducted did not include this idea as part of its rationale, and second because its objective was to regard how cognitive changes with respect to choices people make can prove positive, or not, to the effort put forward in terms of a behavioural activation following decision-taking.

Also, the fact that female participants were more compared to their male counterparts, is also an evidence relevant to the rationale of the study which concerned the understanding of cognitive predisposing factors towards behavioural activation through implementation of a social facilitation performance.

The mean age for the total number of participants (31) describes a normal spreading out of the overall sample used. Their age range is from 18 to 54 which connotes that their percentage rate is something about $\geq$ 70%. In other words, the sample age of those taken part in that experiment is more or less normally distributed.

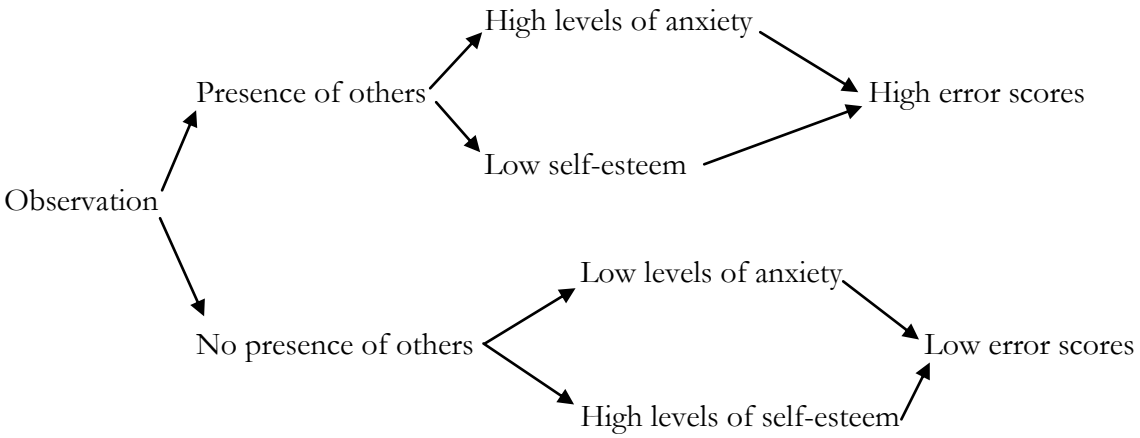
The gender distribution, on the other hand, seems to be skewed, leaning towards females. Females are more than males, which means, there is a percentage of about $\geq$ 75% counting against the male participants.

The mean error scores, in relation to both conditions, support the social facilitation theory. People, in performing a task in the audience condition, tend to score more errors, than fewer in the non-audience one. An explanation to more error scores compared to less, lies with the cognitive hypothesis that individuals when observed from others during cognitive tasks they put much pressure unto themselves to perform better for the reason observation is regarded an obstacle towards clear decision-making as to the performance of a task. Added explanation to the latter, is higher levels of anxiety followed by low levels of self-esteem, particularly by the fact if observation of others during tasks other perform is more intellectual or complicated, as in the case of the star-drawing task.

On the contrary, the opposite is true, for it eliminates observation anxiety. One by performing a task alone, even if such a task could be difficult, there are low levels of anxiety

scored because observation is not the case. The way, cognitions operate during performance of a task during observation from others can lead to avoidant behaviours as to the accomplishment of a successful task performance, thereby the failure in completing it with minimal error scores. By that it is meant that observation operates as a predictor in performance fluctuating levels of anxiety and self-esteem when participants perform a task in the presence of others versus not.

To use a diagram to illustrate the previous paragraph as to the error scores participants could perform, this would be as follows:



The rationale and the hypothesis of this theory support the prediction and maintain that social facilitation understanding is in favour to performing a task when observed, versus non-observed. In considering the error scores in both conditions, the prediction underlined is true. It is also argued that through the related t-test ninety-five out of hundred people will be found between higher rates of error scores as obtained in the audience condition. On the other hand, the likelihood accomplished has not been obtained due to sampling error. In line with the latter, only a chance out of a thousand could support the likelihood between the two conditions, due to sampling error. In other words, according to the results, error ratings participants had scored occurred due to manipulation and not due to chance. The confidence interval has almost doubled from the lower to the upper bound which means the range between them is more or less large.

Also, there are no zeros in the confidence interval figures, implying that if there was a different sample of participants to perform the task in the audience condition, there would be unlikely to obtain lower error scores. The hypothesis stated, is not a two-tailed one, but one-tailed instead. This supports the prediction of obtaining more error scores, when in the presence of others, than in the non-presence one. The directional hypothesis relates to the aspect of error scores in either condition. The experiment conducted followed within or related-participants design. One-tailed hypothesis in this experiment refers to the inter-related dependent variable, which is the error scores obtained under the same performed task (star drawing).

The report of findings supports the theory of social facilitation. However, by considering more carefully that theory, it is maintained that an understanding coming out only from the error scores rated, or the idea of performing a task, is not as much accurate to accept. In other words, the present hypothesis would need to be distinguished under other factors which will explore this theory in depth (Steinbach, 2014). These factors can be underlined as 'co-actors' with regards to performing a task in the presence of others. That could imply that, in the audience condition alienated factors may inhibit the subject by drawing his/her attention to sounds, smells, or voices, for instance, co-occurring (co-actors) at the same time, and obstructing the

participant's attempt to perform the task effectively (Ryan & Deci, 2008; Tedescoe & Patterson, 2015). In such an event, what a participant is cognitively obstructed by is the ruminative thinking deriving from his/her concentration on something, other than the one he or she has focused on at the time of performing that particular task. In this way, one demonstrates lack in the facilitation of self-help interventions, such as concentrating on a specific task, which decreases also one's mood from the 'performance' perspective of it (Watkins, 2009; Watkins et al., 2011). Another aspect is observation. If the subject is observed, while in the audience condition, and that means, if others were to pay considerable attention in what one would perform, that would also indicate an increase to error ratings, regarding the task performance (O'Brien, 2003). By considering factors like the ones above, the outcome obtained from both conditions refers to the aspect of confounding variables which work towards the arousal of inhibitions and impairments on the side of an individual. The more the audience's presence, the greater the error scores are likely to incur; whereas the less the audience's appearance, the less the error scores accumulated, when a task is performed (Steinbach, 2014).

Those factors would also implicate a cognitive obsession against the effort participants had to focus on. By 'cognitive obsession' it is implied a cognitive and behavioural impediment to the task itself, which doesn't assist to managing and completing it fully (Newman, 1994; Zoellner et al., 2008). In cognitive-behavioural therapy, such impediment has an important understanding for the operation of human mind under a stressful situation. It is a stressful situation, because it indicates the presence of an event within an already existing other, such as riding a bike to a particular direction in the presence of others and getting obsessively concentrated –ruminative thinking- on another event, such as sounds, smells, voices, which could remind a participant of a particular experience one has had in the past. In a cognitive-behavioural perspective what could help an individual against rumination, is a cognitive distraction from over-thinking, such as focusing more on the task in hand via alternatives ways to achieving it (Deary et al., 2007; Teismann et al., 2012). In such a cognitive appraisal, a participant may lower down his pace of riding, or not pay attention to the presence of an audience watching him/her performing a task. Such a co-actor of an event may slow down the operation of cognitive abilities that associate to attention, perception, and/or memory, for the performer has behaviourally chosen (Taatgen, 2013) –change of focus and concentration from task- a different task to think of –that of sounds, smells, or voices, to refer to the previous example.

By performing a task before others, it increases the impairment levels of the subject towards completing the task. A participant is inhibited to score more errors with an audience, than in the opposite condition. An inhibition coming out from such an experiment is the idea of the demand effect (Dansey & Reidy, 2011). The demand effect is concurrent to both conditions because of the relationship between experimenter and participant. It refers to the confounding indication that participants comply to follow the instructions laid down by the experimenter, in order to perform in accordance with what they were told, rather than with what they would normally do, in case there wasn't such an experiment in place. That could mean, results may not address the purpose of the experiment, but the underlying prediction instead (Zajonc, 1965). In order for the prediction to clearly follow the rationale expressed, the conduct of the experiment should attempt to avoid the demand effect. One could conduct an experiment by trying people to perform an already known task, and then a task they know absolutely nothing about (Zajonc, 1965). In the first case, the experimenter will be able to discuss the results of that under the understanding of skills participants possess; in the second, the experimenter should examine participants under a task not of their general knowledge: in other words, under a novel or complex task. In both cases, the experimenter will be able to understand how participants perform, so to draw conclusions from his findings more applicable to the prediction supported.

The demand effect in both cases will be weakened because participants will score different error ratings, in relation to their different performing abilities.

In line with the last two paragraphs, the aspect of performance is of crucial importance in the case of acting/co-acting of a particular task. Cognitively speaking, 'performance' refers to the understanding how a task should be exercised, i.e. which aspects of cognitive checking should be there so performance to operate. Examples could be comprehension of the task; comprehension of the order a task to be accomplished; comprehension of the avenues to be followed so that a task to meet a fruitful culmination. Behaviourally speaking, 'performance' means that a participant chooses in which ways to try the task; also, that he or she develops a plan his or her choices to be in conjunction to the task to be performed; also, that he or she by practicing it would be able to see alternatives to the performance towards a successful implementation of it.

In line with the above, Zajonc (1965) explores it further by suggesting a combination of both the 'performing-a-task' conditions: a person in order to understand how his behaviour on anxiety level, as well as his errors could be less accomplished, if the task were to be known, should study it all alone and then come and perform it before others. This means that, the more someone is well acquainted with the topic, the less the anxiety arousal will be in performing his skill. On the other, he also underlines the fact that, that kind of understanding has never been put under the microscope –in other words, under experimental procedure. It is also likely that, in the presence of others, an individual feels more comfortable to increase his capacity through performing a task. In some ways, however, the dealings are not referring to simply engaging an individual to perform a task, whether effectively or ineffectively, than imitating the process of doing so. Then, what it is meant to be accounted for in a more considerable way, are the consequences which should be further investigated, in order to explore more parameters working underneath that discuss the latter (consequences) with the former (presence of others), so to be thereof scrutinized and thereby integrated.

In elaborating this understanding by Zajonc (1965) in cognitive-behavioural terms, we have a skill in the practice of cognitive-behavioural therapy that is called 'application of change methods' in which a consideration of for-and-against alternatives can provide consolidation or change of appraisals being decided by the client to be thought of. 'Application of change methods' is a conceptual comprehension about what has been decided and whether decisions made could lead to problem-solving (Blackburn et al., 2001). According to Zajonc's understanding (1965), coming to perform an action is a complex procedure. There is needed quite a good knowledge of the task to be performed, such as identifying about its constituent parts and how these can assist a comprehensive performance (cognitive organization of the human mind in CBT terms); also, consequences of such a performance of a task might have to be individually integrated (functional organization of the human mind in CBT terms), so to be meeting one's needs and expectations concerning such a task; and finally, whether the outcome of such performance could help the individual learn what he or she did and what improvements one has made in one's own life, so such a particular performance to be selected for in the here-and-now so the individual to further develop his/her cognitive and behavioural capabilities when employing it (Knapp & Beck, 2008).

The social facilitation theory deals with the effects of social presence on individual performance. However, different cultures elaborate different frameworks for social facilitation. Even the term 'social' should be questioned to facilitate or impair the theory among different aspects about life and the communication with others. Different cultural understandings develop and deepen the social facilitation theory. In this way, social facilitation theory becomes more flexible and employs different languages as well as traditions. On the other hand, it becomes also more flexible to different cultural understandings and personality characteristics that may vary from

between traditions. Social facilitation theory should follow the various understandings and changes of societies, including differing cognitive and behavioural choices when facilitation of a performance is in place, so to track different social constructs. In this way, a broader approach and application of the social facilitation consensus could refer to individual cognitive and behavioural cultural differences, as well as to different cognitive and behavioural frameworks of perception to the social apprehension, exercised in relation to cognitive factors and traits of personality.

Strengths and limitations to this study could be identified as well. First, the fact that the main hypothesis to social facilitation theory is being supported after more than 100 years is a practical evidence that this theory is still in effect in human interrelationships. Second, the number of participants who took part in this study could be better to be more, the reason being in this way, the element of observation could be regarded better in terms of gender-differing performance during observation of an audience; an element that could demonstrate whether males as well as females by following different decision-making in the accomplishment of a task could rate more scores versus otherwise. Also, as to the hypothesis this study was based, could be better enhanced if observation was to be seen as a predictor with conditions, such as direct observation, and indirect observation, the reason being to explain whether in the presence and non-presence of audience high or low error scores could be achieved during the performance of a task. In a future replication of this study, the element of observation as a predictor when participants perform in the presence or not of others, could provide further evidence to the understanding of anxiety and self-esteem with relevance to high and/or low errors scores collected.

Conclusion

In this study, there has been replicated the hypothesis that individuals perform better in the presence of others versus not. The fact the good performance has been found to be associated with more error scores versus less, when in the presence of others, points to the direction that even the mere presence of others affects decision-making in the performance of an action. That element was discussed in the final section of the paper by considering that the element of observation plays a very important role in the performance of a task. It was suggested that if observation was to be explained under this perspective, cognitive and behavioural aspects of anxiety and self-esteem could also be explored, following scores collected from participants having been observed from others performing a task versus not.

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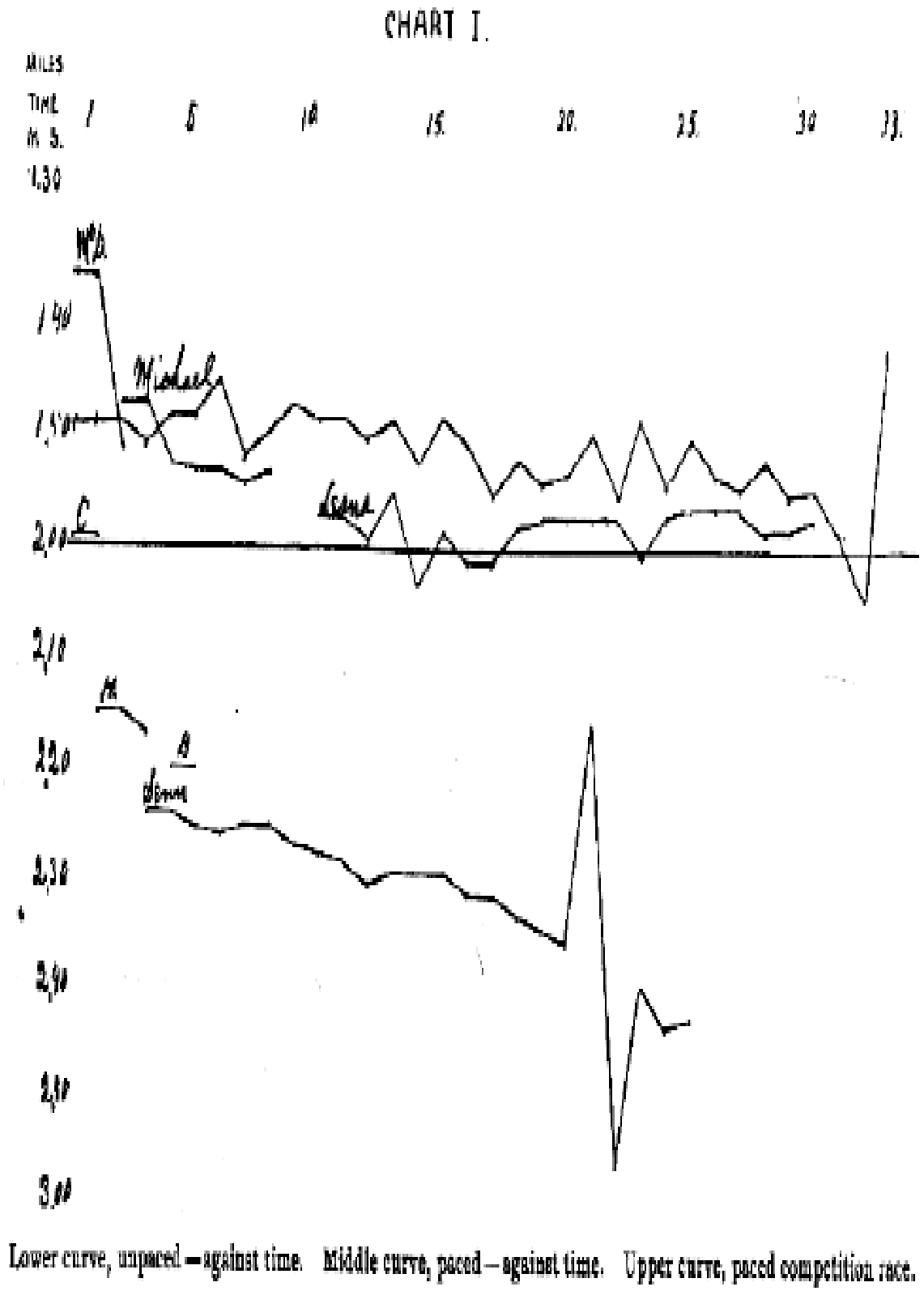
Appendix 1



Lower curve, unpaced—against time. Middle curve, paced—against time. Upper curve, paced competition race.

Appendix 2

TABLE I.

Subjects Stimulated Positively.

GROUP A.

	Age.	A.	C.	A.	C.	A.	C.
Violet F.	10	54.4	42.6	45.2	41.	42.	46.
Anna P.	9	67.	57.	55.4	50.4	49.	44.8
Willie H.	12	37.8	38.8	43.	39.	37.2	33.4
Bessie V.	11	46.2	41.	39.	30.2	33.6	32.4
Howard C.	11	42.	36.4	39.	41.	37.8	34.
Mary M.	11	48.	44.8	52.	44.6	43.8	40.
Lois P.	11	53.	45.6	44.	40.	40.6	35.8
Inez K.	13	37.	35.	35.8	34.	34.	32.6
Harvey L.	9	49.	42.6	39.6	37.6	36.	35.
Lora F.	11	40.4	35.	33.	35.	30.2	29.
Average	11	47.48	41.88	42.6	39.28	38.42	36.3
P. E.		6.18	4.45	4.68	3.83	3.74	3.74
Gains			5.6	.72	3.32	.86	2.12

GROUP B.

	Age.	A.	A.	C.	A.	C.	A.
Stephen M.	13	51.2	50.	43.	41.8	39.8	41.2*
Mary W.	13	56.	53.	45.8	49.4	45.	43.*
Bertha A.	10	56.2	49.	48.	46.8	41.4	44.4
Clara L.	8	52.	44.	46.	45.6	44.	45.2
Helen M.	10	45.	45.6	35.8	46.2	40.	40.
Gracie W.	12	56.6	50.	42.	39.	40.2	41.4
Dona R.	15	34.	37.2	36.	41.4	37.	32.8
Pearl C.	13	43.	43.	40.	40.6	33.8	35.
Clyde G.	13	36.	35.	32.4	33.	31.	35.
Lucile W.	10	52.	50.	43.	44.	38.2	40.2
Average	11.7	48.2	45.68	41.2	42.78	39.	39.82
P. E.		5.6	4.	3.42	3.17	2.89	2.84
Gains			2.52	4.48	1.58	3.78	.82

* Left-handed.

TABLE II.

Subjects Stimulated Adversely.

GROUP A.

	Age.	A.	C.	A.	C.	A.	C.
Jack R.	9	44.2	44.	41.8	48.	44.2	41.
Helen F.	9	44.	51.	43.8	44.	43.	41.2
Emma P.	11	38.4	42.	37.	39.6	36.6	32.
Warner J.	11	41.6	43.6	43.4	43.	40.	38.
Genevieve M.	12	36.	36.	32.6	32.8	31.2	34.8
Average	10.4	40.84	43.32	39.72	41.48	39.	37.4
P. E.		2.41	3.57	3.25	3.85	3.55	2.52

GROUP B.

	Age.	A.	A.	C.	A.	C.	A.
Hazel M.	11	38.	35.8	38.2	37.2	35.	42.
George B.	12	39.2	36.	37.6	34.2	36.	33.8
Mary B.	11	50.	46.	43.4	42.	48.	36.8
Carlisle B.	14	37.	35.4	35.	33.4	36.4	31.4
Eddie H.	11	31.2	29.2	27.6	27.	26.8	28.8
Average	11.8	39.08	36.48	36.36	34.76	34.4	34.56
P. E.		4.61	4.07	3.89	3.71	5.33	3.45

TABLE III.

Subjects little affected by competition.

GROUP A.

	Age.	A.	C.	A.	C.	A.	C.
Albert P.	13	29.	28.	27.	29.	27.	28.6
Milfred V.	17	36.4	29.	29.4	30.2	30.2	32.2
Harry V.	12	32.	32.	32.6	32.6	32.6	31.6
Robt. H.	12	31.4	31.4	32.2	35.4	35.	32.4
John T.	11	30.2	30.8	32.8	30.6	32.8	31.8
Average	13	31.8	30.24	30.8	31.56	31.5	31.3
P. E.		1.9	1.13	1.71	1.7	2.06	1.05

GROUP B.

	Age.	A.	A.	C.	A.	C.	A.
Lela T.	10	45.	37.4	36.8	36.	37.2	38.
Lura L.	11	42.	39.	38.	37.	37.	38.
Mollie A.	13	38.	30.	28.	30.	30.2	29.6
Anna F.	11	35.	31.8	32.4	30.	32.	30.4
Ora R.	14	37.2	30.	29.	27.8	28.4	26.8
Average	11.8	39.44	33.64	32.84	32.16	32.96	32.16
P. E.		3.11	2.88	3.03	2.75	2.69	3.71

Appendix 3

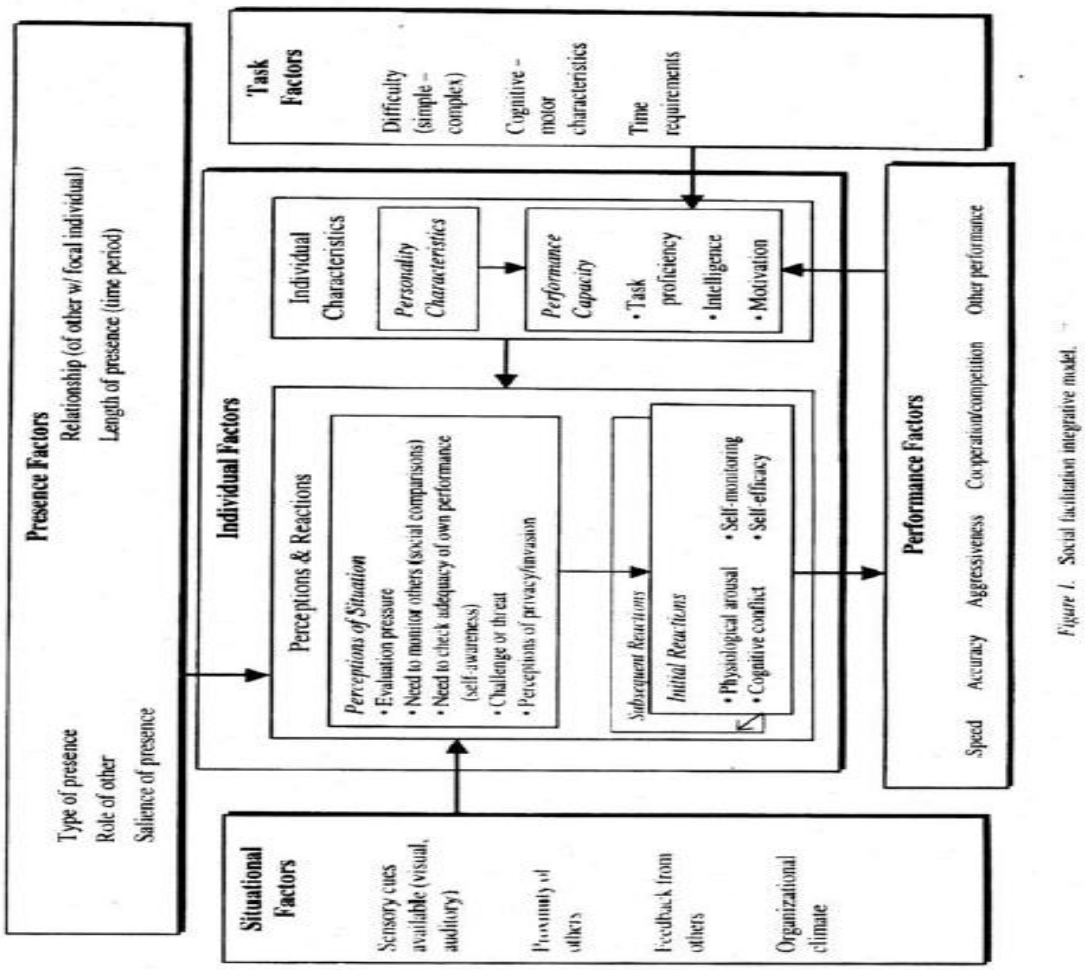


Figure 1. Social facilitation integrative model.

Appendix 4