

Tested Effect of Observation on Over- Claiming During a Collaborative Goal Pursuit

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Abstract

In this research the hypothesis is tested if observation has an enlarging effect on the perception people have of their own contribution, when they work on a collaborative goal. To investigate this, participants (n = 105) had to work on their own part of a group task. The group task entailed to organise a surprise party with three other (imaginary) friends. Every group member had their own task; the task that the participants had to fulfil was to write down two snacks they would prepare for the party. Half of the participants were observed while working on this task, the other half worked alone. After the task, they evaluated their own contribution to the group work. Results showed that the hypothesis was not confirmed. Participants did not have an enlarged perception of their own contribution when they were observed, compared to the participants that were not observed. Alternative explanations and recommendations for further research were provided.

In dit onderzoek is de hypothese getest of observatie een vergrotend effect heeft op de perceptie die mensen hebben over hun eigen bijdrage, wanneer ze samenwerken aan één doel. Om dit te onderzoeken werkten participanten (n = 105) aan hun eigen onderdeel van een groepstaak. De groepstaak omvatte het organiseren van een verrassingsfeest met drie andere (ingebeelde) vrienden. Ieder groepslid had zijn eigen taak; de taak die de participant moest uitvoeren omvatte het opschrijven van twee verschillende snacks om te bereiden voor het feest. De helft van de participanten werd geobserveerd terwijl ze werkten aan de taak, de andere helft werkte alleen. Na de taak evalueerden ze hun eigen bijdrage aan de groepstaak. Resultaten lieten zien dat de hypothese niet werd bevestigd. Participanten hadden geen vergrootte perceptie van hun eigen bijdrage wanneer ze werden geobserveerd in vergelijking met niet geobserveerde participanten. Alternatieve verklaringen en aanbevelingen voor toekomstig onderzoek werden gegeven.

Introduction

We all find ourselves, at one time or another, in a situation where we feel observed and have the attention of others on us. Giving a presentation in front of a big crowd is an example of such a situation. How we react to the presence of others has been a question in the social psychology research domain for more than a decade. Researchers wanted to find out if the presence of others had an impact on people's self-regulation. Which is what Triplett (1889) showed from very early on; another one's presence can have a positive effect on peoples actions. Adolescents could spin fishing reels more quickly when they acted in pairs compared

to when they acted alone. Research in this area has focussed long on the effect of being observed on overt behaviour, but recently it has taken a different direction. The new body of research about the effect of observation on people's actions focusses less on overt behaviour and more on the perception of that behaviour (Boothby, Clark & Bargh, 2014; Shteynberg, Bramlett, Fles & Cameron, 2016; Steinmetz, Xu, Fishbach & Zhang, 2016). These perceptions on actions are malleable and subjective, which has been found especially in group contributions (Brawley, 1984; Ross & Sicoly, 1979, Schroeder, Caruso & Epley, 2016).

The present research will focus on the combination of these two components, namely if another one's presence will have an influence on the perception of an individual contribution towards a group effort.

The Effect of Observation on Behaviour

The presence of others can have an effect on someone's self-regulation. In other words, mere observation of a person can change the overt behaviour that is portrayed during observation. This observation can have both a positive or negative effect, based on the difficulty of the task (Bond & Titus, 1983; Uziel, 2007; Zajonc, 1965). This is shown in research as early as the 19th century performed by Triplett (1889). As well as research by Ringelmann in 1913 (Kravitz & Martin, 1986) shows that the presence of others can have a positive effect. Observation increased the amount of effort someone invested and it increased performance in classic rope-pulling experiments in groups compared to people pulling alone.

Many other researchers followed to test the facilitation the presence of others can have on task performance. A change in behaviour as consequence of someone else being present can also trigger prosocial behaviours, because people will become more self-aware and thus behave more in line with social expectations (Satow, 1975; Sproull, Subramani, Kiesler, Walker & Waters, 1996). For example; people present themselves in a more positive light when they talk to a real person than when they talk to a face on a digital display (Sproull et al., 1996). Satow (1975) found that people donated more money when they had to do it under public conditions in comparison to donating under private conditions. And several studies found that people behaved more generously towards others in economic games when there was a suggestion that someone else was watching (Haley & Fessler, 2005; Rigdon, Ishii & Kitayama, 2009).

However, there is also a negative effect of observation when the task at hand is more difficult (Bond & Titus, 1983; Guerin, 2010; Klehe, Anderson, & Hoefnagels, 2007; Uziel, 2007; Zajonc, 1965). An example of when being observed can lead to worse performance is

shown as early as 1933. Pessin (1933) discovered that more errors were made by students in learning nonsense syllables when there was an observer present.

The reason Zajonc (1965) gives for performance to sometimes increase and at other times to decrease is because of social facilitation and social inhibition, which he explains in his Drive theory. Using the Hull-spence drive model (Spence, 1956), it can be explained that mere observation can cause increased levels of a generalized drive (arousal). This means that observation stimulates habit behaviour. With these increased habit responses, invoked through the presence of someone else, the performer has a tendency to give a dominant and habitual response (Guerin, 2010; Uziel, 2007; Zajonc, 1965). On simple tasks, this is usually the correct response, leading to performance improvement. While performing a complex task, the higher arousal will lead to a dominant response that is usually the incorrect response and thus leads to performance impairment. This means that the presence of others can cause facilitation or inhibition of the correct response, depending on task complexity. These results are confirmed in a meta-analysis performed by Bond and Titus (1983) and Uziel (2007).

All of the previously named studies focus on the effect of observation on overt behaviour, while a new body of research focusses less on this and more on the *perception* of your behaviour when observed (Boothby et al., 2014; Shteynberg et al., 2016; Steinmetz et al., 2016). Recent research shows that observation can create the perception that behaviour that is performed is enlarged (Steinmetz et al., 2016). This was tested in five different studies and tasks, ranging from a playing a badminton match to eating a snack. Results from all these studies show that when people are observed, for example by spectators at a match or a camera when eating, they felt as though their action was magnified. The badminton players felt they contributed more in the match and the people eating thought they ate a bigger portion.

Other research shows that sharing an experience together with someone else, even without communicating, makes it more intense (Boothby et al., 2014). There was no difference between pleasant or unpleasant experiences. Shteynberg et al. (2016) showed a shared experience can also be evoked through a media broadcast, which creates a state of shared attention. If people perceive these media broadcasts as something they shared with many others, persuasive speeches would become more persuasive and unpersuasive speeches would become less persuasive. All of these studies show that sharing an experience with someone, through observation or doing it together, influences how people look back at this experience, like making it magnified or more intense.

Concluding on all of the studies on observation it can be said that the presence of someone else while doing a task can cause people to behave differently and it also changes

the way people perceive their own behaviour. The current research will also focus on perception of behaviour when people experience the effect of observation. In the next section it will be explained why people perceive their behaviour differently when they are being observed.

Shared Reality as Explanation for the Effect of Observation

The change of perception about one's behaviour while being observed can be explained through the concept of shared reality. Hardin and Higgins (1996) explain that an experience without another person being around to experience it with is random and transient. However, if the experience is acknowledged by someone else, it becomes shared and follows a process of social verification and what they call "shared reality". The experience then changes from subjective to objective reality. This means that having a shared reality causes people to not only take their own perception into account, but also that of the observer, which both become validated once they are shared (Hardin & Higgins, 1996; Steinmetz et al., 2016).

To establish a shared reality, people have to communicate their emotions, beliefs and thoughts about situations or objects to each other (Fishbach, Steinmetz & Tu, 2016). For example; people are not sharing the same reality when both are sad, but the reason behind their sadness comes from a different cause.

The reason why people have a tendency to establish a shared reality is because people have the motivation to share their inner states with others to get a better understanding of the world (Echterhoff, Higgins & Levine, 2009; Hardin & Higgins, 1996). When others are also experiencing the same thoughts and emotions it creates the feeling of having them validated (Asch, 1951; Hardin & Higgins, 1996). If this shared reality is denied, it can leave someone feeling very uncomfortable or uncertain. This is shown in the classical conformity studies by Asch (1951). In these studies it was discovered that people rather conform to something the group chooses, but what they do not believe themselves, than to not belong in that group and be the odd one out. That is also the reason why emotions, beliefs and thoughts that are shared with someone else, must be caused by the same object or situation, otherwise this validation process cannot take place.

A shared reality is also a way to regulate the self (Fishbach et al., 2016), because it gives people a way to coordinate goals with each other and start a foundation on which to build a successful cooperation. Research shows if people share information on their representations of a certain task it can enhance decision making and removes psychological barriers to new insights (Van Ginkel & van Knippenberg, 2008). The creation of a shared

reality will therefore enhance their performance as a group. Additionally, having a shared reality is also responsible for creating a bond between people and make them feel as though they have things in common (Echterhoff et al., 2009; Levine & Higgins, 2001). Creating a shared reality can thus cause a positive outcome of different kinds for the people the reality is shared with.

The Part That The Egocentric Bias Plays on Perception of Behaviour

The previous section explored situations in which people perceive their own behaviour when pursuing their own individual goals while someone is observing. Consequently, this has an effect on their behaviour and the perception of this behaviour (Boothby et al., 2014; Shteynberg et al., 2016; Steinmetz et al., 2016). However, people do not only have individual goals they try to obtain, a lot of goals are shared with others (Fishbach et al., 2016; Ross & Sicoly, 1979). As an individual, having a collaborative goal will give rise to different processes, compared to working on an individual goal, in the perception people have of their own behaviour.

Research has shown that when people have to put their share of work towards a common goal, the judgement about their own contribution becomes different (Ross & Sicoly, 1979). The evaluation on their part is unrealistic, because their ego comes into play. Specifically their egocentric bias. This egocentric bias is a judgment error on how people perceive their own actions in relation to others (Ross, Greene & House, 1976). It causes people to look especially at their own contribution when working on a group project (Ross & Sicoly, 1979). Additionally, this egocentric bias causes people to overestimate how other people share their characteristics or understand them (Krueger & Clement, 1994). This overestimation can lead people to believe specific things about themselves that are not reality and use this 'self-knowledge' to generalise it towards the population (Katz, Allport & Jenness, 1931; Krueger & Clement, 1994; Ross et al., 1976).

This egocentrism bias causes overestimation of one's own contribution in all kinds of people and across many different tasks or situations. Ross and Sicoly (1979) studied how responsibility is allocated where people work together in naturally occurring discussion groups, like married couples, a basketball team and student workgroups. Robust results throughout five different studies showed that people have an egocentric bias towards their own contribution and responsibility in shared goals. People see themselves as having more responsibility in household tasks, when partners are asked to divide their responsibilities. Basketball players find that their own team made more important turns during a match.

Lastly, in several different student discussion groups and brainstorm sessions it was revealed that people found themselves to have delivered more input than the other students in the group.

A possible determinant for why the egocentric bias might occur has something to do with memory impairment (Ross & Sicoly, 1979). The results of this study suggests that the attribution of responsibility for tasks most likely comes from the lack of available information on who was responsible at the time of recall. Therefore people focus on themselves first when evaluating the attribution of responsibility, since they cannot recall the responsibility others had for a certain task.

To conclude this section it can be said that people have an egocentric bias when they evaluate their own responsibility in collaborative goals, making them focus more on their own responsibility first. The next section will go deeper into specific egocentric processes when people evaluate their own contribution as part of a group task.

The Effect of the Over-Claiming Bias on Behaviour

The egocentric bias that was explored in the last section is an umbrella term for several different biases, one of which is the over-claiming bias. The over-claiming bias describes how individuals overestimate their contribution to a collaborative goal (Brawley, 1984; Kruger & Savitsky, 2009; Ross & Sicoly, 1979; Schroeder et al., 2016). If individuals have to claim their responsibility in a joint task, over-claiming would cause the outcome to sum up to more than 100% of the total work. Krueger and Clement (1994) discovered that the over-claiming participants committed, could partly be explained by the egocentric bias, because it caused people to focus more on their own contribution than that of others.

The appearance of over-claiming was found in a study named earlier in this paper by Ross and Sicoly (1979), however they did not call it over-claiming yet. They studied how responsibility was allocated between different kind of partners and groups and found that people overestimate their own responsibility across five different studies. Which is exactly what happens during the process of over-claiming. It has since been studied by many other researchers. Across many different studies it is indeed found that people mostly have the tendency to overestimate when they have to evaluate their own contribution or responsibility on a joint collaboration. Next to the over-claiming that was found by Ross & Sicoly (1979) it was also found in tennis dyads for how many important turns in the match they were responsible (Brawley, 1984), in students on how much they contributed in a workgroup and in

visitors in a museum on how much they were responsible for hand gripping a small device (Schroeder et al., 2016).

There are, however, several conditions under which the over-claiming bias will be increasingly present or under which it will decrease. People tend to overestimate the amount of tasks they contributed when there are a lot of total contributions by the group, but they underestimate this amount when the total amount of contributions by the group are few (Kruger & Savitsky, 2009). Additionally, group size has a big influence on how much people in a group will over-claim their responsibility (Schroeder et al, 2016). The bigger the group, the more people tend to overlook the contributions delivered by other group members, as there are more people and contributions to take into account. Schroeder et al. (2016) also found that over-claiming disappears when people first had to consider the contribution other group members. Kruger, Windschitl, Burrus, Fessel and Chambers (2008) explain that over-claiming tends to happen, because people have more knowledge of themselves than they have of the other group members. When people had increased knowledge of the group members, the social comparison between themselves and the group was reduced, resulting in less over-claiming.

Concluding this section, there are robust results that over-claiming bias tends to happen in all kinds of group work and across many different people. Additionally, there are several conditions under which the over-claiming bias increases or decreases. In this current research it will also be tested if the over-claiming bias occurs.

Present Research: Over-Claiming Bias Reinforced Through Observation

The research that is presented in this article explored whether there is a difference in the amount people think they contributed to a group task when they are observed compared to when they are not observed. This means it was tested if the over-claiming bias occurred when people had to work on their own part of a group task and if observation had a reinforcing effect on the bias, meaning that people thought their contribution was even more enlarged.

To test if these effects would arise, participants in this study worked on their own task as part of a group task. The task that was chosen was simple (coming up with two different snacks for a surprise party), because research has shown that when people are observed while performing an easy task the social facilitation effect occurs (Bond & Titus, 1983; Uziel, 2007; Zajonc, 1965). This will then result in an improved performance. To test the positive effect of observation, the manipulation of participants being observed during their task was used in comparison to the control condition in which participants worked alone.

The hypothesis for this research was for people to over-claim their own contribution in a group task and this perception would be increased when they were observed, compared to when they were not observed. The explanations on why it was predicted for the over-claiming bias to happen is because earlier research shows robust effect of it happening across many shared tasks and people when they work on a group task (Brawley, 1984; Ross & Sicoly, 1979, Schroeder et al., 2016).

Additionally it is expected for the magnifying effect of observation to occur in this research, because earlier research on observation shows that people's perception of their own behaviour is malleable. The perception will become altered when there is someone observing the behaviour (Boothby et al., 2014; Shteynberg et al., 2016; Steinmetz et al., 2016). The alteration of this perception is proven to have a magnifying effect, making the task seem bigger or seem like you contributed more (Steinmetz et al., 2016). The reason behind this happening is because having someone else present can give rise to establishing a shared reality between the person who performs the task and the observer. In which the person working on the task takes into account their own perception and that of the observer, making it an additive relationship. This means that the magnifying effect of observation would only happen to a portion of the participants, because some of the participants are alone when they work on the task. These participants have no one to create a shared reality with and thus the magnifying effect will not occur.

In this research, previous literature on the two concepts, respectively the effect of being observed and the over-claiming bias were integrated to provide new insights of the psychological effect of these to identify underlying mechanisms. Never before has the combination of these two been tested. It would conclude on the question if the effect of over-claiming bias and observation already have by themselves will be exaggerated when they are combined. This would mean that this study provides new information on how people perceive their own behaviour when they are in the presence of others, when working together on a bigger project. A lot of the time people work together in groups, but have their own responsibilities in doing so. Examples of such situations are students who have to work on a group assignment or employees at the workplace when they work on a project. These situations mostly come with the presence of another student, employee or perhaps even a boss. This could have an effect on internal mechanisms, which will influence how people perceive their own work in relation to others. Some people might see their own work as enlarged when others are present, others might not. This has implications on how it might be best to work together, either by working alone or in the presence of others, depending on the

preference of how people view their own contribution towards a group task. The results of this study could give answers to the processes that are at work when people review their own contribution, which can then be used as a direction for future collaborative group work.

Methods

To test if the over-claiming bias occurred when people evaluated their own contribution towards a collaborative goal, this study required participants to work on their own part of a group assignment. To test whether observation had an effect on how participants viewed their own contribution, the experiment leader sat with half of the them while they worked on the assignment. The other half of the participants worked on their task while they were alone.

The assignment the participant had to complete as their share towards the group work comprised of coming up with two kind of snacks and their associated recipe for a surprise party. This surprise party had to be organised with three other group members. The others were imaginary friends and were only stated in the assignment for participants to create the illusion of group work. Each group member had a different task: the task for the participants was to write down two different snacks. This task was chosen, because it is not a very complicated task. Participants got a list of ingredients as example of what they could use to prepare a snack and they were not required to make a very intricate and detailed recipe. This was to ensure that the task would be easy for a lot of different participants. As earlier research shows, an increasing effect on performance occurs in the presence of someone else (social facilitation), only when the task is easy instead of complicated (Bond & Titus, 1983; Uziel, 2007; Zajonc, 1965).

Another reason for why this particular task was chosen and why the tasks for the other group members were different, was because this made sure the tasks could not be compared to each other. This then provided a situation that made it possible for over-claiming to occur, because there was not a normative answer that was exactly right. A normative answer, when comparing the tasks would have been possible, would be to divide every task (which were four in total) to be 25% of the total group work.

Participants and Design

For this study 105 students (33 males and 72 females) were recruited at the University of Utrecht ($M_{\text{age}} = 22.3$ years, $SD = 2.6$ years) for a one-factorial between-subjects design (observed vs. alone). Partaking in the experiment was in exchange for test subject hours (Psychology students at the university need to complete these hours in order to finish their

bachelor's degree) or a candy bar. The sample sizes were determined using a similar research that investigated the magnifying effect of observation (Steinmetz et al., 2016). Half of the students were randomly assigned to the control group (n = 54) and the other half were randomly assigned to the manipulation group (n = 53). No data was excluded from analysis.

Materials

Each participant completed the assignment on a computer in a quiet cubicle in the lab at the University of Utrecht. This assignment consisted of two different parts. The first part included the assignment the participants had to complete and the second part entailed several questions about the assignment they just completed.

In the first part it was explained that the participant, together with three friends, had decided to take part in a competition to organise a surprise party. The three other friends were imaginary, as explained earlier, and were shortly introduced to the participant. It was explained to the participant that their group of friends had divided all the tasks that needed to be done in order to organise a great party. The other friends were responsible for designing and sending the invitations, another had to search for a DJ and the last one had to get all the decorations ready. All that was left to do for the participant was to come up with two different party snacks and write down simple instructions on how to make them. To provide them with a guide, ten ingredients were listed in the instructions that could be used to create the snacks. Participants had three minutes to complete this task. This time limit was used to control how much work each participant actually did. This made sure that the time participants spend working on the assignment would be even for both conditions.

After shortly analysing the first 24 responses on the snack assignment, it became clear that not one single participant had enough time to come up with enough snacks and finish their sentences. This led me to believe they could never come up with a good, thought out snack and thus could not find it a very important contribution to the party. This is the reason why the time limit of two minutes to write down two snacks got lengthened to three minutes. Meaning that the participants from then on out had three minutes to write down two different snacks.

The second part of the study consisted of several questions to measure how the participant felt about their own contribution to the group work. They were therefore asked the following questions: 1) how important was your contribution to this party, 2) how meaningful was your contribution to this party, and lastly 3) for what percentage of the total work were you responsible. All these questions had a slider next to them which ranged from zero to

hundred, so participants could give a very specific answer by sliding the button between these numbers. The first two questions were labelled from 1=*Not at all important* and 1=*Not at all meaningful*, to 100=*Extremely important* and 100=*Extremely meaningful*.

Participants were also asked a question about observation, therefore a manipulation check could be performed in the analysis: how observed did you feel when working on the task. Which was answered on a 7-point Likert scale ranging from 1=*Not at all observed* to 7=*Extremely observed*. For more explorative questions each participant was also asked: 1) how good was your contribution to this party, and 2) did you like the assignment. The first question could be answered on a 7-point Likert scale from 1=*Not good at all* to 7=*Extremely good*. The latter could be answered on a 5-point Likert scale, ranging from 1=*Definitely yes* to 5=*Definitely not*.

Procedures

Before students participated, they were asked if their English was sufficient enough, as the assignment they had to complete was written and required participants to answer in English. To test this they were asked simple questions in English, for example about how their day was going and if they thought their English was sufficient enough to answer simple questions. The students were also recruited by their age range, so they had to be somewhat in their twenties. This was done to assure the participants identified with the imaginary group members and the task. Since the study was carried out at a university, it could be expected that mostly students around the age of 18-28 years old would show up to participate. Only two students proved to be older than the expected age, as they were both 31 years old. This would not be a problem for this research, since it is not expected that age would make a difference in the outcome.

The experiment entailed a manipulation of people working alone on a task or working while there was an observer present. In the observed condition, the experiment leader placed an extra chair at the desk before the participant came into the cubicle. This way the manipulation of feeling observed could be provided for the participant, without the participant knowing that being observed was a manipulation. While the participant completed the first part of the assignment the experiment leader sat on the extra chair to observe. The experiment leader left when the participant was ready to start on the second part of the assignment. This was to ensure that the participants did not feel observed while they were answering personal questions, which might have caused them to answer in a social desirable way. In the control condition there was just one chair in the cubicle where the participant completed the study.

The experiment leader was not in the room with the participants, and thus the assignment and other questions were answered without anyone watching.

All of the participants were told they could finish the study by themselves and could walk up to the desk down the hallway, where the experiment leader would be waiting for them. Participants in the alone condition were told this information at the beginning of the study. Participants in the observed condition were told this in between the two parts of the assignment, when the experiment leader left the cubicle. This took away the thought that the experiment leader might be standing right outside the door. Which could consequently lead to participants having an increased feeling of being observed, even if the participant was not in the manipulated condition.

Results

The data was analysed using SPSS Version 24. First I tested if the manipulation (observation versus alone) was successful. The manipulation check, done with an independent-samples t test, confirmed that participants in the observed condition felt more observed ($M_{\text{observed}} = 4.96$, $SD = 1.50$) than participants in the control condition where they worked on the task alone ($M_{\text{alone}} = 2.62$, $SD = 1.69$), $t(103) = -7.51$, $p < .001$, $d = 1.46$, 95% confidence interval [CI; -2.957, -1.721].

Then I analysed if the three dependent questions that were asked on how participants evaluated their own work, had a high enough reliability to see if they were all measuring how large participants thought their contribution was. The three questions were respectively: how important and how meaningful their contribution was and for what percentage of the total work they were responsible. Analysing these dependent questions with Cronbach's Alpha showed that that their reliability was high enough at $\alpha = .77$ to combine them into one new single dependent variable.

Since it was then possible, I tested if the alone versus the observed condition would cause significant mean differences between how participants perceived their performance on the task, with an independent-samples t test. The t test did not confirm the hypothesis that participants perceived they contributed more to the task when they were observed compared to when they were not observed ($M_{\text{observed}} = 39.96$, $SD = 15.97$ vs. $M_{\text{alone}} = 41.55$, $SD = 17.26$), $t(103) = -0.49$, $p = .624$, $d = 0.10$, 95% confidence interval [CI; -8.030, 4.839]. This can be seen in Figure 1.

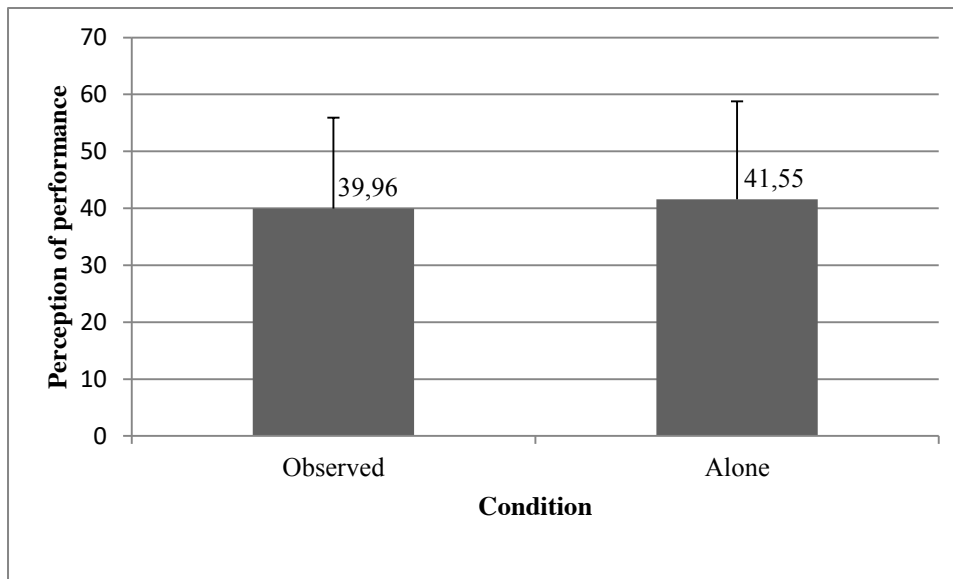


Figure 1. Mean estimates for the participants' perception of how good the performance was as a function of being observed versus being alone. Being observed did not increase the perception that participants performed better on the task than being alone did. Error bars indicate 1 SD.

There were five participants who might have influenced the outcome of the analysis, because four of them were not randomly put in their observed condition and another participant turned out to be aware of the hypothesis. The first four were forced into the observed condition to make sure there was a more even distribution of participants throughout the conditions. Not being randomly put in a condition could have influenced the results, randomisation makes it possible to measure the impact of the manipulation or intervention (observation) on the perception participants had of their own behaviour. However this was not the case for the four participants. The other participant wrote in the comments at the end of the study that the participant was aware of the hypothesis that was tested. Which could have influenced how that person perceived their own contribution on the task, because that person knew what was expected to happen and therefore acted towards that behaviour or against it on purpose. However, repeating the analysis without these participants included showed that the results did not change. Meaning that observation still did not have an effect on the perception of their behaviour on the task, ($M_{\text{observed}} = 40.08$, $SD = 16.04$ vs. $M_{\text{alone}} = 39.96$, $SD = 15.97$), $t(98) = -0.04$, $p = .970$, $d = 0.01$, 95% confidence interval [CI; -6.486, 6.242].

As a result of the hypothesis not being confirmed, I performed additional analysis to explore if other variables were playing a part in the perception of the participants behaviour when they were being observed or not. Being good at the task might have been an influence

on how participants perceived their performance. Research has shown that people perform better on simple task when they are observed, than on complicated tasks (Zajonc, 1965). Presumably because it is easier to answer correctly when the task is easy. This means that believing how good participants were at the task could be of influence in the observation and perception of behaviour relationship. This was tested with an independent *t*-test, where it is analysed if the condition of being observed or not affects how good people think they are. However, the analysis showed that being observed or not did not significantly cause a difference in how participants viewed how good they were, ($M_{\text{observed}} = 3.71, SD = 1.42$ vs. $M_{\text{alone}} = 3.70, SD = 1.32$), $t(103) = -0.50, p = .960, d = 0.01$, 95% confidence interval [CI; -.542, .515]. Because this result was not significant, there is no reason to believe that being good at the task or not would cause a significant difference in how participants viewed their contribution to the task when they were observed compared to when they were not.

Another additional explorative research was performed, where there was analysed if liking the task or not might have an impact. Liking the task could have an influence on how participants viewed their contribution towards the group project, because if they liked the task they probably tried to perform their best, which could lead to a heightened perception of a good performance. However, liking the task or not was not affected by being observed or not, ($M_{\text{observed}} = 2.77, SD = 1.04$ vs. $M_{\text{alone}} = 2.55, SD = 0.87$), $t(103) = -1.20, p = .237, d = 0.23$, 95% confidence interval [CI; -.593, .148]. The same principle goes for being good at the task or not; there is no reason to believe that liking the task or not would cause a significant difference in how participants viewed their contribution to the task.

Subject characteristic of age and gender did not vary across conditions. Which lead to the same reasoning that being of certain age or gender would not cause any differences in how participants viewed their own contribution. This is in line with what was expected, because there has not yet been reported on any differences in perception of performance when observed or not, resulting from these characteristics.

Discussion

This research studied the effect observation has on the perception individuals have of their own contribution towards a group project. It was hypothesised that observation would have a positive effect on this perception, causing people to think their contribution was larger when they were observed compared to when they were not observed. These results were expected because people tend to over-claim their own contribution towards a group task (Brawley, 1984; Kruger & Savitsky, 2009; Ross & Sicoly, 1979; Schroeder et al., 2016), additionally

being observed can have a magnifying effect on the perception of your own behaviour (Steinmetz et al., 2016). The combination of these two concepts lead to believe being observed would even magnify someone's perception of their contribution even more. However, this hypothesis was not supported in the current study; participants did not feel like their performance on the task was enlarged when they were observed compared to when they were not observed. Explorative research showed that subject characteristic like age and gender did not vary across conditions either. Additionally, being good at the assignment or liking the assignment did also not cause different results.

Alternative Explanations

There might be several explanations for why the expected results did not show in this study. The first explanation is that the task might have been more complicated for some participants, resulting in a different perception of their performance on the task. It was expected that the task of coming up with two different snacks was an easy one, given that guidance was provided in the form of an ingredient list and that the recipe had to be kept simple and short. However, if the task was too complicated for certain people, research shows that observation could have resulted in a decreased performance, which might have led to a decreased perception of their performance as well (Bond & Titus, 1983; Uziel, 2007; Zajonc, 1965).

In the analysis it was shown that being observed or working alone did not affect how good people thought they were at the task, which means that being good or not did not have an effect on the perception of their own behaviour. However, there might be a difference between the participants' perception on how good they were at the task and how complicated they thought the task was for them. The exact question on confirming how good of a cook the participants thought they were was not measured. Instead they were asked a more general question about how good they were at this particular task they did. Meaning that the complication of the task was still unclear. This lead to believe that preparing the snacks, so being a good cook, might have been a complicated task instead of an easy one. Because of this, participants could have evaluated their contribution towards the group project as less good when they were being observed. Nonetheless, since the exact question on confirming how good a cook the participants were was not measured, it is only speculation as to whether this might have affected the results.

Another reason for why the task might have been complicated for participants is because of the time frame of three minutes they had to complete the task. To have a short amount of time to complete a task caused a lot of stress in the participants, which lead them to

draw a blank while trying to come up with good recipe ideas and write them down on time. Research shows that when people have to perform under time pressure they rely on intuitive thought (Edland & Svenson, 1983), which is what Zajonc (1965) explained as habitual behaviour as a result of arousal. On a complicated task, because of the time pressure or not being a good cook, might then have resulted in a decrease on their performance. Which could have indirectly led participants perceive their own contribution as less large.

Another explanation why the hypothesis was not confirmed could be explained through individual differences. When there is someone else present while people are working on something, it causes arousal (Zajonc, 1965). However, the literature does not specifically describe what kind of arousal is provoked by another presence, but talks more about general arousal. However, for some people the presence of others can inflict positive arousal while for others it can be more negative (Uziel, 2007). It is important, when looking at the valence of this arousal caused by observation, to look at individual differences. These differences respectively are orientations towards the social environment. There are two fundamental orientations: a positive and a negative one (Neiss, 1988). The first orientation reflects extraversion and people with a high self-esteem. These people get aroused by the presence of others in a way that it creates energy and enthusiasm. The latter orientation, however, reflects neuroticism and people with a low self-esteem. Arousal, posed through the presence of others can cause anxiety in these negatively orientated people. Research showed that people who are predisposed with a positive orientation towards social presence, significantly improve their performance when they are being observed (Uziel, 2007). This is proven in a meta-analysis on social facilitation where the individual differences were measured. These results indicate that orientation might have played a part in influencing the way participants evaluated their own contribution towards a group goal. Participants who were positively orientated towards observation could have an increased perception of how good they were, while negatively orientated people could have a decreased perception of their performance. However, these individual differences were not measured in this study. Thus, this could be addressed in future research.

An additional explanation for why the expected results were not found, might be because of social loafing. Social loafing is the process where people have the tendency to exert less effort when they work on a collaborative goal, which often causes the group work to be unsuccessful (Williams & Karau, 1991). This process could have appeared during this study, because it contained several components that can facilitate social loafing. First off, the participants had to work on their own part as part of a collaborative task of organising a

surprise party. Therefore this study design made it possible for people to exert less effort. Another component that will not prevent social loafing from happening is when the task is not meaningful to someone (Williams & Karau, 1991). In the current study several participants explained (after taking part in the study) to the experiment leader that they did not find the task of coming up with snacks to be of great importance while organising a surprise party. They felt the other friends who helped organising had much more important responsibilities, like taking care of the music. This could indicate that social loafing might have happened, because participants did not really feel like their contribution was meaningful. Which can then explain why certain participants might have had a lower perception of their contribution, regardless of being observed or not.

Lastly, the results might have failed to show in this study, because the shared reality was not established between the participants and the observer. This research looked at the relationship between participants' own perception of their action and the perception of the observer to explore if it would be an additive relationship. Which would be established by creating a shared reality between the person working and the observer; the person working would take into account their own perspective and the perspective of the observer (Hardin & Higgins, 1996; Steinmetz et al., 2016). The design of the study made it possible to create a shared reality, because there was someone doing the work and someone observing. On top of that, the manipulation of being observed or working alone was performed successfully. However, the data did not confirm the creation of a shared reality.

Implications for Future Research

The results and alternative explanations that are described for this study can be used as a guide for future research on studying the effect observation has on people's perception when they are working on their individual part of a group task. The first recommendation is about deciding on the right task. Deciding on a task that could be either labelled as complicated or easy, is quite difficult. Therefore it is good to have a control question which specifically asks how good participants think they normally are at this or similar tasks. This will give the opportunity to control for this variable in the analysis, which will provide a possible explanation for why or why not certain results were found. Since the current research did not measure such a specific question about the task participants had to perform, the complication of the task could not be used as the explanation for not finding the expected results.

Another recommendation for future research is to include measurements that further examine individual differences, such as the social orientation towards another presence. It is

important to measure the valence of the arousal that is caused by another presence, because it can enhance people's performance or decrease it (Uziel, 2007). Research shows that next to how complicated a task might be, the social orientation, either positive or negative, toward someone observing could have a very strong effect on people's performance. Therefore it might play a big part in how people perceive their contribution when they are in the presence of other people, given that everyone has a different social orientation towards such situations.

The last recommendation for future research is to design a study in such a way that it is made possible for a naturally occurring shared reality to be established. What could help to create a shared reality between the person working on a task and the observer is for a conversation between these two to arise; to let them communicate their inner states, thoughts and beliefs (Fishbach et al., 2016; Hardin & Higgins, 1996). In this study, the observer could only hear the thoughts of the person working on the task, but not the other way around. A recommendation for future research that was discovered through this study is to make sure both thoughts; those of the participant and the observer, are spoken out loud. This way, the participant can have a better understanding of the perception of the observer, thus making it easier to create a shared reality.

Limitations and Strengths

To conclude the discussion, it is good to end with several strengths and weaknesses this study possessed. First off, the study design was not double blind: the experiment leader knew which participant was in which condition (alone vs. observed). This says that the observer bias might have occurred, meaning that the experiment leader had an influenced way of interpreting the results. Another limitation was that the participants were recruited at a university and therefore only attracted students to take part in the study. Most of which studied social sciences and were around the same age. This says that the generalisability of this sample was not that strong; the general population could have generated different results in this study if they had been tested.

However, the limitations of the study are partly accounted for by several strengths of this study. The participants were randomly put in a condition (observed vs. alone), which made it possible to measure the impact of the manipulation on the perception participants had of their own behaviour. Additionally, the sample size of 105 students was large, which gave the study more statistical power. Lastly, another strength of this study was the successfully performed manipulation of the observation condition versus the control condition. This study

can therefore say that the –although unexpected- results describing people’s perception of their own behaviour presumably were affected through the manipulation that was performed.

Conclusion

To conclude this research, it can be said that the presence of an observer does not always affects people’s perceptions on their own behaviour. While people worked on their own task as a contribution towards a group goal there were no differences detected between the people who were observed while performing on a task and who were alone. There were several alternative explanations described for why the enlarging effect of observation might not have occurred in this study. Additionally there were recommendations provided for future research as guidance when it is tested if the enlarging effect of observation does occur when people work on their own contribution as part of a collaborative goal.

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