

**The Disobedient Naïve Psychologist:  
Deviating from predicted attributions in a social context**

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Submitted in fulfillment of the requirements for Master of Social Sciences in the School of  
Psychology, in the University of KwaZulu-Natal, Pietermaritzburg.

Unless otherwise specified in the text, this dissertation is the author's own original work

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## **Abstract**

Classical attribution theorists developed models of causal attribution that reflected their belief that people were primarily interested in attribution accuracy. These models did not consider contextual factors such as relationships and societal norms which resulted in the emergence of several empirical puzzles many of which are related to the use of consensus information. This study investigates whether the puzzle of the differential treatment of consensus information can be solved if it is assumed that people are primarily concerned with social features of the attribution setting rather than strict attribution accuracy. This study experimentally tests the role of key aspects of the social context such as the impact of social strategies in Kelley's model of attribution to explore whether some of its empirical anomalies could have their origins in the social aspects of attribution in research contexts. The study found that participants were 2.63 times more likely to provide 'inaccurate' responses when there was a risk that the accurate answer would be socially disruptive. Findings from this study suggest that participants prioritise the implications of the social context over attribution accuracy.

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## **Introduction**

Attribution theory is the body of work that focuses on the process involved when people attempt to explain daily events and occurrences. To elaborate, it examines untrained people's opinions of causality and their actions based on the perceived reason. The focus is on the process that they undergo when answering 'why' questions because explaining actions and events is fundamental to many forms of human behavior, as the perception of cause or intention forms the basis for determining actions or responses. For example, imagine you see a child crying in a mall. If you believe the child is crying because she is injured, you would attempt to call for or provide medical assistance. However, if you make the attribution that the child is crying because she is spoilt and is trying to manipulate her parents into buying her a treat then you might do your best to ignore her behaviour.

The need for causal explanations is a daily occurrence and attribution theory explores this type of everyday cognition, focusing on the unconscious thought processes that are used to make events and actions occurrences understandable, predictable and ultimately controllable. The theory originated in the 1950s in the realm of social psychology. Attribution theory is the brain-child of Heider (1958), but developed and grew in popularity largely due to the work of Jones and Davis (1965), as well as that of Kelley (1967).

Decades later, it is still important to analyse the assumptions of these models and theories because much of the current work is based on these early foundations. To illustrate this, a citation analysis reveals that Heider (1958) has been cited 4309 times; Kelley (1967) cited 1271 times (684 in the last decade) and Jones and Davis (1965) have 832 citations (Publish or Perish,



2007). Although one might expect interest in these models to be waning, a more detailed search shows that Heider (1958), Kelley (1967) and Jones and Davis (1965) have been cited 2759, 786 and 526 times respectively in the last ten years, showing strong continued interest in these models of attribution. Although these models are theoretically elegant, they have left us with some unsolved empirical mysteries when the models don't describe what people actually do (cf. McArthur, 1972). This study returns to one of the key empirical puzzles: that of the under use or misuse of attribution information.

### *The Research Question*

One of the more frequently researched areas in attribution theory is the use of different information types in making attributions, which stems from the work of Kelley. Kelley (1967) suggested that people separate information into three types, namely: consensus; distinctiveness and consistency. Kelley's theory remains a relevant contribution to the field as it demonstrates how information is used in an 'attribution vacuum'; that is, how attributions would be formed using only the available information in the absence of other contributing factors. This 'ideal world' situation is a solid foundation for attribution research. However, we do not live in an attribution vacuum and consequently there will always be contributing factors such as past experiences and social norms. Kelley's model does not account for these factors and is therefore susceptible to their influence.

This under-use of consensus information has emerged as an anomaly in several studies that aim to test Kelley's model of attribution (Orvis, Cunningham, and Kelley, 1975 and McArthur, 1976 in Zuckerman, 1978). Previous attempts at explaining the difference have identified inadequate

research designs as well as the different nature of the information types as possible explanations; however, the exact reason for the under-use of consensus information has not yet been identified. Thus, the question remains: why is consensus information used in a manner different to that predicted by Kelley's model?

The present study replicates earlier research that empirically tested Kelley's model (e.g. McArthur) but experimentally manipulates the social context of the experimental situation to investigate the social dimensions of classical attribution theory. The study tests whether the puzzle of the differential treatment of consensus information can be solved if it is assumed that people are primarily concerned with social features of the attribution setting rather than strict attribution accuracy. This study experimentally tests the role of key aspects of the social context such as the impact of social strategies in Kelley's theory to explore whether some of its empirical anomalies could have their origins in social aspects of attribution.

## Heider's Contribution

Heider is credited as being the 'founding father' of attribution theory. His book *The Psychology of Interpersonal Relations* (1958) laid the foundation for prospective attribution theorists whose work later resulted in attribution research emerging as the dominant theory in social psychology during the 1960's. Heider described attribution as the process of drawing inferences and he focused on how this process occurred when ordinary individuals made inferences based on their observations to explain the actions of individuals around them. Heider described these individuals as "naïve psychologists" and he argued that they made these inferences in an attempt to predict their environment so that they could gain control of it. He argued that it is human nature to want to have control of the environment around you and, according to Heider, causal attribution is the primary process used to achieve this. He reasoned that the attribution process "serves to build up and support the constancy of [their] our picture of the world" (Heider 1958, p. 92).

Heider's basic assumption is that an individual's behaviour or actions are determined by the factors that reside within the individual and in the environment (Heider, 1958). Therefore Heider argued that when the naïve psychologists attempt to determine the explanation for behavioural outcomes they would have to use two groups of information. The first group consists of factors that reside within a person (internal factors), and second group is factors that reside within the environment (external factors). He elaborates that the personal factors can be divided into both relatively constant sources (power or ability) and more variable and controllable sources (motivation and intention). In the same manner, Heider assumes that the environmental factor is a combination of a constant factor (the difficulty of the task) and a variable factor (chance).

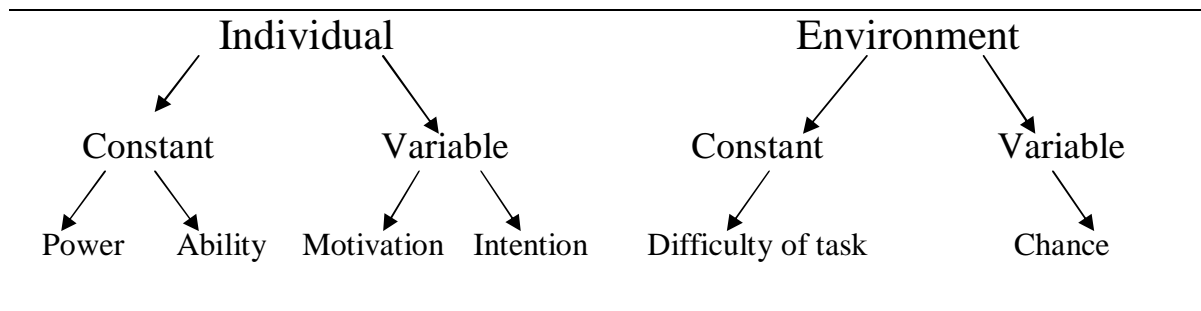


Figure 1

*Factors that determine behaviour or action (Heider, 1958)*

Based on this, he assumes that behavioural outcomes such as success and failure can be attributed to external factors such as ease (success) or the difficulty (failure) of the task and to good luck (success) or bad luck (failure) (Heider, 1958). The combination of the internal and external factors forms Heider's (1958) naïve concept of 'can'. If the person's ability is greater than the effective force of the environment then the naïve psychologist can conclude that the task can be accomplished. Heider proposes a multiplicative relationship between motivation and power (ability) which implies that the task would not be successful if the person lacks either. He proposes an additive relationship with the environment with the implication that the addition of good luck would increase the probability of success while bad luck decreases it. Heider introduced a second concept of 'trying' which is the combination of intention and exertion. With this concept, his assumption is that the person should intend to achieve the outcome (i.e. the outcome should not be a fluke) and the person should exert some effort towards achieving this outcome. If these requirements are met then the naïve psychologist can conclude that the person is trying, or has tried, to achieve the desired outcome. Heider concluded that 'can' and 'trying' were the two factors that determined the success or failure of an outcome (1958).

According to Heider (1958, p. 123), “The naïve factor analysis of action permits man to give meaning to action, to influence the actions of others as well as of himself, and to predict future actions.” To exemplify this, Heider suggests that if a person knows the behavioural outcome and the magnitude of one of the contributing personal causes (e.g. motivation), he can draw conclusions with regard to a second personal factor (i.e. effort). The naïve analysis of action is based on the equations of:

$$\text{Ability} = \text{Performance} : \text{Effort}$$

$$\text{Effort} = \text{Difficulty} : \text{Ability}$$

The naïve psychologist uses these equations to determine which factors were responsible for an action occurring by solving for the missing value based on the available information. It must be remembered that Heider did not consider that this is a conscious process and in most cases the naïve psychologist will not be aware of it. The equations can be used to infer how much effort was needed when the person’s ability and the difficulty of the task are known or the person’s ability can be inferred when the amount of effort and the performance is known. For example, when soccer sensation Cristiano Ronaldo scores a goal most spectators would not infer that it was due to chance or ease of the task. The common inference would be that it was due to his ability and that the contribution of environmental factors was minimal. Thus, it is not uncommon to hear the commentators’ remark that ‘he made it look easy’ rather than ‘it was an easy chance’.

Heider’s (1958) analysis outlines how ordinary people, acting as naïve psychologists, might make inferences using the information that they collect from their observations and how predictions for unknown information can be made based on information that is known. He

indicated that the central task for this theory is to differentiate disposition from behaviour. This stemmed from his realisation that within personal interaction individuals make inferences based on what a person did or how a person acted as well as knowledge of their abilities and dispositions. These ideas formed the basis for Kelley's (1967) work on causal schema, which will be discussed below.

It should be noted that Heider (1944, 1958) was primarily concerned with phenomenal causality. He was specifically concerned with how individuals get the perceptual impression that one event causes the other. His early work focused on persons as the cause and he assumed persons and their motives are prone to be perceived as causes of events. According to Heider, this is because personal motives are accepted as a final cause and there is no need for further explanations. He suggests that this has contributed to a tendency to make attributions to personal motives and intentions. Heider warns that the tendency to structure unconnected events in terms of personal intentions can lead to an underestimation of situational factors. This suggests that it is more likely that the person would be blamed for an action, for example, the failure to make an ATM withdrawal than a fault with the ATM or the banking institute.

Consequently, Heider (1958) was also interested in the conditions underlying attribution of "intent" or "motive". He introduced the concept of equifinality which means that the behaviour of an individual, under different conditions leads to identical effects (1958). According to Heider, if the individual's behaviour in different situations or in different occasions leads to different outcomes their actions cannot be attributed to intent. He also suggests that causality can only be attributed if the individual can achieve the desired outcome. Heider concluded that

information about equifinality and causality is analysed by observers to determine intent (1958). His later work was guided by an interest in inferred causality that required the observer to make multiple observations of the action, event or person before drawing inferences. These ideas were taken up by Jones and Davis (1965) in the development of their theory of correspondent inferences.

Lastly, Heider (1958) was interested in causal inferences based on available information. He formulated his covariation theory to explain the process. This theory was based on Mill's methods of experimental inquiry and included a Gestalt influence. Heider provides the example of attribution of enjoyment to an object to demonstrate the principle:

“If I always experience enjoyment when I interact with an object, and something other than enjoyment when the object is removed (longing, annoyance, or a more neutral reaction, for instance) then I will consider the object the cause of the enjoyment. The effect, enjoyment is seen to vary in a highly coordinated way with the presence and absence of the object.” (Heider, 1958, p. 152)

Heider continued his analysis of observations of the effects with different conditions. These observations concerned: (1) the presence or absence of the effect with the presence or absence of the object, (2) the presence or absence of the effect with different states or classes of objects, and (3) the presence or absence of the effect with different persons (Heider, 1958). These ideas were taken up by Kelley (1967), and laid the foundation for his theory of causal attribution.

Interest in Heider's (1958) work and attribution theory on a whole was only ignited after the advancements to the theory made by Jones and Davies (1965) and Kelley (1967) who extended Heider's notions of attribution of intention and disposition and attribution by naïve analysis of covariation respectively. Although Kelley's work has been more influential (as assessed by citation count, discussed above), both were influential in defining the field of attribution theory which produced research and theories for decades. These essential contributions will be discussed next.



## **Jones and Davis Theory of Correspondent Inferences**

Jones and Davis were guided in their chapter *From Acts to Dispositions* (1965) by Heider's (1958) work, in particular his contention that individuals have an essential desire to predict and control their environment and that causal attribution is a primary means of doing so. The core of this piece of work was their theory of correspondent inferences which explored the role or use of information on outcomes or effects by individuals when making decisions and the inferences that can be made based on these outcomes/effects. They were of the opinion that actions originated from intentions and intentions were derived from stable dispositions. Jones and Davis (1965) concluded that if intentions can be deduced from observed actions, and with dispositions inferred from intentions, then people would have sufficient knowledge to understand, predict and control the behaviour of others. They focused on how individuals draw the conclusions that they do, which theoretically should be based on the available information.

To elaborate, the process involves the use of both observations and inferences. In the model, an observer views an actor's action and the outcome/effects of the action. An observer can infer what the intention of the actor was based on the result. However, Jones and Davis (1965, p. 220) stipulate that certain requirements which were identified in Heider's (1958) work need to be met in order to infer underlying intentions from the observed action and its effects. They are:

*The assumption of knowledge on the part of the actor:* The observer must believe that the actor was aware that his actions would have the observed effects.

*The assumption of ability:* The observer must judge that the actor has the ability to achieve the observed outcome.

*The contribution of luck or chance:* The observer must judge that the effect was not a result of luck or chance.

To illustrate, the theory will be applied to Brad Pitt's recent well-publicized choice between 'our favourite friend' (Jennifer Aniston) or 'the tomb raider' (Angelina Jolie).

Pitt's first option was Jennifer Aniston, who is the daughter of actor John Aniston and actress Nancy Dow, and who is best known for her role of Rachael Green in the sitcom *Friends*. Ms. Aniston can be described as the 'typical girl next door', which is a huge contrast to the third party or 'the other woman' since she has been voted the greatest sex symbol of all time (*The 100 Greatest Sex Symbols, 2007*) and was described as the world's most beautiful woman (*100 Most Beautiful* edition of *People Magazine, 2006*). She is actress; former fashion model; and a Goodwill Ambassador for the United Nations Refugee Agency, Ms. Angelina Jolie. Ms. Jolie, who is the daughter of actor Jon Voight and the late actress Marcheline Bertrand, has since become one of the most highly paid and sought after actresses in Hollywood after playing the role of Lara Croft in *Lara Croft: Tomb Raider* (2001) and after acting alongside Pitt in *Mr. and Mrs. Smith* (2005). She has also received international media attention for her humanitarian work and for her adoption of orphaned children from Cambodia, Africa, and Vietnam. Pitt became romantically involved with Ms. Jolie while they were filming the movie *Mr. and Mrs. Smith* (2005). His marriage to Ms. Aniston was deteriorating at that time and the media speculated that it was due to Pitt having a desire for children and Ms. Aniston not. Eventually Pitt chose Ms. Jolie. An observer inferring Brad Pitt's motives for his decision would need to consider the following information: his new partner was one of the sexiest women in the world (effect 1); she was wealthy, with a net worth estimated at USD35 million

([www.kineda.com/fabulously-rich-and-famous-angelina-jolie](http://www.kineda.com/fabulously-rich-and-famous-angelina-jolie)) which resulted in an overall increase in their joint monetary wealth (effect 2); they became one of the most popular couples in the world raising their social position (effect 3); he was able to fulfill his paternal desires (effect 4). However, his previous partner is also considered one of the sexiest women in the world (effect one); she is even more wealthy, with an estimated net worth of USD110 million in 2007 ([www.forbes.com/2007/01/17/richest-women-entertainment-tech-media%26richwomen070118womenstarslander.html](http://www.forbes.com/2007/01/17/richest-women-entertainment-tech-media%26richwomen070118womenstarslander.html)) (effect 2); and they were also very popular as a couple (effect 3). Since three of these effects are common to each choice, the theory of correspondent inferences would argue that the fourth effect (wanting children) is the best indication of Pitt's intentions.

According to Jones and Davis (1965), before inferences can be made about the actor's intentions the assumptions (discussed above) must be met. The observer can assume that Pitt was aware that Jolie had adopted children and they may have discussed a common desire to have biological children or adopt further, thus the actor had knowledge. Secondly, the observer must assume that Pitt had the ability to make this decision, and that it was not forced on him. Lastly the observer must judge that Pitt becoming a father was expected and not a result of luck or chance. After the assumptions are met, the observers are in a better position to make the inference that Pitt chose Ms. Jolie so that he would be able to fulfill his paternal desires.

The second aspect of the theory is the concept of correspondence. Jones and Davis (1965, p. 224) define correspondence as “Given an attribute-effect linkage<sup>1</sup> which is offered to explain why an act occurred, correspondence increases as the judged value of the attribute departs from the judge’s conception of the average person’s standing on that attribute”. Simplified, correspondence is the quantity of information that the perceiver collects on the dispositions and intentions of the actor from observing an action and the outcome/effect. High correspondence correlates with the extent of the perceiver’s belief that the action was based on the actor’s disposition. In the example, correspondence would be high if the public (perceiver) believes that Pitt (actor) chose Ms. Jolie (action) so that he would be able to fulfill his paternal desires (disposition). Correspondence would be low if the public was unable to determine why Pitt chose Ms. Jolie.

According to Jones and Davies (1965), in a relevant situation, the observer is aware of the alternative actions that the actor can take. The theory further assumes that the observer compares the effects/outcomes of the alternative actions and identifies common and non-common effects. As the names indicate, a common effect would be the result of either action, while a non-common effect is only achieved by one of the actions. The observer is expected to use the non-common effects to make inferences about intentions and dispositions. Jones and Davis (1965), suggest that correspondence decreases when non-common effects increase. They add that the desirability of a non-common effect will determine the degree to which the disposition corresponds with an action.

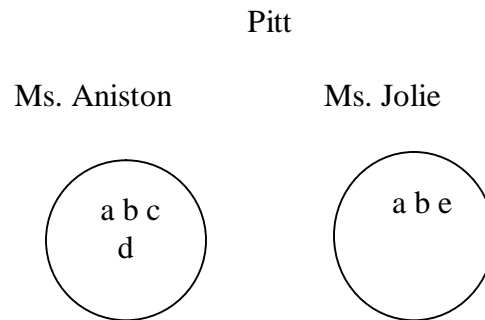
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<sup>1</sup> An attribute-effect linkage is the “perception of a link between a particular intention or disposition and a particular action” (Jones and Davis, 1965, p. 224)

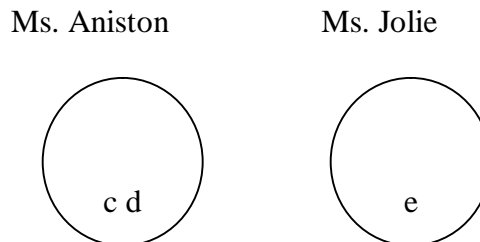
Effects of choice of partner to be considered:

- a. wealth
- b. social position
- c. stability
- d. marriage
- e. children

A. The Choice



B. Elimination of Common Effects



C. Regrouped Non-common Effects

If choice is:

- |         |                                    |
|---------|------------------------------------|
| Aniston | c and d wanted, e is not important |
| Jolie   | e wanted, c and d not important    |

D. Inferences

If Aniston is selected, Pitt is the domesticated and committed type.  
If Jolie is selected, Pitt is the paternal type.

Figure 2

*Pitt chooses a partner (adapted from Jones and Davis, 1965, p231, fig. 4)*

The figure above is an adaptation from Jones and Davis (1965) to illustrate the desirability of a non-common effect concept. In our example, the public was aware that the women had commonalities (both were brown haired Caucasian actresses; daughters of actors; both were successful and wealthy) and differences (Ms. Aniston was the typical 'girl next door' while Ms. Jolie was a 'maverick sex symbol'). The observer could ignore the commonalities and focus on the differences when attempting to determine which effects Pitt wished to obtain.

The combined effects of both choices of partner are stated for Pitt. Figure 2 A separates the woman to show which effects (effects are represented by letters in a circle that correspond to the initial list) are expected from each partner. The common effects are identified and eliminated. In our example, both partners would provide Pitt with additional wealth and social position. Thus, according to Jones and Davis (1965), these factors would not influence his decision. An examination of the non-common effects suggest that Pitt would choose Ms. Aniston if he wanted stability and marriage from his partner and if children were less important, however, he would choose Ms. Jolie if he wanted children and if stability and marriage were less important. Inferences can be drawn based on this. The public may then infer that if Pitt chose Ms. Aniston he would be the domesticated and committed type, however, if Ms. Jolie was chosen he would be the paternal type.

Jones and Davis (1965) add that the desirability of the non-common effect plays a role in determining the correspondence of intentions and actions. They indicate that if the non-common effect is not universally desirable, the observer can be more confident in making inferences. The non-common effects in the example are universally desirable, however, observers would still be

confident with regards to their inferences about Pitt when they consider that a year after choosing Ms. Jolie, he is still unmarried but has become the father of Maddox; Zahara; Shiloh; and Pax Thien.

According to Jones and Davis (1965), prior knowledge is another factor that has to be considered. They explain that:

“A person who confronts certain behavior choices has often made previous choices which have brought him to his present decision. There is often a great deal of information contained, then, in knowledge about what alternatives are being considered, above and beyond the information revealed by the actual decision which is made” (1965, p. 233).

Simplified, the observer needs to be informed of prior decisions that have been made. In terms of the example, the public is not aware of the decisions that Pitt made to narrow his choice of partner. Perhaps for unknown reasons he decided that his partner should be a brown haired Caucasian actress, whose father is an actor, and she must be successful and wealthy. Jones and Davis (1965) state this to highlight the point that individuals may only use the information gained from observations to define correspondence and not information gained from prior knowledge. Prior knowledge brings in additional variables (knowledge) that cannot be controlled for and these variables could contribute to an incorrect attribution.

The last factor for determining correspondence is role behaviour. Jones and Davis (1965, p. 234) predict that inferences based on out-of-role behaviour will have a higher correspondence than those made from in-role behaviour. They explain that in-role behaviour is unexceptional to the

extent that most individuals want to conform to social norms and expectations (1965, p. 236). Thus in-role behaviour is viewed as the actor conforming to the norm and does not provide any information about the actors' intentions or dispositions. In contrast, out-of-role behaviour is deemed to provide relevant information since the behaviour is thought to be a truer reflection of the actor's disposition.

### **Kelley's Covariation Principle**

Kelley advanced Heider's (1958) ideas on the determinants of causal attributions in his influential paper *Attribution Theory in Social Psychology* (1967). His theories and work became the core principal on which a large number of the later attribution studies were based which made him successful in achieving his aim of advancing "the development of attribution theory as an explicit, hypothesis-generating, and research-provoking set of principles" (Kelley, 1967, p. 192).

Kelley defined attribution as "the process of inferring or perceiving the dispositional properties of entities in the environment" (1967, p. 193). Guided by Heider's (1958) use of J.S. Mill's "Method of Difference", Kelley developed his covariation principle. The principle is based on the reasoning that when a perceiver has several sources of information available on an effect he/she would perceive a covariation of the observed effect and the cause. Kelley (1967) identified similarities in the process of making attributions and the process of analysing experimental data, for example, the analysis of contributing factors. He suggested that attributors acted like scientists in analyzing the available information which developed into his 'man-scientist-model'. He argued that the logic of the covariation principal was similar to that of the statistical model of the analysis of variance (ANOVA) and as a result he conceptualised his



covariation principle using the ANOVA framework to develop the Kelley ANOVA cube (figure 3).

In the ANOVA model, the potential causes are the independent variables and the effects to be explained are the dependant variables. Kelley (1967) classified the potential causes into three types: causes that describe the stable properties of the person, causes that refer to the stable characteristics of the entity, and causes that refer to the stable characteristics of the circumstance. According to Kelley (1967), the effect is attributed to the factor with which it covaries. Simplified, “the effect is attributed to that condition which is present when the effect is present and which is absent when the effect is absent” (Kelley, 1967, p. 194). Since the dependent variable is whether the effect occurs or not, in statistical terms, a covariation can be determined by analyzing if a manipulation of the independent variable results in a change to the dependant variable.

The process can be used to analyse a spectator’s enjoyment of the Italians defeating the French to win the 2006 Soccer World Cup. In order to make an attribution on the effect the following questions should be posed:

Was this the only game that the spectator enjoyed? (entity)

If he watched the game again, will he still enjoy it? (circumstance: time)

Assuming he watched it at the stadium, will he still enjoy it if he watched it on television set?  
(circumstance: modality)

Did other people enjoy the game? (person)

If the spectator answered “yes” to the questions then his enjoyment is attributed to the external factor (the game) and it can be concluded that it was a fantastic and memorable game. However, if he answered “no” to questions 1 and 4 and “yes” to questions 2 and 3 than his enjoyment is attributed to the individual and it may be concluded that he is a soccer fanatic and enjoys watching all games, or he is an Italian fanatic and enjoyed their victory. Kelley adds that the enjoyment could be attributed to “some juxtaposition of circumstance” (Kelley, 1967, p. 194); in this scenario, the spectators’ enjoyment could be a consequence of him having “World Cup fever”.

These conditions have been represented, by Kelley (1967), in the form of a three-dimensional cube (see Figure 3). The notations ‘X’, ‘Y’ and ‘Z’ represent possible effects (for example, enjoying the World Cup final game), ‘N’, ‘O’, ‘P’ and ‘Q’ represent *entities* (for example, different games during the World Cup), ‘T1M1’, ‘T2M1’, ‘T1M2’ and ‘T2M2’ represent different combinations of *time* and *modality* (for example, watching the match in the stadium and watching the match on television at home) and ‘self’, ‘O1’, ‘O2’ and ‘O3’ represent different persons (for example, the soccer fanatic and his wife).

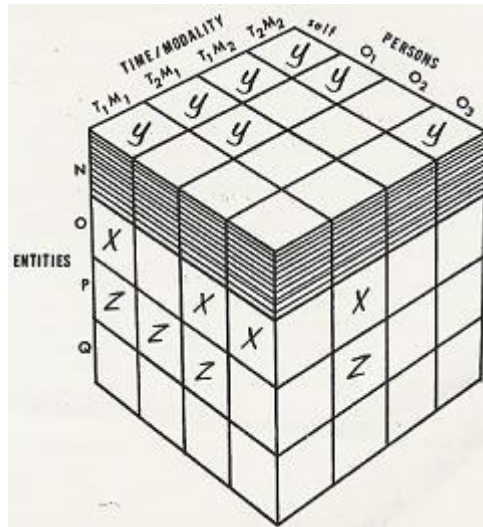


Figure 3

*Data pattern indicating attribution of effect Y to entity N. (in Kelley, 1967, p.195)*

In this illustration, ‘self’ (the soccer fan) experienced effect ‘Y’ (enjoyment of the game) when experiencing entity ‘N’ (watching the game) under different circumstance (live at the stadium, repeated at a bar, highlights at home, recorded on DVD). However, person O1 (his friend) experienced ‘Y’ (enjoyment of the game) in response to entity ‘N’ (watching the game) for both modalities, but only at time two and not at time 1(at the bar and on DVD). Person O2 (his wife) did not experience ‘Y’ (enjoyment of the game) at all, and Person ‘O3’ (his son) experienced ‘Y’ (enjoyment of the game) in response to entity ‘N’ (watching the game) only for the second time and second modality (on DVD). The covariation principle implies that enjoyment for the spectator (effect) should be attributed to something to do with the spectator (the stable properties of the person) since he enjoyed the match (entity) every time he watched it (circumstances).

Kelley (1967) introduced labels for covariation information that correspond to the effect and causes. They are:

*Distinctiveness*: the impression is attributed to the thing if it uniquely occurs when the thing is present and does not occur in its absence.

*Consistency over time*: each time the thing is present, the individual's reaction must be the same or nearly so.

*Consistency over modality*: his [sic] reaction must be consistent even though his mode of interaction with the thing varies

*Consensus*: attributes of external origin are experienced in the same way by all observers

(1967, p. 197)

Consensus informs the attributor on the extent that the effect covaries with persons, distinctiveness informs about variations in effect with entities, and consistency concerns covariations of the effect with time and modality. Kelley hypothesised that individuals use the criteria to ask different types of questions in order to gain a holistic picture of the situation. The distinctiveness question asks "How does the person's behaviour vary across situations or with other people?"; the consistency question queries "How does the person behave at different times and in different situations?"; lastly, the consensus question refers to: "How does the person's behaviour compare with that of other people in the same situation?" (Goldstein, 1994, p.723)

Consistency information in research is rarely differentiated into over modality or time (cf. McArthur, 1972; Ruble & Feldman, 1976; Zuckerman, 1978). It was mentioned above to provide the descriptions in the format originally used by Kelley (1967) and to inform the reader that this differentiation exists, however, the rest of the paper will follow suit with the majority of attribution research and will not differentiate between the types of consistency information in an

attempt to be consistent with the majority of the literature. The criteria for the three information types can be either high or low resulting in six possible combinations. The level of distinctiveness is determined by the presence or absence of the same type of stimulus in differing situations. The absence of the stimulus is an indication of high distinctiveness while the presence of the stimulus is an indication of low distinctiveness. Consistency levels are determined by the *frequency in which the behaviour* occurs in similar situations, a larger frequency indicates high consistency and a smaller frequency is an indication of low consistency. The level of consensus is determined by the number of *people* who behave in the same way in a situation, a larger number of people indicates high consensus and a smaller number indicates low consensus. Depending on the type of information and level, the attribution may be dispositional (to the person), situational (to the situation), or a combination of both. The table below is an indication of the expected attributional outcomes for each type of information taken in isolation.

Table 1:  
*The expected outcomes*

Criteria	High/Low	Type of Attribution
Distinctiveness	High	Situational
Distinctiveness	Low	Dispositional
Consistency	High	Dispositional
Consistency	Low	Situational
Consensus	High	Situational
Consensus	Low	Dispositional

Kelley's (1967) covariation principle assumes that causality can only be attributed in the presence of multiple responses<sup>2</sup>. He identified patterns of information (high and low) that covaries to lead to attributions to the person, the entity or the circumstance. These patterns are listed in Table 2.

Table 2

*Covariation patterns that should lead to attributions to either the person, the entity or the circumstance*

Attribution	Information		
	Consensus	Distinctiveness	Consistency
Person	Low	Low	High
Entity	High	High	High
Circumstances	Low	High	Low

Kelley's theory (1967) predicted that person attribution will be more frequent when a response is characterised by low consensus, low distinctiveness, and high consistency (L, L, H) than when no additional information is given regarding that response. The theory also suggested that entity or stimulus attributions would be more frequent when a response is characterised by high consensus, high distinctiveness, and high consistency (H, H, H) than when no background or additional information is provided regarding that response. Lastly, he predicted that circumstance attributions would be most frequent when the response is characterised by low consensus, high distinctive and low consistency (L, H, L).

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<sup>2</sup> This assumption is addressed in his later work on configuration, however, that discussion is beyond the focus of this paper

Although Kelley's model was intuitive and theoretically elegant, empirical results were mixed.

### **McArthur's Contribution**

McArthur's 1972 article "*The How and What of Why: Some Determinants and Consequences of Causal Attributions*" was the first report of a study that was conducted to empirically test Kelley's model. The primary aim of this study was to identify the effects that consensus information and verb categories had on causal attribution (McArthur, 1972).

#### ***The Design***

To achieve this aim, McArthur manipulated consensus, distinctiveness, and consistency information in accordance with Kelley's model: the subjects were provided with information on the response of another person; such as: John laughed at the comedian. The statements were made up of four different verb categories. The categories were emotion ("Sue is afraid of the dog"), accomplishment ("George translated the sentence correctly"), opinion ("Bob thinks his teacher is fair"), and action ("Jack contributes large sums of money to charity"). They also received three statements that represented one of the eight possible combinations of consensus, consistency, and distinctiveness information varied by high and low amounts. They were asked to use the information to make an attribution about why the event occurred. Subjects could attribute the event, to the person, stimulus, circumstance, or combination of the three. The control group was only given the statement and no extra information. All of the subjects were also asked to make a generalisation about future behavior of the individual in related events (McArthur, 1972).

Kelly's theory (1967) predicted that different patterns of information can be used to determine the attribution (cf. Table 2). McArthur used this as a starting point and hypothesised that person attribution will be more frequent when there is low consensus, low distinctiveness, or high consistency (L,L,H) than when there is high consensus, high distinctiveness and low consistency (H,H,L). This was based on the study by Jones, Rock, Shaver, Goethals, and Ward (1968, cited in McArthur, 1972) who found that performance tended to be attributed to the person's ability rather than to the difficulty of the task. McArthur also hypothesised that stimulus attribution will be more frequent when there is high consensus, high distinctiveness, or high consistency (H,H,H) than if the types of information was low (L,L,L). Her third hypothesis was that circumstance attribution would be more frequent when there is low consistency as opposed to when it is high (McArthur, 1972).

In addition to her hypotheses, McArthur made predictions about behavior. She provided definitions for two types of generalisations (response and stimulus): A response generalisation is that a person will make different responses to the same stimulus and stimulus generalisation means that a person will make the same response to other stimuli. With regards to these definitions she made two predictions, the first being: The variables that cause stimulus attribution also produce a greater expectancy for the actor to exhibit response generalisation. Her second prediction was that the variables that produce person attribution also produce a greater expectancy for the actor to exhibit stimulus generalisation (McArthur, 1972, p. 173).



### ***The Results***

The results of the study supported the predictions made by both Kelley and McArthur. The combination of high consensus, high distinctiveness, and high consistency information (HHH) produced more stimulus attribution than no information. Low consensus, low distinctiveness and high consistency combined (LLH), produced greater person attribution than no information. Low consistency produced more circumstance attribution than high consistency information. High consistency, high consensus, and high distinctiveness each produced more stimulus attribution than low consensus, low consistency and low distinctiveness. Low consensus, low distinctiveness, and high consistency each produced more person attribution than high consensus, low distinctiveness, and low consistency respectively (McArthur, 1972)

In terms of generalisations, McArthur found that high distinctiveness and high consensus each produced more stimulus attribution and a greater expectancy for response generalisation than did low consensus and low distinctiveness information. Low consensus and low distinctiveness each produced more person attributions and a greater expectancy for stimulus generalisation than did high consensus and high distinctiveness information. McArthur's (1972) test of Kelley's hypothesis demonstrated that consensus information had less impact on attributions as compared to consistency or distinctiveness information. She found that consensus information accounted for less of the variance (< 1%) of both response and stimulus generalisation expectancies. The study also found that attributions are influenced by the amount (high or low) and type of information presented (consensus, distinctiveness, consistency), as well as the verb type (contributes, translates, thinks) that was used (McArthur, 1972).

McArthur's method has been replicated by other researchers (Frieze & Weiner, 1971, cited in Kelley & Michela, 1980; Ruble & Feldman, 1976; Zuckerman, 1978) who provided confirmation for the relative under-use of consensus information when interpreting success and failure (these works are discussed later). McArthur's work was pivotal in identifying the separate treatment of the different types of information, a topic that requires further elaboration.

### **The Separate Treatment of the Different Types of Information**

Attribution research stemming from the work of Kelley (1967), has found that contrary to the expectations of Kelley's basic model, the information types are treated or used differently by the participants when making attributions (Kelley & Michela, 1980; Harvey & Weary, 1984). The treatment varies from underuse of information to not being used at all. The exact reason for the variation is uncertain; however, a large proportion of the empirical dissimilarities that were reported surrounded consensus information.

#### ***Consensus Information***

As mentioned previously, McArthur's (1972) study found that consensus information had less impact on attributions as compared to consistency or distinctiveness information. McArthur's results were replicated and expanded by other researchers (see Orvis, Cunningham, & Kelley, 1975, McArthur, 1976).

Major (1980) supported McArthur by reporting that when participants are given the choice to request information to explain the occurrence of an event, they requested consistency or distinctiveness information more frequently as compared to consensus information. The participants in the study were given a description of a behavior and were asked to determine why

it occurred. They were allowed to request as much information as they needed and whichever type they chose. Participants requested more consistency than distinctiveness or consensus information and most often they requested consistency first. In comparison to the others, consensus information was requested less and used less.

Ruble and Feldman (1976) hypothesised that the lesser impact of consensus information was a result of a recency effect. This was based on the observation that McArthur (1972, 1976) and Orvis et.al (1975) both presented consensus information first, followed by distinctiveness and consistency information. After counterbalancing the order of presentation, Ruble and Feldman found that all three types of information accounted for equal amounts of variance. They concluded that consensus information only had a lesser effect on attributions than distinctiveness and consistency information when presented first (Ruble & Feldman, 1976).

Based on the findings of Ruble and Feldman's (1976) study, Zuckerman (1978) realised that the order of presentation would only have an effect on the use of information if the information was relevant to the attribution. To test this theory, she examined the prediction that the order of presentation of the three types of information 'affects the use of consensus information in the attribution of occurrences but not of action' (Zuckerman, 1978, p. 649). Her study analysed the effects when behaviours were either accompanied or not by the three types of information and when the information was presented in various orders over two conditions. She found that consensus had a greater impact on attributions for occurrences than on attributions for actions. Zuckerman concluded that of Kelley's three information variables, 'consensus will have a

stronger impact when this behavior falls into the category of occurrences than when it is classified as an action' (1978, p.656). Ruble and Feldman (1976) and Zuckerman (1978) both indicated that the order of presentation resulted in the lesser impact of consensus information, however, Kelley and Michaela (1980) note that in both studies consensus was the only information that was affected by order of presentation. They concluded that "there remains the possibility that the three kinds of information are treated differently" (1980, p.463).

Nisbett and Borgida (1975) found that, in contrast to Kelley's model, people do not use consensus information extensively. They conducted a study in which two previously conducted psychology experiments were described to subjects. In the previous experiment participants were faced with the predicament of assisting someone in need. The participants in the current study were divided into a consensus group, who were informed about the behaviour of the participants in the previous experiment, and a control group who were not given any additional information. Participants were required to explain the behaviour of the participants that did not assist the person in need; it was hypothesised that the additional consensus information would impact on the explanations. However, the results indicated that the consensus information did not influence the attributions (Nisbett & Borgida, 1975).

Previous research by Nisbett and his collaborators (Nisbett, Borgida, Crandall, & Reed, in press cited in Nisbett & Borgida, 1975) also argued for the lesser weight of consensus information. Consensus information was manipulated in three depression and negative moods studies by providing the participants with information which indicated that their experiences (depression and negative moods) were common. It was hypothesised that the additional consensus

information would affect the participant's attribution for the cause of their negative mood, by shifting it from them to the situation. An attribution to the self had the additional implication of psychology incompetence which let the experimenters to assume that most participants would use the consensus information to avoid the implication. The results, however, indicated that consensus information had no effect (Nisbett & Borgida, 1975).

Realising that those experiments with mood changes had constraints; Nisbett et al. (in press cited in Nisbett & Borgida, 1975) conducted a second experiment, which manipulated consensus information. In this experiment participants were required to taste several crackers (they were misinformed that the experiment was to evaluate the crackers) and they were required to drink a solution between eating crackers (the solution was meant to neutralise the effects of the previous cracker). The consensus manipulation involved the subjects 'finding out' (they had to leave their solution bottles with other bottles that they were told were used on the same day) that they drank more or less of the solution than other participants. Participants were questioned with various alternatives on why they had drunk more or less of the solution. The experimenters hypothesised that participants would attribute drinking the solution to the fact that they were thirsty when they were provided with information that suggested that other participants did not drink a lot of the solution. They also hypothesised that the participant would attribute drinking the solution to the cracker being salty when the participants were provided with information that suggested that other participants drank a lot of the solution. Like the in the previous experiment, the consensus manipulation had no effect since participants did not use consensus information as hypothesised (Nisbett & Borgida, 1975). Nisbett and Borgida cited other studies that supported their

conclusion of consensus information having no effect on attributions (cf. Cooper, Jones, & Tuller, 1972; Miller, Gillen, Schenker, & Radlove, 1973 both cited in Nisbett & Borgida, 1975).

Wells and Harvey (1977) suggested that Nisbett and Borgida's argument was intrinsically flawed. They felt that Nisbett and Borgida, as well as the researchers that they cited, found no effect for consensus information as a result of insufficient 'operationalisation of either the dependant or the independent variable' (Wells & Harvey, 1977, p.280). Wells and Harvey replicated Nisbett and Borgida's study, changing the operationalisation of consensus 'to reflect Kelley's conceptual criterion of perceived covariation and to represent more levels of consensus' (Wells & Harvey, 1977, p. 279). Their study, which implemented a stronger operationalisation of consensus information and an emphasis on the random selection and representativeness of the consensus sample, found that 'consensus information significantly affected attributions in manner consistent with attribution theory predictions' (Wells & Harvey, 1977, p.291).

Pilkonis (1977) concurred with Wells and Harvey on the importance of operationalisation of variables. His study employed a questionnaire format to investigate the impact of consensus information on causal inferences. Participants were required to read a research proposal and indicate their expectations about the likely behaviours of participants. Next, they received consensus information in the guise of pretest results, after which they were required to make judgments about the dispositional and situational causes of behaviour. The results indicated that dispositional attributions were affected by consensus information, however, situational attributions were unaffected by the manipulation (Pilkonis, 1977). Pilkonis's (1977) study adds

further support to the earlier findings of McArthur (1972) that consensus information is treated differently than predicted by Kelley (1967).

The reviewed studies have reported that consensus information is not used in the same manner as distinctiveness and consistency information. The exact findings of the use of consensus information varies from that in comparison with distinctiveness and consistency information, participants do not request consensus information to explain events as frequently (Major, 1980) to findings that consensus information was affected by order of presentation (Ruble & Feldman, 1976; Zuckerman, 1978). Numerous other studies provide empirical support with findings that consensus information has no effect on attributions (cf. Cooper, Jones, & Tuller, 1972; Miller, Gillen, Schenker, & Radlove, 1973 both cited in Nisbett & Borgida, 1975). Overall, the collective findings of these studies do not offer any conclusive reason for the sparse use of consensus information. However, they are unanimous in that consensus information is not used in the same manner as distinctiveness and consistency information.

### ***Distinctiveness and Consistency Information***

There appears to be fewer studies conducted exclusively on distinctiveness or consistency information. However, studies like McArthur's (1972), and others mentioned above, indicate that both consistency information and distinctiveness information have a larger impact on attributions by highlighting the weaknesses of consensus information.

Enzel, Harvey and Wright (1980, in Harvey & Weary, 1984) found effects of distinctiveness information, with the presence of high distinctiveness resulting in less extreme evaluations of

acts than low distinctiveness. However, they found that distinctiveness had no effect when the participants interacted with an actor (Enzel et al.).

Gerard (1963) and Misra (1973) (both in Kelley & Michela, 1980) found that participants used their own experiences (if there was consistency) instead of social comparison information.

Harvey and Kelley (1974, in Kelley & Michela, 1980) demonstrated that consistency in personal judgements assists in self assessments of competency. Kelley and Michela cite studies (Irwin & Smith, 1956, Schwartz & Smith 1976) that indicate participants use consistency and distinctiveness information to make comparative judgements. Himmelfarb (1972, in Kelley & Michela, 1980) found that consistency carried more weight when observed in different situations. Kelley and Michela cite additional studies that support the attribution of inconsistent behaviour to circumstances (Frieze & Weiner, 1971; Karaz & Perlman, 1975; Hayden & Mischel, 1976). Thibaut and Riecken's (1955, in Kelley, 1967) study indicated that consistency criteria may be more important to the individual than the consensus criterion.

In most studies consistency and distinctiveness information is used in the manner predicted by Kelley's (1967) ANOVA cube model. However, the reduced or minimal use of consensus information remains a mystery, despite various attempts at explaining this puzzle.

### **Attempts at Explaining the Use of Consensus Information**

Researchers have attempted to explain the anomalous or sparse use of consensus information as evident in their empirical studies. Various theories have emerged, but none has been accepted as the sole reason for the dissimilar treatment of the information types. A few key explanations are discussed below.



### *Inadequate Operationalisation of Variables*

McArthur (1972) was the first researcher to identify the lesser impact of consensus information on causal attributions. She hypothesised that the difference may be due to the operationalisation of the variables since distinctiveness information referred to a difference in effects with regards to objects, while consensus information referred to a difference in effects with regards to persons. Secondly, McArthur suspected that distinctiveness information was stronger because its difference was in relation to entities, while with consensus information it was in relation to persons. To elaborate, entities have no control and they lack intent, thus they will be perceived to be more stable. Persons on the other hand have control and intent and will therefore be perceived as unstable. It can be concluded that the stable distinctiveness information would be safer to use since it does not require consideration of additional factors (e.g. intent or ability).

In a later paper, McArthur (1976) explained that the first hypothesis suggests that participants would accept information about objects or entities more easily, while they would search for alternative explanations when provided with information about a person. Her second explanation is based on Anderson's (1974, in McArthur, 1976) model which suggests that when providing data on a person's effects on targets, distinctiveness information provides additional information on the person's tendencies while when providing data on other people's effects consensus information provides information on the challenges faced by the person. He suggests that if perceiver's perceptions of a person's tendency are for some reason more impressionable than their perception of the entities' challenges then they would use distinctiveness information more frequently than consensus information. According to Anderson, distinctiveness

information would also be used more often if the perceiver assumes that the information about the persons tendencies were more relevant to the attribution.

McArthur's (1972) original study found equality between the information types when the entity targets (entity or stimulus) and agents (persons) were both persons (e.g. Jon laughed at Bob), but distinctiveness information gained greater efficacy when the target was a thing (e.g. Bob kicked the ball). Thus, she designed a second study (1976) to systematically test the hypothesis that the different treatment of the two information variables was a result of a 'person-thing variation'. The results indicated that, although consensus information was most effective when it was in relation to a person and distinctiveness information was most effective in relation to an object, distinctiveness information still had greater impact than consensus information. It can be concluded that despite the manipulation, consensus information remains less effective in comparison to distinctiveness information.

Thus, McArthur (1976) concluded that distinctiveness information was more influential because its difference was in relation to targets, whereas with consensus information it was in relation to agents. Anderson's (1974, in McArthur, 1976) model is once again cited as the reason for the different treatment, as it was concluded that "an agent's proclivity [tendency] was perceived to be more likely to cause effects on things than on persons" (McArthur, 1976, p.740). McArthur, like other researchers (Nisbett & Borgida, 1975; Wells & Harvey, 1977; Kassin, 1979; Wright, Christie & Lüüs, 1990) refers to the work of Kahneman and Tversky (1973) in search of an additional answer.

### *Disregarding Information*

Kahneman and Tversky (1973) found that participants disregard category base rates<sup>3</sup> (consensus information) in a population when required to predict if an individual from the population belongs to a particular category. Participants in the study did not follow Kelley's rules of prediction, but were instead influenced by logic and focused on descriptions that were provided instead of the base rates. Nisbett and Borgida (1975) explain that Kahneman and Tversky's study only required "a direct inference from category base rate [consensus information] to the category membership", while attribution "requires an inference from behavioural base rates to presumptions about the influence of situational forces" (Nisbett & Borgida's, 1975, p.934). They hypothesized that if participants ignored the vital information of category base rate information when making category predictions, which is easier to apply, then participants cannot be expected to make complex predictions of causality based on behavioural base rate information. The hypothesis is based on the representativeness heuristic which suggests that individuals would use the relevant information (such as category base information) to make decisions. Nisbett and Borgida (1975) designed a study to demonstrate that individuals ignore base rate behaviour information (consensus information based on behaviour) in the same manner that they ignore base rate category information (consensus information based on categories).

Nisbett and Borgida's (1975) study confirmed Kahneman and Tversky's (1973) findings. They concluded that participants ignoring consensus information in the same manner that they ignore

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<sup>3</sup> Base rate, in this instance, refers to the probability of behaviour occurring based on the frequency of it occurring in the past. In attributions, base rate information is the same as consensus information (the prior behaviour of persons). It is therefore used interchangeably in this discussion.

base rate information was the explanation for its inadequate use in making attributions. It is suggested that the nature of the information types may play a role in consensus being ignored since consensus information is “abstract” while distinctiveness information is more “concrete, bright and salient” (1975, p. 943). McArthur (1976) makes the same argument as Nisbett and Borgida, adding that Kahneman and Tversky’s study may confirm her previously mentioned theory of participants viewing an agent’s likes as more important than dislikes. She links specific case information to the likes of people, and base rate information to their dislikes (McArthur, 1976). Hansen and Donoghue (1977, in Kelley & Michela, 1980) agree that consensus information is ignored. However they suggest that participants use their own behaviour to predict how others would act. This supports McArthur’s conclusion that: “An individual who is attempting to determine the cause of another person’s behaviour already has one bit of consensus information – what (he [sic] thinks) his own behaviour would be in this situation” (1972, p.184). She suggests that distinctiveness is therefore more informative than consensus information, thus it is utilised more often when the attribution is for an object.

### ***Inadequate Research Designs and Methodology***

Wells and Harvey’s (1977) study suggested that Nisbetts and Borgida’s findings may have been a result of their operationalisation of consensus information. They criticised the literature that Nisbett and Borgida cited, in particular the choice of dependant variables (for Miller, Gillen, Schenker, & Radlove, 1973; Nisbett et al., 1976), and the operationalisation of consensus information (for McArthur, 1972; Nisbett & Borgida, 1975; Nisbett et al., 1976,). Wells and Harvey also suggest that Kahneman and Tversky found a significant overall effect for base-rate information in their study, and that the wording of their results have been misinterpreted (1977).

However, when correctly interpreted, the findings suggest that base-rate information is used-but sparingly. Thus, this theory may still be relevant.

Like Wells and Harvey, Pilkonis (1977) places an emphasis on the methodology and design. He criticised the use of paper and pencil methods (a method used by a larger number of attributional researchers), stating that they produced a variety of results which were occasionally unrelated and lacked reliability. Pilkonis suggests that improved paradigms and enhanced dependent variables would produce more accurate results. He suggests the use of alternative methods such as observations of behaviour (actual or videotaped) with improved measures (1977). Harvey and Weary (1984) suggest that specific experimental conditions affect the use of consensus information, such as the type of information used and its presentation (Kassin, 1979 and Solomon, Drenan, & Insko, 1981,).

There have been several attempts to explain anomalous use of consensus information (anomalous compared to that predicted by Kelley, 1967) ranging from methodology choices to problems in the operationalisation of variables. However, there are no conclusive results as no single attempt has succeeded in providing an explanation. What has emerged is the common opinion that the nature of consensus information may be the key to understanding the different treatment of information. This stream of thought will be explored next.

### **The Problematic Nature of Consensus Information**

The previous section discussed the various alternatives that were identified as possibly responsible for the difference in efficacy of the different information types. While it is possible

that the reported anomaly is due to methodological failures in representing consensus information in experimental manipulations and measures (cf. McArthur, 1972; Pilkonis, 1977; Wells & Harvey, 1977), it is also possible to argue that consensus information is largely ignored in attributions of causality (McArthur, 1972; Nisbett & Borgida, 1975). There is nevertheless general agreement that consensus information is used differently than Kelley's (1967) model would predict.

### ***The Social Nature of Consensus Information***

Nisbett and Borgida (1975) suggested that the "nature of the information" may affect its treatment. Consensus information has a social nature that burdens it with implications. The implication is a link to persons. Persons and personality, by nature are unstable or unpredictable to a degree. Consensus information (by association) may be viewed as being less stable. The stability issue arises from the quality of social consensus information available to the attributor. Social consensus information is the information that the attributor collects from past and present experiences, both personal and observed, as well as social sources (e.g. media) (Kelley, 1967). Kelley (1967, p. 198) explains that when observing attributions "we are assuming that both the person's own consistency evidence and the evidence from social consensus contributes to the stability of his own reaction". Kelley identifies social consensus as the key to making a stable attribution.

The primary threat to stability is social influence, as additional information or pressure may result in changes in attributions. Kelley (1967) identified that susceptibility to social influence increases when individuals feel inadequate to handle a situation. He suggests that vulnerability

may be due to one or a combination of the following factors: a lack of social support; insufficient information; the problem has a high level of difficulty; or a lack of self confidence. Kelley suggests that in an attempt to satisfy the consensus criterion, individuals would attempt to influence those who are vulnerable in order to produce a common attribution. He concluded that a common attribution is an indication of consensus aiding the attribution process.

According to Deutsch and Gerrard (1955, in Brown, 1996), influence is categorised as being either informational or normative influence. Normative influence stems from an individuals' need to gain social approval and acceptance while avoiding rejection. They are therefore influenced into making an attribution based on what is expected as opposed to the available information. Informational influence occurs when an individual accepts information to be reliable evidence and bases an attribution on the new information.

### ***Informational Influence***

Sherif's (1936, in Brown, 1996) study, which employed optical illusions to demonstrate how individual's behaviours are influenced in social situations, is thought to be an example of informational influence in practice. In the study participants accepted the false information provided by actors as reliable, and consequently made incorrect judgments. Brown (1996) suggests that they were influenced due to acceptable behavioural norms, which encouraged social interaction.

### ***Normative Influence***

Asch's (1952, in Brown, 1996) classic experiment on social and personal conditions that increase susceptibility to pressure is an example of normative influence. The study indicated that

individual differences and cultural expectations affect susceptibility to influence. In contrast, Milgram's (1974, in Brown, 1996) obedience to authority study suggested that the situation is responsible for susceptibility to influence and not personal characteristics. Brown suggests that the influence is a result of social power and not a need for approval.

Ring (1964, in Kelley, 1967) and Thibaut and Riecken (1964, in Kelley, 1971) both found that the status of the actor affects attributions. Ring found that agreement could be caused by an actor's role. He stated that the agreement is a result of the actor's high power or status and not the quality of their ideas. Thibaut and Riecken's found that behaviours associated with high status are attributed to external factors. Kelley suggests that "noncompliance in this situation is likely to be viewed as a perfunctory manifestation of B's power without regard to the worth of the statement to which he is meant to respond" (1971, p.13).

Enzel et al. (1980, in Harvey & Weary, 1984) also found evidence of an actor's role affecting the attribution process. Their findings indicated that greater interactions of participants with an actor resulted in the attribution of more positive qualities to the actors when positive acts occurred, in other words, the disregarding of distinctiveness information. Enzel et al. (1980) found that distinctiveness information was more influential when there was less interaction between participants and actors. Unlike the previous studies, this effect does not appear to be a result of status; instead it appears to be a result of social interaction. This would support the assumption of theorists that behaviour is influenced by social features that are created by social interactions (Harvey & Weary, 1984).



Kelley's (1950, in Harvey & Weary, 1984) warm-cold study concurred by indicating a link between attribution and social interaction. College students were provided with information that a visiting instructor was "rather warm" or "rather cold" (Harvey & Weary, 1984, p. 445). The results suggested that the students' interactions with the instructor were dependant on attributions that they made about him. The attributions were based on how he interacted with previous students (distinctiveness), students perceptions of him (consensus) and his interactions at other times (consistency). They formed positive perceptions of him when they were provided with information that lead them to conclude that the instructor would be warm and negative perceptions when they were told he would be cold. This study demonstrated a relationship between attribution, social perception and social interaction (Harvey & Weary, 1984). Kelley (1971, p.1) explains "Each individual answers these attributional questions for himself [sic], and in each case the answer he reaches affects his behaviour in the interaction and his attitudes toward the other person". Thus the study also suggests a relationship between social perception and interaction. Kelley suggests that "...the attributor is merely a powerless observer, processing information regarding covariation as it is presented by the natural flow of social interaction" (Kelley, 1971, p.4). He points out that in social interaction the participant has the dual role of causal agent and attributor since his behaviour may influence what he is attempting to understand (1971).

Additional studies (Town & Harvey, 1981; Yarkin, Town, & Harvey, 1981; both in Harvey & Weary, 1984) attempted to identify the influence of information about a person on social interaction with the person. The results indicated that positive information produces positive attributions and behaviour. Tetlock (1980, in Harvey & Weary, 1984) found that causal

information provided by the actors on outcomes affects participants' evaluations of them.

Harvey and Weary suggest that this may be a consequence of the participants having a modest amount of consistency, distinctiveness, and consensus information with regards to the actors.

The findings of these studies indicate that interactions influence attributions and attributions influence interactions. This suggests that social influences and pressures have an impact on attributions and the social context of attribution makes impact on the process. The exact impact of these strategies requires further elaboration.

### **Attribution Research in a Social Context**

Research indicates that social strategies influence the reported perception of causality. Social strategies may be used to support and explain other findings in attribution research. Jones and Davis suggested that social desirability was a factor in their theory of correspondent inferences (1965). They questioned the validity of individual's responses when they identified with actors. Jones and Davis argued that some reported attributions were a result of the individuals being aware of the consequences and the cultural desirability for specific responses. They elaborate with "Most people want to avoid embarrassing others by not meeting their expectations, most people want to gain the rewards implicit in approval from authority figures, most people want to manifest their intelligence by showing that they understand what is required of them" (1965, p.236).

Kelley (1971) concurs, and hypothesises that, in an attempt to gain the desirable consequences; individuals may use their knowledge of social pressures, shared values, and situational demands to estimate the degree to which a particular response is expected from them. He warned that if

the individuals were confident that their estimates were accurate, the estimates would replace the actual observation of consensus information, forming the basis of the attribution.

However, in spite of these suggestions that the social nature of consensus may set it apart from consistency and distinctiveness information, this possibility has not yet been explored.

Moscovici and Hewstone (1983) have developed their concept of social representation which attempts build the social link.

### *Social representations*

Moscovici and Hewstone (1983) suggest that the explanations for attributions need to be considered together with the societal beliefs in order for the theory to be rendered more social.

They hypothesise that common sense knowledge can be divided into two forms, one which can be classified by science and the other which is a transformation of new scientific knowledge into everyday language.

According to (Moscovici and Hewstone, 1983), most people act as unskilled scientists. The statement is based on people's use of information in making attributions. Moscovici and Hewstone question the notion of man-the-scientist due to the fact that the hypothetical person is assumed to have no prejudices, no conceptual knowledge, somebody who is as naïve as a young innocent child. They suggest that we assume three things: an innocent outlook, neutrality towards the world, the clearness of information with which he deals. However, the question raised is if they are this naïve and irrational, then how is it possible for them to reason in a logical manner.

Moscovici and Hewstone (1983) hypothesise that they don't always follow the logical manner as hypothesised by Kelley (1967). Instead, they suggest that perceivers use social representations when forming attributions. Social representations are defined as common-sense theories about key aspects of society that are used to reduce confusion and create a common understanding of information.

Next they focus on the attribution of outcomes to persons instead of situations which is generally referred to as the 'fundamental attribution error' and it is assumed that situational information is ignored. They explain this issue from a social representative point of view in that information that refers to the person is seen as being more real due to dominant cultural representations.

Moscovici and Hewstone (1983) suggest that the misinterpretations may be part of the working system of society. They suggest that other attribution puzzles may also be explained by their theory that it is due to people classifying information differently.

People are different; therefore attributions will be made based on our different backgrounds.

They suggest that attribution theorists believe that there is only one theory, when in fact there are several. Moscovici and Hewstone (1983) have raised the issue of people having different backgrounds and with the backgrounds come different perspectives and possible bias.

Researchers have to therefore be vigilant of additional negative social influences such as those addressed by the Social Attribution Theory.

### *Social Attribution Theory*

Social Attribution Theory suggests that in some circumstances respondents may modify their response in ways to meet the norms and expectations that they perceive are held by the interviewer (Johnson, Fendrich, Shaligram, Garcy & Gillespie, 2000). The theory contends that respondents construct interviewer norms based on cues such as the interviewer's appearance, speech, accent and mannerisms.

According to Johnson et al. respondents may assume that the interview has particular beliefs based on the information they have. In most cases, the respondent only has information about the interviewer's demographic information. Johnson et al conducted a study to use social attribution theory to evaluate the effects of interview characteristics in substance use surveys. The study did not support the social attribution theory. The theory received support when Lord, Friday, and Brennan (2005) examined the influence of interviewers' characteristics on providing consent.

Heeb and Gmel (2001, p. 434) in their study on interviewer and respondents effects in a Swiss Health Survey suggested that respondents "...may modify or revise, or "edit," their response for social desirability (i.e., make it meet some perceived social norm)". Their study also provided support for the model by identifying interviewer effects caused by age and gender in the sample. This led them to conclude that editing responses for social desirability may be responsible for differences in responses.

### **The Impact of Social Features of Attribution on the Use of Consensus Information**

The present study explores the hypothesis that it is the social nature of consensus information that results in its anomalous contribution to attribution as predicted by Kelley's (1967) model. It is hypothesised that since attributions take place in a social context with social information (consensus information) and have social implications, people form and report attributions with respect to the nature of the social context. The assumption is that the accurate attribution is compromised when individuals prioritise the demands of the social context over strict veridical attributional accuracy as assumed by Kelley's (1967) model and most other cognitive models of attribution.

It is hypothesised that individuals would socially analyse the attributed causality and if it is judged to be internal, controllable and intentional, the revealing of the reason would be judged to be socially weighty. In the case of attributing responsibility for a positive outcome, this could be socially desirable, but if the outcome is negative then attributing the cause of the outcome to an agent could be socially risky and disrupt the social fabric. The socially risky attributions may result in socially disruptive situations. In these situations it is hypothesised that social demands over-rule strict attribution accuracy and consensus information is under-utilised.

Based on these hypotheses, it is deduced that depending on the social context, the outcome of an interaction would be either an attribution using consensus information as predicted by Kelley's ANOVA model (in a socially safe context) or influenced by the social context to provide a socially acceptable response (in a socially risky context). Thus the social nature of consensus

information and the notion of social risk may explain in the unpredictability of consensus information.

The implication is that, if social norms were ignored, consensus information might be used in a predictable manner. Alternatively, if the risk of the social context were increased, individuals might make more 'false' but socially acceptable attributions. The impact of social factors has not been considered with respect to Kelley's model and doing so might explain the anomalous use of consensus information in practice.

There is no known direct research on the impact of the social context on the attribution process as a possible explanation for the anomalies surrounding consensus information. This has been identified as a gap in attribution research and is the aim of this project. It is anticipated that the findings will assist in identifying the reasons for the different treatment of the information types. Although this anomaly is now a 'stale' issue that has not received much attention for two decades, the continued, and apparently increasing, citation of Kelley's model of attribution in current research justifies revisiting this problem.

## **Method and Design**

### ***Aims and Hypotheses***

The aim of this study is to explore the use of consensus information in making attributions. Research on the topic has identified that consensus information is under used or not used at all in comparison to distinctiveness and consistency information during the attribution process. This under use of consensus information has resulted in the formation of attributions that are not predicted by Kelley's (1967) model which is a phenomenon that remains unexplained in the literature. This study will attempt to provide more clarity on the under use of consensus information by exploring the impact of social situations on the use of consensus information when making attributions. It is hypothesised that consensus information is distinguished from consistency or distinctiveness information by its social nature and its use is therefore more sensitive to specific features of the social contexts in which attributions are made. Thus the experiment was designed to investigate the impact of the riskiness of a social context on making attributions.

### ***Design***

#### *Design Considerations*

The reviewed literature (McArthur, 1972; Nisbett & Borgida, 1975; Pilkonis, 1977; Wells & Harvey, 1977) identified a poor research design as a possible explanation for the misuse of consensus information. An improved design was formulated based on this criticism. McArthur (1972) is the pioneer in the field which has resulted in her study being established as the template for subsequent research. Most researchers have used written statements and questions in their



studies to which participants were required to give paper-and-pencil responses. This methodology in research on causal attribution has been criticised because words, phrases and statements in the English language have specific consensual attribution implications (Brown & Fish 1983). As a consequence, the results of research using written vignettes are questionable. It can be argued that participants made specific attributions by taking cues provided by the verb use and wording in the statements, thus rendering them invalid as measures of cognitive attribution processes.

### ***Methodological problems***

Newcombe and Rutter (1982) have identified five methodological problems that affect ANOVA theory and research.

#### *The formulation of instructions.*

A variable that is neglected is the influence that variations in instructions to subjects can have on their responses. Instructions are expressed in a mixture of academic and informal language. When psychology students are used, the problem increases since they may pick up on cues easily.

#### *The choice of stimulus events.*

A second drawback is the widespread and hazardous procedure of presenting stimulus material in the form of simple verbal descriptions of behavior. There are many problems with this method, the most common being the presentation, manipulation, validation and contextualisation of experimental stimuli. Problems with presentation are based on the fact that they are verbal

and may include uncontrolled variations. Secondly, they indicate that visual media is not used even though this would solve a large number of the problems faced with the verbal criteria.

*The manipulation of information variables.*

The presenting to subjects of pre-coded information packages is problematic as well since it does not account for the choice that the participants would make if they were not restricted. Secondly, these methods also include problems such order effects (Ruble & Feldman, 1976) and information redundancy (Kassin, 1979).

*The choice of attribution measures.*

Explanation measures are criticized for restricting possible attributions to a few abstract theoretical categories. The forced-choice and scaling methods are commonly used and these methods do not empirically validate the causal attribution categories.

*The application of process probing methods.*

They suggest that methods and tools used for investigating cognitive processes should be used. These tools are thought to be more useful in probing the cognitive process of social inferences

***Current Design***

To counter this problem, the current instrument used visual material in the form of video vignettes. The video vignettes were designed to depict an Automatic Teller Machine (ATM) transaction occurring under different circumstances. The circumstances were created to reflect the combinations of consensus, consistency and distinctiveness information that Kelley (1967; 1973; Orvis, Cunningham, & Kelley, 1975) identified as resulting in attributions to persons, entities, and circumstances. These combinations are depicted in Table 3.

Table 3

*Covariation patterns that should lead to attributions to either the person, the entity or the circumstance*

Attribution	Information		
	Consensus	Distinctiveness	Consistency
Person	Low	Low	High
Entity	High	High	High
Circumstances	Low	High	Low

Consensus information refers to how the person's behaviour compares with that of others in a similar situation and was depicted by using two visually different actors. Consistency refers to how the person behaves at different times and in different situations and was represented by the use of two different times (day and night). Distinctiveness refers to how the person's behaviour varies across situations or with different people and was depicted by the use of two visually distinctive ATMs.

Observations of ATM user behaviour in malls were made in order to develop a template script that would be followed when filming the clips to ensure that the stimuli were (a) realistic; and (b) the transactions under the different conditions would be similar in pace, length and affect. The researcher obtained permission from a chosen bank and the mall in which it was located to film the clips.

Each clip depicted an actor walking up to an ATM and attempting to withdraw money. Four variables were manipulated in the video clips: namely the identity of the user (consensus); whether the left or right ATM machine was used (distinctiveness); the time of day (consistency) and the failure or success of the withdrawal (outcome). These variables were represented as follows:

*Consensus information.*

Consensus information was operationalised by showing two visibly different ATM users experiencing different outcomes in the same situation. The researcher acted as one of the ATM users due to the nature of the experimental manipulation which will be discussed below and an actor played the role of the second user. They dressed in a similar manner (blue jeans, long sweaters and similar shoes) in order to minimize participants making attributions based on their appearance. However, they were visibly different so that the participants could tell them apart. This was achieved by only one of them (the researcher) wearing a baseball cap. The cap also assisted in hiding the identity of the researcher as was required by the design. The names 'Bob' and 'Jon' were superimposed on the screen while they made their transaction. These names which were taken from McArthur's (1972) study are both 'Western', masculine and three letters long and they were distinctive enough to allow attribution differentiation and similar enough to avoid unintended confounds, for example, related to any cultural connotations that might be related to each name.

*Distinctiveness information.*

The spatial location (left or right) of two ATM machines was used to provide distinctiveness information. Distinctiveness information was operationalised by the users experiencing constant

success at one ATM and constant failure at the other. The ATM facility of one of the largest banking institutes at a local mall was selected for filming the clips because it fitted the researcher's criteria of having more than one ATM in a quiet location which was large enough to accommodate the video recording needs.

### *Consistency information*

Consistency information was operationalised by the users experiencing constant success during one time period and constant failure during the other. Three pieces of information were used to show time: firstly, the time was displayed boldly against a dark background for a second at the start of each clip; secondly, the time of day was indicated at the bottom of the screen (as either "during office hours" or "after office hours") for the duration of each clip; thirdly, a digital clock using the 24 hour format (e.g. 09:15, 21:15) was superimposed in an empty frame that was conveniently situated between the two ATMs and therefore appeared to be a real 24-hour clock in the recorded scene. This was both necessary and possible since the clips were filmed using artificial lighting in a mall, which prevented the real time of day from being determined from environmental cues. However, during analysis it emerged that more realistic cues, such as daylight versus night-time, may have been more effective.

### *Outcome.*

The user was either successful at withdrawing the money or unsuccessful. To operationalise success, the users were shown putting the withdrawn money into their wallets before walking away. Alternatively, failure was depicted when the users turned back to look at the ATM, their body language showed disappointment and they replaced only the ATM card into their wallets before walking away.

*The riskiness of the social context.*

The riskiness of the social context was manipulated in the research interview by the researcher either playing the role of a neutral researcher or by giving the impression that he was one of the ATM users in the clips. It was hypothesised that when the participants were under the impression that the researcher was a neutral researcher they would be at ease and would have the freedom to make the 'correct' causal attribution (as predicted by Kelley, 1967 in table 3), but when the participant was aware that the researcher was actually the person performing the transaction, their attributions would be oriented to the fact that attributing the cause of the failure to the actor would be socially risky and that this affect their reported attribution and, specifically, result in the under-use of consensus information as reported in the literature.

*The stimulus tapes.*

An introductory clip was created for inclusion at the beginning of each tape to introduce the variables to the participants. Firstly, the actor Bob was introduced with a still image of him appearing for few seconds and his name appearing in a bright bold orange font. Jon was next and he appeared for the same duration with the same sort of caption. Stills of the 'time of day' followed and the researcher pointed out the clock in the center of the screen and the caption at the bottom (either during office-hours or after office-hours). Lastly the ATMs were introduced with the left first and then the right. Each clip was accompanied by the appropriate caption. The introduction increased the participant's awareness of which factors could affect the outcome of the transaction.

To summarise, each clip showed one of the users (Bob or Jon) going to a specific ATM (either the left or the right), at a particular time of day (either during or after office hours) and they would either fail or succeed in making a withdrawal. Table 4, below, depicts the different clips that were shot.

Table 4

*The 16 different video clips used to provide information*

Clip	Outcome	Distinctiveness	Consistency	Consensus	Duration
Introduction	-	Both	Both	Both	32:30
1	Failure	Left ATM	Day	ATM user Bob	25:04
2	Failure	Left ATM	Day	ATM user Jon	25:17
3	Failure	Left ATM	Night	ATM user Bob	25:04
4	Failure	Left ATM	Night	ATM user Jon	25:17
5	Failure	Right ATM	Day	ATM user Bob	26:05
6	Failure	Right ATM	Day	ATM user Jon	25:09
7	Failure	Right ATM	Night	ATM user Bob	26:05
8	Failure	Right ATM	Night	ATM user Jon	25:09
9	Success	Left ATM	Day	ATM user Bob	30:14
10	Success	Left ATM	Day	ATM user Jon	25:08
11	Success	Left ATM	Night	ATM user Bob	30:14
12	Success	Left ATM	Night	ATM user Jon	25:08
13	Success	Right ATM	Day	ATM user Bob	26:20
14	Success	Right ATM	Day	ATM user Jon	28:04
15	Success	Right ATM	Night	ATM user Bob	26:20
16	Success	Right ATM	Night	ATM user Jon	28:04

The clips were combined in different sequences to satisfy specific conditions. To show low consensus, low distinctiveness and high consistency information for a person attribution the clips were combined to show one actor being successful in every transaction (a successful withdrawal of money), while the second actor constantly failed. Low consensus, high distinctiveness, and low consistency information for a circumstance attribution was shown when the actors were only successful during one time period (succeeded during office hours only or after office hours only) and constantly failed at the alternative time. Lastly high consensus, high distinctiveness, and high consistency information for an entity outcome was provided when the actors succeeded when using one machine but constantly failed when using the second. Each type of information was depicted differently in two tapes (e.g. In Person: Jon, Bob constantly succeeded while Jon constantly failed, and in Person Bob, Jon constantly succeeded while Bob constantly failed), resulting in the creation of six tapes. Due to resource constraints it was not possible to fully randomize the sequence of clips in each tape for every showing or to follow a Latin-square design so, as a compromise it was decided that the outcome of the clips would follow the random sequence of: success, failure, success, success, failure, failure, success, failure. The order of the clips was randomly selected using the Microsoft Excel random number generating function but matched the outcome sequence. Table 5 depicts the tapes clip sequence.



Table 5

*The sequence of clips used to create the different tapes*

Attribution	Clip Sequence							
	Success/Failure							
	S	F	S	S	F	F	S	F
Person: Jon	13	8	11	9	4	2	15	6
Person: Bob	14	5	12	10	7	3	16	1
Circumstance: Night	9	8	14	13	7	4	10	3
Circumstance: Day	16	6	11	15	5	1	12	2
Entity: Right ATM	11	8	9	10	6	5	12	7
Entity: Left ATM	16	3	13	15	4	2	14	1

The extent to which the participants experienced the vignettes in a neutral or social context was also manipulated by the researcher taking on a neutral role or acknowledging that he was the person represented in the vignette which resulted in 12 experimental conditions as depicted in the table below.

Table 6

*The 12 conditions*

Condition	Vignette Type	Researcher Role
1	Person: Jon	Neutral Researcher
2	Person: Bob	Neutral Researcher
3	Circumstance: Night	Neutral Researcher
4	Circumstance: Day	Neutral Researcher
5	Entity: Right ATM	Neutral Researcher
6	Entity: Left ATM	Neutral Researcher
7	Person: Jon	ATM User
8	Person: Bob	ATM User
9	Circumstance: Night	ATM User
10	Circumstance: Day	ATM User
11	Entity: Right ATM	ATM User
12	Entity: Left ATM	ATM User

***Sample and Venue***

The Royal Agricultural Show was selected as the first site for the project. This show is an annual event in Pietermaritzburg, KwaZulu-Natal, that includes agricultural competitions, concerts, flea-market style trading, as well as a fun fair and various other entertainment attractions. As a result, it is one of the largest gatherings of people in Pietermaritzburg as thousands of people attend the show over its week long duration. This venue was chosen as it provided the researcher with access to a mixed and general population. The University of

KwaZulu-Natal had a stand in a prominent position which was a convenient location for the researcher. The researcher anticipated that, with regards to the younger attendants, participating in this research project could not compete with the many available attractions and it was decided that a second collection site was necessary to sample this group. It was decided that the University of KwaZulu-Natal, Pietermaritzburg campus would be used as the second data collection site.

Participants were selected on a voluntary basis if they met the requirement of being 18 years or older. This criterion was selected to make consent issues simpler, as the researchers could avoid proxy consent. The result was a mature sample that was capable of assisting the researcher. A literacy test was used to determine if the participants were competent to notice and comprehend the written prompts in the video vignettes (such as the time of day) and to gather and use information from the vignettes to answer the researchers' questions. The literacy test required them to spot the difference between pairs of three sets of pictures. Each set represented one of the three attribution variables (person, entity or circumstance). In addition to screening participants, the test doubled as a way of priming participants about the essential information depicted in the film clips. Figure 4 below, is an example from the test.



A

B

Figure 4

*Participants were required to spot the difference between A and B*

The researcher conducted the study on the balcony of the University of KwaZulu-Natal stand. The sides of the balcony were partitioned to provide the participants with privacy while they were viewing the clips and answering the questions. The front was left open which did not compromise the privacy issue as it overlooked a river and was on an upper floor, however, it made the temperature and the glare of the afternoon sun a factor.

### ***Procedure***

Participants were approached by the researcher and requested to assist in the project. They were provided with an incentive of being entered into a lucky draw for one of three shopping vouchers. The project was explained to the prospective participant. Once the participants agreed to assist the researcher, they were required to fill in a consent form and take the literacy test. Their responses were recorded by the researcher on a question paper.

Next the participants viewed one of the six tapes. The tapes were selected based on a predetermined random order, to ensure that there were no order effects whilst ensuring that cells were similarly sized regardless of eventual sample size. Thus the type of information they received varied according to the selected tape. Each tape began with an introduction that identified the variables that the participant should be aware of (the users, the ATMs and the time). A preamble before each clip provided visual information about what the participant would see. The social context was manipulated, with the participant being informed that the researcher is the ATM user on the tape in some cases, or alternatively that he was a neutral and uninvolved researcher. When the researcher took on the user role he dressed in the exact same clothes as worn in the tape (black cap, black sweater, and blue jeans with black shoes) and he had a name tag with the name 'Jon' (the name used in the tape). He also introduced himself as Jon and tactfully informed the participant that he was the user in the tape. The researcher changed his clothes (removed the cap and replaced the sweater with a blue t-shirt) and name tag (replaced Jon with his own name) when in the neutral researcher role. Permission to audio record the participants' responses was requested.

### ***The Measure***

The researcher interviewed the participants, asking them to make causal attributions on the circumstances in the clip. A script was used to interview the participants so as to avoid any research bias. Participants were asked the open-ended question of "So, what went wrong?" The open-ended question was used so as not to constrain their response and to avoid research biases which may have been caused by providing additional information or cues. Participants provided

verbal responses that were audio recorded and the researcher recorded the response on a answer form.

The researcher thanked them for their assistance and they were entered into a lucky draw to win shopping vouchers. Additional information and a debriefing were provided when requested. A sample of 208 participants was collected containing both males and females.

### *Preliminary Analysis*

A preliminary analysis was conducted before continuing the research at site B. This was prompted by the researcher observing that participants were experiencing difficulties when using consistency information. It was felt that the difficulty was a result of the operationalisation of consistency information, since it was provided abstractly in the form of an on-screen clock and by sub-titling in whether it was during or after office hours. In comparison consensus and distinctiveness information was provided spatially and less abstractly by using different users and ATMs respectively. The preliminary analysis indicated that consistency information was not being used when making attributions and it had no impact on the results. With this in mind, a decision was taken to modify the experiment by dropping consistency information before continuing with the study. This has the additional benefit of shortening the video vignette that each participant was required to watch. Due to the fact that the analysis indicated that consistency information had no impact the researcher was confident that the results from the different sites could be combined.

## *Modifications*

The original tapes were edited to remove the consistency information. Tapes three and four (tapes in which circumstance attributions affected the outcome) were completely excluded and the clips that were included in the remaining tapes to provide consistency information were deleted. The edited clock and time information at the bottom of the clips were removed as well. Below is a list of the clips that were used to create the new tapes.

Table 7

### *The remaining eight video clips*

Clip	Outcome	Distinctiveness	Consensus	Duration
Introduction	-	Both	Both	32:30
1	Failure	Left ATM	ATM user Bob	25:04
2	Failure	Left ATM	ATM user Jon	25:17
5	Failure	Right ATM	ATM user Bob	26:05
6	Failure	Right ATM	ATM user Jon	25:09
9	Success	Left ATM	ATM user Bob	30:14
10	Success	Left ATM	ATM user Jon	25:08
13	Success	Right ATM	ATM user Bob	26:20
14	Success	Right ATM	ATM user Jon	28:04

The clip sequence was altered with the removal of the Consistency tapes and clips as indicated in Table 8. Table 9 indicates the sequence that was used to create the four tapes.

Table 8

*The removal of consistency information*

Success/Failure	Clip Sequence							
	S	F	S	S	F	F	S	F
Consensus A	13	<del>8</del>	<del>11</del>	9	<del>4</del>	2	<del>15</del>	6
Consensus B	14	5	<del>12</del>	10	<del>7</del>	<del>3</del>	<del>16</del>	1
<del>Consistency A</del>	<del>9</del>	<del>8</del>	<del>14</del>	<del>13</del>	<del>7</del>	<del>4</del>	<del>10</del>	<del>3</del>
<del>Consistency B</del>	<del>16</del>	<del>6</del>	<del>11</del>	<del>15</del>	<del>5</del>	<del>1</del>	<del>12</del>	<del>2</del>
Distinctiveness A	<del>11</del>	<del>8</del>	9	10	6	5	<del>12</del>	<del>7</del>
Distinctiveness B	<del>16</del>	<del>3</del>	13	<del>15</del>	<del>4</del>	2	14	1

Table 9

*The modified sequence of clips used to create the tapes*

Attribution	Clip Sequence			
Person: Jon	13	9	2	6
Person: Bob	14	5	10	1
Entity: Right ATM	9	10	6	5
Entity: Left ATM	13	2	14	1



Once again, the participants experienced the vignettes in a social context (manipulated by the role of the researcher). This additional variable applied to the four tapes provided the researcher with eight conditions as depicted in the table below.

*Table 10*  
*The eight conditions*

Condition	Vignette Type	Researcher Role
1	Person: Jon	Neutral Researcher
2	Person: Bob	Neutral Researcher
5	Entity: Right ATM	Neutral Researcher
6	Entity: Left ATM	Neutral Researcher
7	Person: Jon	ATM User
8	Person: Bob	ATM User
11	Entity: Right ATM	ATM User
12	Entity: Left ATM	ATM User

*Procedure Followed at Second Site*

The University of KwaZulu-Natal, Pietermaritzburg was used as the site to access the younger population. The participants were selected on a voluntary basis and it was confirmed that each participant was 18 years old or over. A second criterion was that they had not previously participated in this research.

Permission was granted to the researcher to use a room in the Child and Family Centre which is located on the university campus to conduct his research. He was provided with a private room and with a video monitor and recording equipment. This location was ideal as it provided privacy and comfort and was located only a few meters from a busy thoroughfare used by students to travel between lecture venues. Participants were approached by the researcher and requested to assist in the project. They were provided with the incentive of a voucher (for one small juice and a chocolate) from the campus cafeteria. The project was explained to the prospective participant. Once the participants agreed to assist the researcher, they were required to fill in a consent form and take a revised literacy test. The new test required them to identify the difference between two sets of two pictures. Either consensus or distinctiveness information was represented in the pictures. Their responses were recorded by the researcher on a question paper.

Participants subsequently viewed one of the four tapes. The tapes were chosen based on a predetermined random numerical order to permit an equal number of participants to view each tape. Thus the type of information they received depended on the order they participated in. Each tape began with an introduction that identified the variables that the participant should be aware of (the users and the ATMs). A preamble before each clip provided visual information about what the participant would see. The social context was manipulated again, with the participant being informed that the researcher was the user depicted in the vignette in some cases or a neutral researcher in others. The procedure remained the same, with the researcher dressing in the exact same clothes as worn in the tape (black cap, black sweater, and blue jeans with black shoes) and using the name tag 'Jon' (the name used in the tape) when he took on the user role.

When in the neutral role, he changed his clothes (removed the cap and replaced the sweater with a blue t-shirt) and switched name tags (replaced Jon with his own name).

The same process was followed with permission to audio record the participants' responses being requested, followed by the researcher then interviewing the participants, asking them to make causal attributions on the circumstances in the clip. The same script was used as at the first site to maintain consistency and prevent research bias. The researcher thanked them for their assistance and provided them with a voucher. Additional information and a debriefing were provided when requested. A sample of 96 participants was collected at this site containing both males and females.

## Analysis

Of the 208 participants interviewed at the first site, the 70 participants who viewed tapes three and four had to be excluded due to the problematic issues surrounding the use of consistency information and its subsequent elimination from the design. As a result of data cleaning 11 participants were excluded since they did not provide an answer. The preliminary analysis indicated that there was no effect of the consistency information and a second analysis indicated that there was no difference between the sites so the two sites were combined. The total sample population for the project was therefore 223 participants. The data was coded to match the outcomes according to Kelley's model (1973).

Table 11

*Justification for combining sites*

		Site 1	Site 2	Total	Chi-square	P-value
Answer	Incorrect	24	21	45		
	Correct	106	72	178		
Total		130	93	223	0.571	.450
Information	Consensus	64	46	110		
	Distinctiveness	66	47	113		
Total		130	93	223	0.001	.973
Researcher	Neutral	67	48	115		
	ATM-User	63	45	108		
Total		130	93	223	0.000	.991

The crosstabulation shows the interaction between the trials and accuracy of responses. No differences are suggested. The chi-square reports a non significant result of .45, suggesting that the results of the two trials are similar and can be combined.

### *Coding*

Kelley (1973; Orvis, Cunningham, & Kelley, 1975) identified combinations of consensus, consistency and distinctiveness information that would result in attributions to persons, entities, and circumstances. These combinations (depicted in Table 3) are the predicted response to the ‘So what went wrong?’ question based on the information provided in the different conditions.

The information provided in condition one can be written out in a McArthur style format such as:

Jon was successful at making a withdrawal from the ATMs.

In the past, Jon has almost always been successful at withdrawing money from the same ATMs.

Bob was not successful at the either ATM.

Applying the rational of Kelley (1973) the predicted response to the question of “So what went wrong?” would be: Something to do with Bob

The video vignettes in the study provided the same information by using four clips. Below is a table of what the participants would have seen when they viewed the users attempting to make ATM withdrawals. The first column indicates what the intended attribution was; the second column contains the information that was provided for use in making the attribution. Finally, the

last column contains the predicted response according to Kelley (1967, 1973) based on the information that is provided.

Table 12

*The predicted response based on the provided information*

Designed Attribution	Information Provided	Predicted Response
Person:	Bob was unsuccessful at using the ATM on the right	Something to do
Bob	Jon was successful at using the ATM on the right	with Bob
	Bob was unsuccessful at using the ATM on the left	
	Jon was successful at using the ATM on the left	
Person:	Jon was unsuccessful at using the ATM on the right	Something to do
Jon	Bob was successful at using the ATM on the right	with Jon
	Jon was unsuccessful at using the ATM on the left	
	Bob was successful at using the ATM on the left	
Entity:	Bob was unsuccessful at using the ATM on the right	Something to do
Right ATM	Jon was unsuccessful at using the ATM on the right	with the ATM on
	Bob was successful at using the ATM on the left	the right
	Jon was successful at using the ATM on the left	
Entity: Left	Bob was successful at using the ATM on the right	Something to do
ATM	Jon was successful at using the ATM on the right	with the ATM on
	Bob was unsuccessful at using the ATM on the left	the left
	Jon was unsuccessful at using the ATM on the left	

The participant's responses were coded according to their attributions, for example, if the response was "Something to do with Bob, Bob or the guy without the cap" the response would be coded as Something to do with Bob. Next, the predicted response was listed, for example, when viewing the Person: Bob tape the expected response would be Something to do with Bob (or just Bob). The actual response was compared to the predicted response and when they matched they were coded as 'Correct' and when they did not it was coded as incorrect. Thus, the dependant variable is whether the participant selected the expected cause.

The Statistical Package for Social Sciences (SPSS) was used to enter and analyse the data. The literacy test scores were calculated to ensure that the respondents were competent. All of the remaining 223 participants were eligible based on their scores. Logistic regressions were used to analyze the data.

## Results

The theoretical hypothesis was that participants would be likely to under-use or ignore consensus information in situations where attribution carried social risk, which was operationalised as the combination of the researcher in the ATM-user role and the provision of person information. In other words, it was hypothesized that the social riskiness of the setting would have an effect on the 'accuracy' (as predicted by Kelley, 1967) of the answer provided by the participants for consensus but not for distinctiveness information. The effect would be that the participant would be more likely to provide an incorrect answer under that condition. If the hypothesis was true, then the results would reveal an interaction effect for the combination of the researcher as - ATM-user role and person information when the dependant variable is the accuracy of the answer provided by the participant. Additionally, it was hypothesised that the accuracy of the answer would not be affected in the other conditions. It was expected that the majority of the answers would be correct due to the simplicity of the task and the adequate provision of the necessary information to the participants.

Binary logistic regression was chosen as the statistical technique to analyse the data because it was the most appropriate statistical technique for an experimental design, such as the current one, in which there is a categorical dependant variable and categorical independent variables (Hair, Anderson, Tatham & Black, 1998). The primary reason for selecting the logistic regression is that it can be used to assess interaction effects in categorical data while differentiating between dependant and independent variables (in comparison to techniques that explore all relationships between variables without distinguishing between predictors and outcomes or independent and dependant variables such as loglinear analysis).



Binary logistic regression is also resistant to violations of assumptions since it does not assume linearity of relationship between the independent variables and the dependant, does not require normally distributed variables, and does not assume homoscedasticity. Additionally, it includes straight-forward statistical tests with the impact of the predictor variables usually explained in terms of odds ratios. Logistic regression applies maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependant occurring or not). In this way, logistic regression estimates the odds of a variable contributing to an effect (Hair et.al., 1998).

To run a binary logistic regression on this data in SPSS, the accuracy of the answer was entered as the dependant variable. Next, the information type was entered with person information selected as the indicator (i.e. the results would indicate the effect that providing high person information has on the accuracy of the response) and the role of the researcher was included with the role of the ATM user selected as the indicator. These independent variables were specified as being categorical. The interaction of information type and role was included in the model since this would directly test the experimental hypothesis.

The forward stepwise likelihood-ratio (LR) method was selected for the analysis because it generally avoids incorporating redundant variables in the model. Forward selection starts with the constant only model and adds variables one at a time, starting with those that are most influential and stopping when none of the remaining variables would contribute significantly to

the model. The LR option utilises the likelihood ratio test (chi-square difference) to assess significance.

The following results were produced:

*Table 13*

*Description of the data with accuracy of answer as the dependant variable*

		Frequency	Percentage	Variable Coding
Information Type	Person (Consensus)	110	49.3	0
	Entity (Distinctiveness)	113	50.7	1
	Total	223	100.0	
	Missing	0	0	
Researcher Role	Neutral Researcher	115	51.6	0
	ATM User	108	48.4	1
	Total	223	100	
	Missing	0	0	
Accuracy of Answer	Incorrect	45	20.2	0
	Correct	178	79.8	1
	Total	223	100.0	
	Missing	0	0	

Table 13 displays descriptive statistics for the sample by information type, researcher role and accuracy of answer. It contains no missing data. Person (high consensus) information was provided to 110 participants (49.3%) and 113 participants were provided with entity (high distinctiveness) information (50.7%). The researcher interviewed 115 participants in the role of a neutral researcher (51.6%) and 108 in the role of an ATM user (48.4%). Inaccurate responses were provided by 45 participants (20.2%) while 178 (79.8%) provided accurate responses, with accuracy judged according to Kelley's (1967) model as discussed previously.

Table 14

*Distribution of data*

Researchers Role	Information Type	Accuracy of Answer	Frequency	Percentage
Neutral	Person (consensus)	Incorrect	10	17.5%
		Correct	47	82.5%
	Entity (distinctiveness)	Incorrect	8	13.8%
		Correct	50	86.2%
User	Person (consensus)	Incorrect	18	34.0%
		Correct	35	66.0%
	Entity (distinctiveness)	Incorrect	9	16.4%
		Correct	46	83.6%

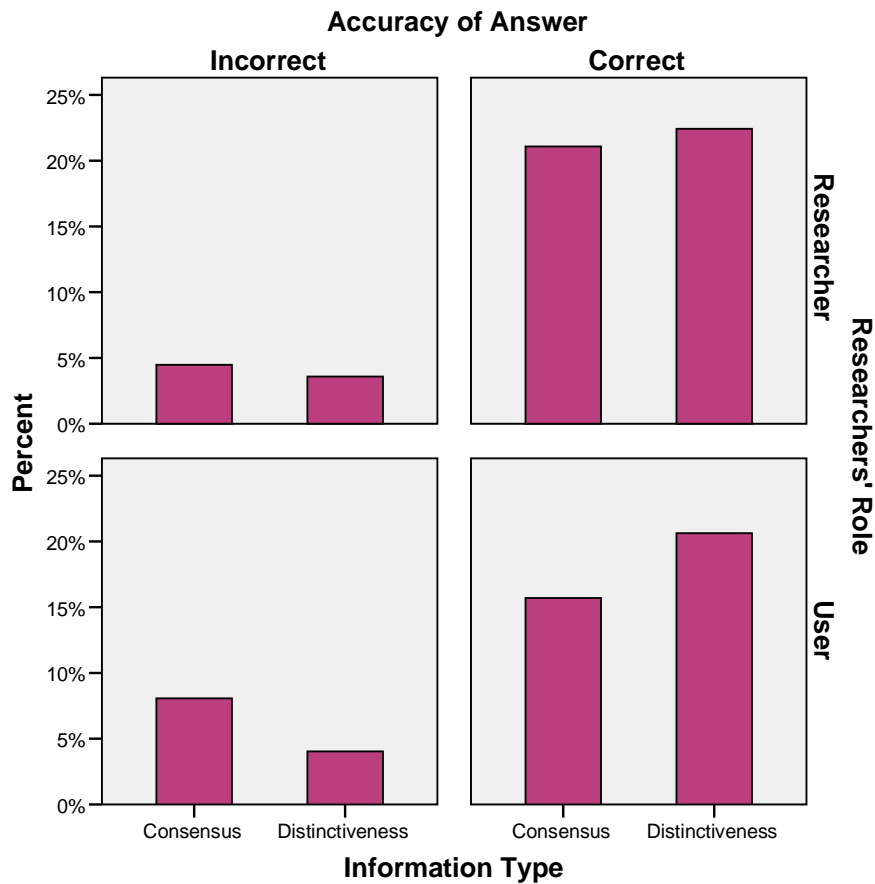


Figure 5  
*Distribution of data*

Figure 5 depicts the cross-tabulated distribution of the data. The most visible variation is between the number of incorrect and correct responses. The bars for the researcher role indicate more incorrect responses in the researcher-as-user group (bottom) than in the researcher-as-researcher group (top). There appear to be more incorrect responses in the consensus group than in the distinctiveness group. The distribution of incorrect and correct answers across the conditions appear similar except for the ATM user and person (high consensus) combination (third combination). A higher number of incorrect responses were reported in this group (34%) when compared to the other groups (13.8%-17.5%).

Table 15

Significance tests for logistic regression

		Chi-square	df	Sig.
Step 1	Step	7.538	1	.006
	Block	7.538	1	.006
	Model	7.538	1	.006

The omnibus tests for model coefficients were used to test for significance and results indicate that at least one of the predictors is significantly related to the response variable ( $\chi^2 = 7.538$ ;  $p = .006$ ).

Table 16

Measures of association

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	216.746	0.033	0.052

The -2 Log likelihood (216.746) and pseudo- $r^2$  estimates suggest that, although the model is significant, the relationship between variables is small. Approximately 3.3% to 5.2% of the difference in answer correct is predicted by this pattern of association. However, given that the overall percentage of *incorrect* answers was small (20.2%) and the hypothesis is related to this subset of wrong answers, this figure is probably an underestimation of the effect-size.

Table 17

*Classification Table (a)*

		Predicted			
		Accuracy of Answer		Percentage Correct	
Step 1	Observed	Incorrect	Correct		
	Step 1	Accuracy of answer	Incorrect	0	45
Correct			0	178	100.0
Overall Percentage					79.8
a The cut value is .500					

The classification table indicates that the predicted value for incorrect answers is 0 which is the same prediction made by Kelley (1967). The overall percentage correct is an indicator of goodness-of-fit and at 79.8% the percentage suggests that the model has reasonable fit.

Table 18

*Variables in the Equation*

Step	Person	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp B)	
								Lower	Upper
1 (a)	*ATM user	1.002	.358	7.835	1	.005	2.724	1.350	5.494
	Constant	-1.667	.210	63.114	1	.000	.189		

a Variable(s) entered on step 1: Information type\*researcher role, information type, researcher role

The stepwise procedure stopped after step one and included only the interaction effect.

Therefore the combination of researcher role (researcher-as-user vs. researcher-as-neutral) contributes significantly to the pattern of incorrect answers observed. Specifically, interpreting these results in light of the indicator categories selected, the model suggests that the odds of receiving an incorrect answer from a participant in the experimental condition increases by 2.724 (Exp(B);  $p = .005$ ). However, the confidence interval indicates that the odds could be as high as 5.494 or as low as 1.055

Table 19

*The excluded information types*

Step 1	Variables	Person Info	Score	df	Sig.
		ATM user	.177	1	.674
			.014	1	.905
	Overall Statistics		.317	2	.854

Table 20

*The final model*

Variable	Model Log Likelihood	Chang in - 2 Log Likelihood	df	Sig. of the Change
Step 1 Person *ATM user	-112.142	7.538	1	.006

Table 19 depicts the variables that were not included in the model. The excluded variables indicate that, taken separately, neither person information nor the ATM user role account significantly for the observed variability in response. However, the interaction between the two variables has a significant effect as discussed above (Table 20).

The binary logistic regression was successful in identifying the interaction; however, the output does not allow us to isolate the source of variability in incorrect answers between the four possible combinations of person and entity information possible in the interaction effect. This is due to the fact that the binary logistic model uses an individual case-level modeling approach. In comparison, the multinomial logistic regression uses a subpopulation modeling approach and produces outputs based on these subpopulations that can isolate the source of influence more precisely SPSS (2007) argues that even when the predictor and response variables are categorical, the multinomial logistic regression can produce valid results. This justified running a multinomial logistic regression model. Given that the experimental hypothesis predicted that only the interaction effect will be significant and this was confirmed by the more appropriate binary logistic procedure (above), only the interaction effect entered into the multinomial logistic regression.



Table 21

*Likelihood Ratio Tests*

Effect	Model Fitting Criteria		Likelihood Ratio Tests			
	AIC of	BIC of	-2 Log Likelihood	Chi-Square	df	Sig.
	Reduced Model	Reduced Model	of Reduced Model			
Intercept	23.955	37.583	15.955 <sup>a</sup>	.000	0	
<b>Information</b>						
type*Role	25.814	29.221	23.814	7.859	3	.049
<sup>a</sup> This reduced model is equivalent to the final model						

The interaction effect is significant in the multinomial logistic model ( $\chi^2 = 7.859$ ; df. =3; p = .049), in line with the results of the binary logistic model reported above.

Table 22

*Parameter Estimates*

Accuracy <sup>a</sup>		B	Std Error	Wald	Sig	Exp (B)	95% Confidence level for Exp (B)	
							Lower Bound	Upper Bound
Incorrect Answer (Intercept)		-1.631	.364	20.034	.000			
Person (Consensus)	Neutral	0.084	.504	0.028	.868	1.087	0.405	2.921
	Researcher ATM User	0.966	.466	4.305	.038	2.629	1.055	6.550
Entity (Distinctiveness)	Neutral	-0.201	.527	0.146	.703	0.818	0.291	2.298
	Researcher ATM User	0 <sup>b</sup>						

<sup>a</sup>The reference category is: Correct

<sup>b</sup>This parameter is set to zero because it is redundant

The table of parameter estimates indicates that the only combination of information-type and researcher-role to achieve significance is the combination of person (consensus) information and researcher-as-ATM-user ( $p = .038$ ). The related odds ratio indicates that odds of receiving an incorrect answer from a participant in the high consensus and interviewed by the user condition increases by 2.629. The confidence interval indicates that odds could increase by as much as 6.550 or less as 1.055. In comparison, the other conditions have smaller effect size and are not statistically significant. These results correspond to those of the binary logistic model but isolate the source of variability of incorrect answers to the combination of person (consensus) information and researcher-as-ATM-user.

## Discussion

The reviewed literature suggested that when individuals are provided with the different information types, as identified by Kelley (1967), consensus information was used comparatively less than distinctiveness or consistency information. Some studies suggested that it was ignored (McArthur, 1972, Nisbett & Borgida, 1975) while others suggested that it received a lesser treatment due to its poor operationalisation and methodology in the relevant studies (McArthur, 1972; Pilkonis, 1977; Wells & Harvey, 1977). Subsequent research that explored the issues that were raised (Kahneman & Tversky, 1973; McArthur, 1976; Kassin, 1979; Wright et al., 1990) was unsuccessful in unraveling the problem. However, although some studies obliquely suggested that the social nature of consensus information (compared to consistency and distinctiveness information) may potentially explain its anomalous treatment in terms of Kelley's (1967) model, no previous studies have attempted to experimentally explore this hypothesis. This is somewhat surprising, since the attribution process is an everyday occurrence in society, it occurs in social contexts (and even laboratory settings are inescapably social) and the attributions often have social implications, for example, in the allocation of blame. Furthermore, consensus information, which was empirically identified as being used to a lesser degree than expected in Kelley's (1967) model, is particularly social compared to distinctiveness and consistency information.

Based on the literature, it was hypothesised that the empirical under-use of consensus information may be related to the social context of attribution settings. Individuals make attributions that have social implications; as a result, these implications influence the attribution that is made as individuals unconsciously or consciously disregard information and provide

socially acceptable responses to in response to the social features of the setting in which the attribution is made. In contrast to early notions that people act as naïve psychologists or scientists (cf. Heider, 1958; Kelley, 1967), it was hypothesised that attending to the social features of the attribution context may take be priority over veridical attribution.

### ***Design***

Previous studies (McArthur, 1972; Piliokonis, 1977 Wells & Harvey, 1977) identified possible flaws in operationalisation and methodology of attribution research. As mentioned in the methodology chapter, this study was designed to avoid these potential flaws by using video vignettes instead of paper and pencil methods and by using a realistic social situation (ATM withdrawals). Participants were required to make causal attributions on the failure to make an ATM withdrawal in either a neutral context or in a social context. In these situations, they were provided with either person or entity information. The participant's attributions were recorded and coded for accuracy as predicted by Kelley's model. The results were analysed with logistic regression.

### ***Discussion of Results***

#### *Consistency information.*

Preliminary analysis indicated that the participants experienced difficulties in utilizing consistency information correctly. The problem experienced by the participants with consistency information was most likely due to the difficulty in operationalising the information type in video vignettes. While the distinctiveness and consensus variables were operationalised using non-abstract, tangible variables (left and right ATMs and two obviously different ATM users

respectively), consistency information was encoded by intangible abstract means, specifically: a written message at the bottom of the screen and a small digital clock readout at top-centre of the screen. It may be argued that the consistency variables were more abstract and therefore more difficult to process, resulting in the information being ignored. The variable was therefore dropped from the study. This is problematic, as it allowed only a partial test of Kelley's (1967) model.

*Treatment of distinctiveness information.*

Distinctiveness information was treated in the manner predicted by McArthur (1972) and other researchers (reviewed by Kelley & Michela, 1980; Harvey & Weary, 1984). The participants used the information to make the predicted attributions when they were interviewed by both the ATM-user and the neutral-researcher. There were no significant differences in the results with inaccurate responses provided only 13.8 percent of the time when interviewed by the researcher and 16.4 percent of the time when interviewed by the user.

*The reason for this treatment.*

These results provide a strong argument that distinctiveness information, since it is not socially risky, was treated in a predictable manner because there were no social implications of using or not using the information in producing an attribution. The incorrect responses may be explained by one of two reasons, namely: the participants were not able to use the information correctly and/or got confused; or as suggested in the literature (Gerard, 1963; Misra, 1973, both in Kelley & Michela, 1980; Kelley, 1971) they substitute their own prior knowledge for the provided information and made attributions based on their past experiences, as indicated by responses

such as 'he did not have sufficient funds'. This issue is elaborated on below, as a possible limitation.

#### *Treatment of Consensus Information*

The experimental hypothesis was confirmed as the results indicate that person information was treated in a different manner in the socially risky condition. In the neutral condition, in which making an attribution that the fault lay with the actor, unconnected to the researcher, consensus information was treated in a similar manner to distinctiveness information.

The consensus information was used as predicted by Kelley (1967) with an accuracy rate of 82 percent when the interviewer was in the role of a neutral researcher, which is similar to the accuracy rates for distinctiveness conditions. This suggests that consensus information is used as predicted by Kelley's model when doing so does not risk upsetting the social fabric. As with distinctiveness information, incorrect responses can be explained by the use of prior knowledge and because of error

#### *Treatment when interviewed by the user.*

In contrast to the accuracy rates reported above (85 percent and 82 percent), an accuracy rate of 66 percent was reported when the participant was interviewed by researcher in the role of the ATM-user. This supports the hypothesis that participants prioritise the social features of the attributional context over the expectation that they make veridically accurate attributions. The analysis clearly indicates that this condition (person information with the researcher-as-ATM-user) was the only condition that provided a comparatively high rate of inaccurate answers (34 percent). Furthermore, logistic regression models estimate that a participant in the experimental

condition is 2.629 times more likely to provide an incorrect answer. This condition was the only condition that significantly deviated from the norm and the only condition with a large effect size (as much as 6.550 or less as 1.055).

The analysis revealed that there were none of the other conditions had any significantly impact on the accuracy of responses. It also emerged that the person information and ATM role alone were not significant and it was only the interaction of these variables (the social context) that had an impact. This upholds the hypothesis that it is not consensus information itself that causes deviation from the predictions of Kelley's (1967) model, but the combination of consensus information, which is social by nature, and the participant's understanding of the social features of the attribution context that results in deviations from Kelley's predictions.

### ***The Role of the Social Context on the Use of Consensus Information***

The results support the hypothesis that participants were more concerned with the social relationship in the experimental situation than the strict accuracy of their responses. Instead of correctly attributing the failure to the ATM-user, the participants attributed it to a neutral or socially less risky factor such as the ATM. It is not clear from this study whether participants knowingly distort their answers or whether the social context takes precedence over the attribution information at an unconscious level. This would be an interesting avenue for future research.

In terms of attribution research, this finding is useful in demonstrating that attribution accuracy is not always adhered too. It also identifies that social situations are one of the susceptible areas

since consensus information or person information is vulnerable to social influences. The reviewed literature highlighted the separate treatment of the different types of information as identified by McArthur (1972) and explored in later studies (Orvis et al. 1975; McArthur, 1976; Ruble & Feldman, 1976; Zuckerman, 1978). Next, focusing on the work of McArthur (1972, 1976); Kahneman and Tversky (1973); Nisbett and Borgida (1975); Pilkonis (1977) and Wells and Harvey (1977) the possible reason for this difference was fleshed out. The problematic nature of consensus information emerged as the key, and when its social nature and the work of Moscovici and Hewstone (1983) were considered the link to the social influence as a possible solution to the puzzle of the under-use of consensus information emerged.

The results support McArthur's (1972) suggestion that the nature of the variables may be responsible for the underuse of consensus information. This study manipulated the social nature of consensus information and found that social influence results in the different treatment of consensus information. Kahneman and Tversky (1973) and Nisbett and Borgida (1975) suggested that consensus information was disregarded or ignored. This study extends their findings, by suggesting that participants disregard consensus information when it is socially risky and may result in the embarrassment of other people. Participants provide socially acceptable responses instead.

Attribution research is broad and this study does not solve the mystery of the treatment of consensus information fully. Instead it identifies the manner in which it may be treated in a social setting. However, before drawing further conclusions, the limitations of the study have to be considered.



## *Limitations and Future Considerations*

### *Budget.*

This experiment was a low budget Masters Thesis project. A larger budget would have provided sufficient funds to counter many of the following limitations. As a result there may be a few issues that remain inconclusive.

### *The experimenter effect.*

The experimenter effect refers to the situation in which participants provide the answers that the experimenter wants in an attempt to please the experimenter. Participants are able to pick up subtle cues that the experimenter unintentionally provides (in some instances intentionally and fraudulently provided). Due to this phenomenon a large number social science studies that find significant results have to defend their results from claims that they were influenced by the experimenter effect and this study falls is no exception. However, in the present study the experimental manipulation is more obviously *about* the experimenter than those in which the experimenter simply reads from a different script to affect the manipulations. In this case the experimenter changes clothes and uses a different name with full knowledge of the experimental condition into which participants have been selected. As a result, there is a possibility that the findings of this study may be fully or partially explained by this effect. However, the risk of the experimenter effect is no greater with the present methodology than with any other experiment that fails to implement double-blinding, which includes the vast majority of studies in social psychology. For future research it would be worth repeating the study using blinding techniques such that the researcher is not aware of the expected outcomes of the experiment. However,

blinding would have required hiring and training a research assistant which was not possible on a low budget masters project.

*Problems with the design.*

On a positive note, the use of video vignettes proved successful. However, problems with visually encoding consistency information meant that the current study could not fully test Kelley's model. As a limitation, the study should have included a post-experiment interview to confirm the reasons for participants providing inaccurate responses and an independent manipulation check to determine the extent to which participants 'read' the threatening social situation in the experimental condition.

*Prior knowledge.*

Kelley (1971) and McArthur (1972) both noted that participants have an additional knowledge source, namely prior knowledge, when making attributions. This was clearly demonstrated in this project and it is thought to be responsible for a few incorrect responses. The attempt at a withdrawal of money from an ATM scenario was chosen because it was thought that participants would be familiar with the process, and because the scenario would allow for the information to be manipulated easily and because it provided a naturalistic setting. However, it is possible that familiarity with the situation and the use of prior knowledge may have decreased the effect size of the result.

## **Conclusion**

This study explored the hypothesis that it is the social nature of consensus information that results in its anomalous use in terms of Kelley's (1967) model of attribution. More specifically, it hypothesised that it is when consensus information interacts with social features of the experimental context, such as the social risk or safety, that it is not used as predicted by Kelley's model. In addition, the study attempted to incorporate the lessons learned from its predecessors by changing the design, and adopting the use of video vignettes and dropping the paper and pencil methodology, creating a realistic social setting as opposed to the use of hypothetical statements and paper-and-pencil measures.

The results of this study support the hypothesis that consensus information is treated differently by participants in threatening or neutral social settings, as participants were 2.63 times more likely to provide 'inaccurate' responses when they were provided with consensus information in a socially risky situation. This finding is a step for attribution theorists in the direction of unraveling one of the oldest and sometimes forgotten puzzles that of the underuse and incorrect use of consensus information. Prior research as discussed earlier has attempted to provide reasons for the lesser use of consensus information but no prior explanation has proved to be acceptable.

The results suggest that participants in social contexts prioritise the social demands of the context over strict accuracy in terms of Kelley's (1967) model. It can therefore be deduced that the attribution process is more social than Kelley (1967) realised or accounted for. This factor was not adequately considered when the model was conceptualised and as a result it has emerged as a

weak link in the theory. Kelley (1967) hypothesised that individual's act as scientists when forming attributions; however, it appears that under social influence they act as disobedient psychologists and are more concerned with avoiding socially risk situations than with maintaining scientific validity.

The study has served the function of setting up a platform for future research to unravel the anomalous treatment of consensus information. It has demonstrated the effective use of video vignettes for this purpose and the findings are significant to warrant further research in this area. Future research, which considers the limitations and lessons learned from this study, should be able to bridge the gap in the literature.

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