The Effects of Uncertainty on Interpersonal Relations in Terms of Prolonged Satisfaction Ratings

John Smith

Roanoke College

Abstract

Research shows that there is a curvilinear relationship between uncertainty and obtained pleasure. That is, an individual caught in a situation of high uncertainty will experience increased pleasure up until a specific maximum threshold, where that pleasure will then be replaced with discomfort or unease. Studies also show that individuals vary with the amount of uncertainty they prefer in any given situation, and that those individuals scoring high on several measures of cognitive ability (e.g., need for cognition, complexity preference, and openness) and risk taking are more likely to prefer higher levels of uncertainty. While research has been done on the relationship between uncertainty and pleasure in terms of music, movies, game preference, and random acts of kindness, little research has been done on the application of uncertainty to interpersonal relations. It would seem, however, that those preferring a certain degree of uncertainty in other aspects of their lives, would also prefer a degree of uncertainty within their own personal relations with others. Those scoring high in cognitive ability and risk taking would thus receive greater pleasure from pursuing relationships high in uncertainty. Likewise, those scoring low in cognitive ability and risk taking would be less likely to pursue a relationship high in uncertainty, and would gain less pleasure from such a relationship. This study aims at examining the relationship between levels of uncertainty and preference for risk taking and cognitive ability in terms of prolonged satisfaction in relationships.

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Interpersonal relations play an important part in an individual's life. Humans as social creatures are motivated to establish and maintain intimate relations with others. Many individuals define themselves in relation to their close relationships with others (Cross, Morris, & Gore, 2002). Relationships provide an individual with the emotional support, stimulating companionship, the opportunity for disclosure, feelings of belongingness (Morry & Kito, 2009), social support, and well-being (Berscheid & Reis, 1998). Relationships are also central in self-definition, self-enhancement, and self-expression (Cross, Gore, &Morris, 2003). In terms of what makes a relationship fulfilling, however, varies within individuals in relation to personality factors, expectations, and preference for cognitive ability. Research shows that happiness in relationships depends on many things, including one's expectations, the uncertainty of the results, how much control is involved, how much self-disclosure is involved, and so forth (Bar-Anan, Wilson, & Gilbert, 2009). For example, extroverts take on different tactics than introverts when interacting with others (Thorne, 1987): extraverts are more willing to establish common ground and be involved in self-disclosure, whereas introverts are more likely to take the stance of an interviewer in order to avoid too much self-disclosure. Furthermore, complex individuals scoring higher in cognitive abilities are more likely to seek out partners that match in intellectual stimulation, while intellectual ability for those scoring low in cognitive abilities may not be as important an attribute.

One component of relationships in which we are specifically interested in for the purpose of this research is that of uncertainty: the state in which an individual lacks information about whether, where, when, how, or why, an event has occurred or will occur (Bar-Anan et al, 2009

Knight, 1921;). Uncertainty typically has two components: an informational component, where there exists some deficit in knowledge, and a subjective component, which is a feeling of not knowing (Bar-Anan et al, 2009; Smith & Washburn, 2005). While some relationships involve a high level of uncertainty, other relationships are more predictable and less uncertain. Uncertainty thus varies within relationships depending on individual preference; while some individuals may enjoy this state of "not knowing", other individuals constantly seek out information in order to predict and control their environment (Loewensein, 1994), and reduce the negative state that uncertainty instills within them. In past research, it has been consistently assumed that uncertainty is a negative drive state, which produces pleasure only when the individual moves to reduce the uncertainty (Bar-Anan et al, 2009; Lowenstein, 1994; Hogg, 2000). Consequently, uncertainty makes unpleasant events more unpleasant by producing negative emotions that individuals strive to reduce. However, more recent literature has proposed that uncertainty, while making unpleasant events more unpleasant, also acts to make pleasant events more pleasant (Bar-Anan et al, 2009; Knoblock-Westerwick & Keplinger, 2008; Wilson, Centerbar, Kermer & Gilbert, 2005). This is known as the *uncertainty intensification hypothesis*, where uncertainty intensifies emotions to positive events as well as negative events (Bar-Anan et al, 2009; Wilson & Gilbert, 2008), and is thus supported by what is known as the Pleasure Paradox.

Affective adaption is used to describe the conditions under which an individual's affective reactions to an event subside over time due to habituation (Bar-Anan et al, 2009; Wilson & Gilbert, 2008). That is, as people are motivated to understand the events that surround them, the more quickly they come to adapt to it (Wilson & Gilbert, 2008). A paradoxical consequence of this unavoidable sense-making is that the events lose some of their affect as they lose their uncertainty, and thus in working to understand an event in order to repeat it and make it more

pleasurable, individual are actually losing their ability to be moved by them (Bar-Anan et al, 2009; Wilson & Gilbert, 2008). This is exactly what the Pleasure Paradox entails: by making sense of events, people emotionally adapt to them (Wilson et al, 2005). Certainty then reduces the pleasure of an event, by making it seem more normal and inevitable than it really is. If sense making was inhibited, then, impeding understanding, the uncertainty would then prolong the pleasure attached to the event.

This prolonged pleasure caused by uncertainty is attributed by a number of factors. Firstly, it is suggested that uncertainty heightens people's attention, thus keeping an event accessible after it occurs, intensifying one's reactions as they continue to attend to it (Bar-Anan et al, 2009). Secondly, if an individual is paying closer attention to an event, then they are more prone to become emotionally engaged in it to justify their attentive state. A third factor is that of increased cognitive ability and complexity, in which those that gain pleasure from uncertainty also tend to enjoy and engage in thinking, thus are cognitively motivated to keep a certain level of uncertainty in their lives (Cacioppo & Petty, 1982). While the first two factors deal with how pleasure is obtained by uncertainty, the last factor deals with those who are most likely to seek out uncertainty in their lives, and gain prolonged pleasure from doing so. We are mainly interested in this third factor for the purpose of this research.

As stated above, the need for cognition is the tendency to enjoy and engage in thinking (Cacioppo & Petty, 1982). Those who score high in need for cognition desire to engage in effortful thinking, and "naturally tend to seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in the world" (pg 243). Those scoring high in need for cognition are more prone to seek out stimuli that cognitively challenge them. A study done by Knoblock-Westerwick & Keplinger (2008) explored the relationship

between those high in need for cognition and preference to uncertainty by presenting participants with short murder mysteries, which varied in complexity and uncertainty in regards to their endings. Prior research by Knoblock-Westerwick & Keplinger (2006) revealed a relationship between NFC and responses to mystery resolutions- simple plots and confirmed resolutions were negatively related to high scores in NFC, and positively related to more complex plots and surprise resolutions. That is, the higher one scored in NFC, the more pleasure they obtained from complex plots with an interesting twist, and the less pleasure they obtained from simple plots with predictable endings. Therefore, the more uncertainty involved in the mystery, the more it was enjoyed by those with high need for cognition- to a certain extent. The research done by Knoblock-Westerwick & Keplinger (2008) also revealed that the relationship between NFC and uncertainty is in fact curvilinear: enjoyment increased up until moderate levels of uncertainty were perceived, and then decreased once again. This has been further backed up by research, in which moderate levels of uncertainty are found to be pleasurable, whereas high levels of uncertainty cause increased discomfort (Wilson et al, 2005; Knoblock-Westerwick & Keplinger, 2006, 2008). Berlyne (1974) further supported this, by stating that while pleasure is obtained from viewing ambiguous stimuli, this pleasure increases with increased ambiguity and complexity to an *optimal* level before it can no longer be processed, by then which pleasure is decreased.

Another study by Bar-Anan, Wilson, & Gilbert (2009) revealed similar results. They conducted a study in which participants viewed two versions of a pleasurable movie with different endings. One ending left the individuals in a high degree of uncertainty, whereas one ending was self-explanatory in its conclusion. As predicted, those participants who remained in a state of uncertainty had improved moods for a significantly longer period of time than those who

watched a movie where the ending provided closure (Bar-Anan et al, 2009). As Bar-Anan et al (2009) hypothesized, the study demonstrated that uncertainty does in fact intensify affective reactions to ongoing events (whether positive or negative), whereas the study by Knoblock-Westerwick & Keplinger (2008) implied that certain preferences for cognition are involved in whether pleasure is obtained from uncertainty or not.

A further study on uncertainty and the pleasure paradox was done by Wilson, Centerbar, Kermer & Gilbert (2005), where participants were 35 students at the University of Virginia, who were studying alone in cubicles at the library. Participants were randomly given one of two cards, both of which contained vague information about "promoting random acts of kindness". The only difference between cards was that one included the presence of questions to which answers were provided (i.e, "Who are we? The smile society). After five minutes of receiving the card, the students were approached by a second researcher, pretending to be a student, who then asked them if they would fill out a questionnaire on "community thoughts and feelings" (2005). The questionnaire contained questions about the student's current mood, some word completion tasks, and demographic inquiries. As hypothesized, the researchers found those in the uncertain card looked at the card longer than those in the certain condition. A significant relationship was found between uncertainty and mood; that is, those who were in the uncertain condition reported having more positive moods than those in the certain condition.

If increased uncertainty does in fact lead to prolonged pleasure under the right conditions, this has significant implications for further research. While the above studies addressed uncertainty preference in relation to movies, books, and random acts of kindness, we are primarily interested in how preference for uncertainty affected relationships. Would those who prefer uncertainty in other aspects of their lives, also prefer uncertainty within their interpersonal relations?

Furthermore, if need for cognition is related to preference for complexity and uncertainty, would certain individuals be more likely than others to pursue relationships high in uncertainty? If so, what individual factors predicted this preference of uncertainty over certainty? It can be predicted, that if individuals high in need for cognition prefer more complex stimuli and uncertainty in order to gain prolonged pleasure from an event, then they would also prefer relationships which involved a certain amount of uncertainty to them. Furthermore, these individuals would gain more pleasure from relationships that held a moderate level of uncertainty, than from relationships with only a low level of uncertainty. In contrast, those scoring low in need for cognition would be more apt to pursue relationships low in uncertainty, and would experience less pleasure with the higher degree of uncertainty involved. Another important factor to mention is that of risk taking, which is the tendency to seek out novel, complex, and intense sensations and experiences (Kogan & Wallach, 1964). In the study done by Knoblock-Westerwick & Keplinger (2008), risk taking and sensation seeking were also positively correlated with that of preference for uncertainty. Thus, we are also interested in seeing if those who score high in risk taking also prefer higher levels of uncertainty in their relationships, and if there is a significant interaction between the trait NFC and that of risk taking- when combined, is there an increased likelihood that an individual will be more apt to seek out uncertainty in interpersonal relations? What we are primarily interested in are the specific personality traits that help predict which individuals will prefer relationships involving high uncertainty, and if relationships high in uncertainty lead to more prolonged states of pleasure than those low in uncertainty.

In the following experiment, we propose to look at how individuals with varying levels of need for cognition and propensity for risk taking react to situations in uncertainty in the form of

social feedback. We hypothesize that those scoring high in need for cognition and risk taking will be more likely to prefer to interact with an individual in a situation high in uncertainty, and will gain more pleasure from such an interaction. On the other hand, those scoring low in need for cognition and risk taking will be more likely to withdraw from situations high in uncertainty, and to gain less pleasure from such an interaction.

Method

Participants

This participants in this study will be 60 Roanoke College undergraduates between the ages of 18-22. Both males and females from differing socioeconomic backgrounds will be included. Participation will be voluntary and exchanged for partial fulfillment of Psychology Course requirement during the spring of 2010. To ensure equivalence, participants will be randomly assigned to the different conditions of the study. All participants will read and complete an informed consent prior to the experiment.

Materials

Personality and trait questionnaires. Several questionnaires will be used in this study in order to assess various personality traits in individuals. Among these will be the Big Five Ten-Item Personality Inventory (TIPI), Sensation Seeking Scale (SSS), and Rosenberg (1965)'s self-esteem and self concept stability questionnaire. The TIPI is a 10-item scale measuring the five components of personality: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The individual is given a score for each component of this scale. Rosenberg's scale consists of 14 statements in which the individual must indicate their level of agreement or disagreement. It is scored on a scale 1 (strongly agree) to 4 (strongly disagree) and consists of two subscales, self-esteem and self concept stability. Items 1-10 measure self esteem, including

statements such as “I take a positive attitude towards myself”. Items 11-14 measure self concept stability, including statements such as “I have noticed my ideas about myself change very quickly.” Select statements are reverse-scored to prevent response score bias or response set.

The SSS measures an individual’s tendency to pursue novel and stimulating experiences. It includes four subscales, which are: experience seeking, thrill and adventure, disinhibition, and boredom susceptibility. Individuals are given scores for each of the four subscales, while also receiving a total scale score. This scale consists of 40 items, in which the individual must choose between two given statements for each item.

Cognitive ability questionnaire. In order to measure an individual’s level of cognitive ability, the Need for Cognition (NFC) scale will be used. The NFC scale consists of 34 statements measuring the extent to which an individual engages in and enjoys effortful cognitive endeavors. This scale is scored on a scale 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). A self-invented scale on preference for complexity will also be used, in which the students will indicate their level of agreement to specific statements, on a scale of 1 (strongly agree) to 4 (strongly disagree).

Risk taking questionnaire. The Choice Dilemma Questionnaire (CDQ) is a 10-item interval scale used to assess an individual’s level of risk. Participants will be given 10 statements, in which they are to indicate the probability of success that would have to occur in order for them to choose the risky alternative.

Uncertainty feedback manipulation. To present the participants with either high or low situations of uncertainty, they will be given one of two versions of relational feedback. Low uncertainty feedback will provide a clearly detailed and informative description of a prospective date, whereas the high uncertainty feedback will provide a short and vague description of a

prospective date. Thus the feedback low in uncertainty allows the participant to get a clear picture of the individual who has written it, while the feedback high in uncertainty leaves much to the imagination. This feedback will allow the participant to believe that they have been evaluated in relation to their responses on previously distributed questionnaires, and that the evaluation has been written by an individual who has expressed interest in meeting with them. The participant, on reading the feedback, will have the choice of whether to meet with the prospective date or not.

Procedure

Participants will be randomly assigned to the two conditions on entering the study (high uncertainty/low uncertainty). After filling out the consent form, they will receive a packet of questionnaires measuring the following traits: the big five factor, self esteem, the self-invented complexity preference inventory, and filler questions to disguise the purpose of the research. Participants will be informed that the purpose of the study is to measure compatibility between two individuals unknown to one another, and that the purpose of the questionnaires is to receive an overall picture of each participant, and that it is crucial to the experiment to answer honestly to each questionnaire. They will then be informed that their answer will remain anonymous unless otherwise specified at the end of the study. The participants will then be asked to fill out the questionnaires.

Once every participant has completed the packet, the questionnaires will then be collected. The participants will be informed that their questionnaires would now be scored and matched up to another individual. While the participants are waiting, they will be asked to fill out additional questionnaires for research purpose only. These questionnaires will include: need for cognition, risk taking, and sensation seeking. After a sufficient time has passed for the questionnaires to be

"scored", participants will then receive one of the two versions of handwritten feedback. Each of these versions are descriptions of a person that the participant has supposedly been matched with, and who has expressed interest in meeting the participant. The participant than has the choice of meeting with their match if they so choose. While half of the participants will receive a lengthy and detailed description of an individual, half of the participants will receive a vague and uninformative description of an individual. These represent high and low situations of uncertainty, respectively.

The participant will then be asked to fill out additional questions attached to their match description. These questions will be focused on asking the participant if she/he wishes to meet the person, the amount of uncertainty or discomfort they have about meeting the person, if the feelings they have towards that person are positive/negative, and so on. After these questions have been filled out, they will be collected, and the participants will then be debriefed.

Expected Results

After gathering all of the data, I will be using a 3-way between-subjects ANOVA in order to determine if there is a statistically significant relationship between individuals scoring high in cognitive ability and risk taking, and there preferred level of uncertainty in relationships. I believe that there will be a positive main effect of cognitive ability on uncertainty preference, where those scoring high in cognitive ability will also prefer higher levels of uncertainty. I also believe there will be a positive main effect of risk taking on uncertainty preference, where those scoring high in risk taking will also prefer higher levels of uncertainty. In contrast, those scoring low on either cognitive ability or risk taking will be less inclined to choose situations high in uncertainty, or will obtain little pleasure from doing so. Being faced with a high level of uncertainty, those participants scoring low in risk taking should be deterred by the prospect of

meeting an individual they are informed little about, and should gain little pleasure from the opportunity to do so. Those participants scoring high in risk taking, conversely, should a show higher inclination to meet with an individual invoking uncertainty, and should gain more pleasure form the prospect of the meeting. I also expect there to be an interaction between risk taking and cognitive ability on uncertainty preference. Those scoring high in cognitive ability should be more likely to prefer higher levels of stimulation in order to gain feelings of pleasure, and thus should prefer situations where a specific level of uncertainty is involved.

References

Bar-Anan, Y., Wilson, T., & Gilbert, D. (2009). The feeling of uncertainty intensifies affective reactions. *Emotion, 9*(1), 123-127. doi:10.1037/a0014607.

Berscheid, E., & Reis, H. T. (1998). Attraction and close relationships. In D. T. Gilbert, pp. 193–281). New York: McGraw-Hill.

Cross, S. E., & Morris, M. L. (2003). Getting to know you: The relational self-construal, relational cognition, and well-being. *Personality and Social Psychology Bulletin, 29,* 512–523.

Cross, S. E., Gore, J. S., & Morris, M. L. (2003). The relational-interdependent self construal, self-concept consistency, and well-being. *Journal of Personality and Social Psychology, 85,* 933–944.

Hogg, M. A. (2000). Subjective *uncertainty* reduction through self categorization: A motivational theory of social identity processes. In W.Stroebe & M.Hewstone (Eds.), *European review of social psychology* (*Vol. 11*, pp. 223–255). Chichester, United Kingdom: Wiley.

Knight, F. H. (1921). *Risk, uncertainty, and profit*. Boston: Houghton Mifflin.

Knobloch-Westerwick, S., & Keplinger, C. (2006). Mystery appeal: Effects of uncertainty and resolution on the enjoyment of mystery. *Media Psychology, 8,* 193–212

Knobloch-Westerwick, S., & Keplinger, C. (2008). Murder for pleasure: Impacts of plot complexity and need for cognition on mystery enjoyment. *Journal of Media Psychology: Theories, Methods, and Applications, 20*(3), 117-128. doi:10.1027/1864-1105.20.3.117.

Kogan, N., & Wallach, M. A. (1964). *Risk taking: A study in cognition and personality*. New York: Holt.

Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin, 116,* 75–98.

Morry, M., & Kito, M. (2009). Relational-interdependent self-construal as a predictor of relationship quality: The mediating roles of one's own behaviors and perceptions of the fulfillment of friendship functions. *Journal of Social Psychology, 149*(3), 205-222. Retrieved from Psychology and Behavioral Sciences Collection database.

Rosenberg, M. (1965). Society and adolescent self-image. Princeton, NJ: Princeton University Press.

S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 12, 4th ed.,

Smith, D. J., & Washburn, D. A. (2005). *Uncertainty* monitoring and metacognition by animals. *Current Directions in Psychological Science*, *14*, 19–24.

Thorne, A. (1987). The press of personality; A study of conversations between introverts and extraverts. *Journal of Personality and Social Psychology,* 53, 718-726.

Wilson, T., Centerbar, D., Kermer, D., & Gilbert, D. (2005). The pleasures of uncertainty: prolonging positive moods in ways people do not anticipate. *Journal of Personality and Social Psychology*, *88*(1), 5-21. doi:10.1037/0022-3514.88.1.5.