How Peer Pressure and Social Perception influences Decision Making in Adolescents?

Introduction

Chocolate or strawberry? Computer Science in a private college or Earth Sciences in a prestigious IIT? 'Interacting' with juniors or staying back and minding your own business? We make so many decisions unconsciously; others we agonize over. We choose actions and form opinions via mental processes which are influenced by biases, reason, emotions, and memories.

Moving beyond laboratory studies of age differences in reasoning and risk perception, new approaches have shifted their focus to influence of social and emotional factors on adolescent decision making. Influence phenomenon includes imitation, conformity and obedience.

We are all influenced by our peers, both negatively and positively, at any age. Adolescents and Young adults are the most vulnerable to social influence. Not surprisingly, several studies have found a curvilinear relation between age and peer conformity on responses to hypothetical dilemmas about antisocial decision making, with conformity increasing throughout childhood and into mid-adolescence and decreasing thereafter (Berndt, 1979; Brown,Clasen, & Eicher, 1986; Steinberg & Silverberg, 1986).

The present study aims to approach the problem statement of how and to what extent does peer influence affect the decision making in adolescents.
The motivation to take this up comes from a myriad range of applications the results can lead us to. From bringing down the elevated risk taking and unethical behaviours like

engaging in ragging, mass bunks and recklessness in alcohol consumption, drug abuse; to increasing positive influences like volunteering in a project because all of his or her friends are doing it, or getting good grades because the social group he or she belongs to think getting good grades is important, encouraging each other to study, try out for sports, or follow new artistic interests.

The experiment is embedded in the everyday college set-up. We are interested in the observing the difference in responses to decision making tasks in presence of peers i.e. friends, acquaintances or strangers and in their absence i.e. individually. The decision making will include risky decision making where the participants would know of the consequences the task can lead to, for example indulging in ragging where the cost can be reputation and career to smoking and drug abuse where health and well being is at stake; also, the 'not risky' decisions like which courses to opt for, eating out frequently, what to play, when to study etc.

If we take a deeper look almost all our decisions are influenced in one way or the other by people around us. To approach this scenario in a more scientific way and to be able to manipulate to what extent and at what places we let peer influence lead our decisions we perform the following psychological experiment.

Review of Literature

Consistent with self-reports of lower resistance to peer influence among adolescents than adults *(Steinberg & Monahan, 2007)*, observational data point to the role of peer influences as a primary contextual factor contributing to adolescents' heightened tendency to make risky decisions. For instance, crime statistics indicate that adolescents typically commit delinquent acts in peer groups, whereas adults more frequently offend alone (*Zimring, 1998*) (*Peer Influences on Adolescent Decision Making Dustin Albert, Jason Chein, and Laurence Steinberg)*

Steinberg, 2008; Albert & Steinberg, 2011 formulated an advanced neuro-developmental account of heightened susceptibility to peer influence among adolescents.A brief review of the three fundamental assumptions of this model describes peer influence studies similar to ours.

First, decisions are a product of both cognitive *and affective* input, even when affect is unrelated to the choices under evaluation. Second, adolescents exhibit stronger "bottom-up" affective reactivity than adults in response to socially relevant stimuli. Third, adolescents are less capable than adults of "top-down" cognitive control of impulsive behavior

Adolescent risk-taking propensity derives in part from a maturational gap between early adolescent remodeling of the brain's socioemotional reward system and a gradual, prolonged strengthening of the cognitive-control system. Research has suggested that in adolescence, a time when individuals spend an increasing amount of time with their peers, peer-related stimuli may sensitize the reward system to respond to the reward value of risky behavior. As the cognitive-control system gradually matures over the course of the teenage years, adolescents grow in their capacity to coordinate affect and cognition and to exercise self-regulation, even in emotionally arousing situations. These capacities are reflected in gradual growth in the capacity to resist peer influence. (*The Teenage Brain: Peer Influences on Adolescent Decision Making Dustin Albert; Jason Chein and Laurence Steinberg) Hensley (1977)* sought to determine whether the tendency for individuals to take more risks in groups than when alone—a phenomenon known as the risky shift (Vinokur, 1971)—might differ across age groups. Hensley (1977) used a hypothetical decision-making questionnaire to measure risk acceptance and found that the magnitude of the risky shift was greater among adolescents than it was among college students.

Whereas proponents of the risky shift theory assert that the presence of others should always lead to increased risk taking, advocates for the more recent group polarization theory suggest that the direction of group effects on risk taking depends on the risk-taking tendencies of the group members *(Hogg, Turner, & Davidson, 1990).* According to this theory, relatively conservative individuals should become even more conservative when grouped together, whereas individuals who are inclined to take risks should make even more risky choices *(Hogg et al., 1990).*

Theory

Many models of adolescent development have attempted to explain and describe risk behaviors, tapping into various possible contributing factors. There are also a number of models to explain human decision making, including dual-process models of decision Making.

Normative Decision Models

Normative models of decision making define how people should ideally reason, make judgments, and make decisions (Baron, 1994) based on the assumption that an optimal decision could be arrived at rationally and mathematically (Miller & Byrnes, 2001).Decision theory specifies five steps that should be involved in competent decision making: (1) Identify the possible options, (2) identify the possible consequences of each option, (3) evaluate the desirability of each consequence, (4) assess the likelihood of each consequence should each action be taken, and (5) combine everything according to a logically defensible "decision rule".

Another step-wise model of competent decision making is the self-regulation model developed by Byrnes and colleagues (2005; 2001; 1999). Competent decision making is defined as taking the necessary steps to accomplish a goal, which are: (1) Set a goal, (2) Compile options for completing that goal, (3) Rank-order the options, and (4) Select the highest ranked alternative. This model also specifies that competent decision makers use logical strategies, such as gathering information about situations to help them make important decisions.

Dual-Process Models

Decision making research in the past few decades has provided ample evidence that people rarely, if ever, make decisions perfectly rationally (Stanovich & West, 2000). Tversky and Kahneman (1981) demonstrated that people tend to violate assumptions of rationality by demonstrating the framing effect in which people make different choices depending on whether a problem is worded in terms of losses or gains.

Dual-process models are meant to describe how people actually make decisions, and these models recognize that most decisions are made outside of conscious thought whereas relatively few decisions are made with more deliberation and careful analysis

The basic tenet of the dual-process models is that there are two processes of decision making: deliberative/analytical and intuitive/experiential. The deliberative process involves slower, more effortful, perhaps monitored, computational thinking and includes the ability to decontextualize reasoning from problem content. The intuitive system is typically fast, automatic, effortless, sometimes emotionally charged, highly contextualized, operates in the periphery of awareness, and relies on personal memories Decisions are made quickly and usually result in an intuition or "gut" feeling

The intuitive system is the default decision making system because it requires less cognitive capacity than effortful thinking It is also likely that evolutionary pressure favors the efficient processing of information (Schultz, 2010), allowing individuals to make snap decisions pertinent to survival (e.g., run away from the saber-tooth tiger).

There is empirical evidence that the intuitive and deliberative processes develop with age (Klaczynski, 2005). Klaczynski and Cottrell (2004) showed that adolescents were better able than children to reflect on previous decisions when presented with new problems. Similarly, adults were better able to incorporate previous feedback into future decisions (Byrnes et al., 1999). The intuitive system is also developing into and throughout adolescence. This is partly because of personal experience. The more experience one has, the more one relies on the judgment and decision heuristics created by those past experiences and the consequences of previous decisions. As children and adolescents age and as their heuristics are compiled, their general processing becomes more and more automatic and intuitive because they can use heuristics rather than thinking about decision options and consequences quite as thoroughly. adolescents are thought to be developing both the deliberative and intuitive systems of decision making with the ideal end result of being able to use the appropriate process depending on the situation.

Another dual-process model that attempts to explain adolescent risk behavior is the prototype willingness model, which hypothesizes two paths, a reasoned path and a social reaction path, which operate simultaneously and may lead to making decisions to engage in risk behavior (Gerrard, Gibbons, Stock, Vande Lunde, & Cleveland, 2005; Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008). The reasoned path is similar to deliberative processing in that it involves intentional decision making. The social reaction path implies that risk taking occurs as a response to a specific social situation and is not planned. This model introduces important constructs to the decision making and risk behavior research, such as behavioral willingness, which suggests that most risk behavior is not planned, but rather that adolescents who are more open to engaging in risk behavior, are more likely to do so when the opportunity arises.

According to this model, peer influence is an important contributor to decision making about risk behavior because one's peers inform one's risk prototypes. A contribution of this model is that individual differences, particularly in risk prototypes and behavioral willingness, are highlighted.

In summary, risk taking peaks in adolescence and declines thereafter. Cognitive abilities as well as reliance on heuristic thinking are developing into and throughout adolescence and into adulthood (see Boyer, 2006). It seems clear that adolescent risk behavior cannot be described by decision making abilities alone.

The common observation is that teenagers tend to spend a remarkable amount of time in the company of other teenagers and thus they might be more susceptible to group and social influence. Social Norms ,which can be described as the specific expectations for socially appropriate attitude

and behaviours that are embodied in the stated or implicit rules of a group might play a bigger role in the decision making in adolescents.

Conformity or more specifically Group Polarization can be the foundational cause of the difference between the actual and expected behaviour of adolescents. Conformity is the tendency for people to adopt the behaviour and opinions presented by other group members
There are two types of processes that may lead to conformity: 1)Informational Influence processes - wanting to be correct and and to understand the right way to act in a given situation
and 2) Normative Influence processes - Wanting to be liked, accepted, and approved by others.

One of the direct results of conformity can be Group Polarization i.e. how groups tend to show a tendency to make decisions that are more extreme than the decisions that would be made by the members acting alone. Group polarization will tend to make a group more cautious or more risky. Two types of processes underlie group polarization: 1) Information Influence Model and 2) Social Comparison Model.The information- influence model suggests that group members contribute different information to a decision. If you and your friends each have a different reason for disliking a movie a little bit, all that information taken together would provide the evidence that you should actually dislike the movie a lot. The social comparison model suggests that group members strive to capture their peers' regard by representing a group ideal that is a bit more extreme than the group's true norm. Thus, if you come to decide that everyone was unhappy with a movie, you could try to present yourself as particularly astute by stating a more
extreme opinion. If everyone in a group tries to capture the group's esteem in that same fashion, polarization will result. In this study all these effects might be responsible for the observed peer influence in decision making

GroupThink may be another factor that might be responsible. Groupthink refers to the tendency of a decision-making group to filter out undesirable input so that a consensus may be reached, especially if it is in line with the leader's viewpoint.

Hypothesis

In the present study, we examined the effects of the presence of peers on risk taking and decision making among adolescents Our Hypothesis is as follows.

"Individuals will demonstrate more risk taking and altered decision making when in the company of their peers than when alone."

Variables

Independent variable:-The variable that can be manipulated.

- Peer Influence by manipulating presence and absence of peers while decision making

Dependent variable:-The variable that is being measured.

- Risk Taking- IGW score
- Risky Decision Making - YDMQ score

Control Variable:- The variable the experimental element which is constant and unchanged throughout the course of the investigation

- Age- Young Adults in the age group of 18-22

Method

Participants

We enroll 50 young adults aged from 18 to 22 years as participants in the current study. Participants are recruited in response to emails at Indian Institute of Technology, Kanpur.

Iowa Gambling Tasks

We implement the Iowa Gambling Task that is used to assess decision-making. The IGT involves four decks of cards, decks A', B', C' and D'. Each time a participant selects a card, a specified amount of play money is awarded. However, interspersed amongst these rewards are probabilistic punishments (monetary losses with different amounts). Two of the decks of cards, decks A' and B', produce high immediate gains, however, in the long run, these two decks will take more money than they give, and are therefore considered to be the disadvantageous decks. The other two decks, decks C' and D', are considered advantageous, as they result in small, immediate gains, but will yield more money than they take in the long run. When administering the IGT, participants are told that the goal of the DECISION-MAKING 61 game is to make as much money as possible and to avoid losing as much money as possible. They are instructed that they may choose cards from any deck,

and that they may switch decks at any time. Participants are also informed that some of the decks are better than others, and to win, one must avoid the worse decks and stick to the good decks. Each game consists of 100 card choices. Net scores for the gambling task are calculated by subtracting the number of disadvantageous choices (decks A' and B') from the number of advantageous choices (decks C' and D'). Higher net scores therefore signify better performance on the task. Optimal performance on the IGT requires that participants begin to learn the contingencies in each deck as the task progresses, and to shift their strategy accordingly (choosing from advantageous decks mostly).

Participants in the sole participant condition complete the task as described. Participants in the group condition take turns playing the game, but all of them complete the same number of trials in a row, as the participants in the sole participant condition. In the group condition, while one participant is playing the game, the others are told that they can call out advice about whether to choose a particular deck to draw a card. The player is instructed that he or she could choose whether to follow the advice of his or her peers.

The IGT is based on the implementation of the Psychology Experiment Building Language test battery. Participants use the mouse to select a card from a deck. Following card selection, the card change to either black or red while the outcome is displayed. Note that black and red cards do not necessarily correspond to wins or losses, but are arranged according to the schedule designed by Bechara et al. (1994, 2000). The message "You have won $" followed by the amount of the reward was then displayed alongside a smiley face, and a winning sound is played. If a penalty is also scheduled, it is displayed immediately after the winning sound; the phrase "But you also have lost $" is displayed alongside a sad face, and a losing sound is played. Sounds are identical to those in the implementation provided to our laboratory by Bechara (Davison, 2009). The inter-trial interval is approximately 2.5 s for reward-only trials, or 5 s when a reward was also followed by a penalty. Two bars are displayed at the top of the screen. The upper (green) bar displaye the amount of play money won during the game, and is updated appropriately after each card selection. The lower (red) bar display the amount of play money borrowed to play the game. If the participant's winnings fell below zero, a further loan of $2000 is automatically added to the red bar, and the green bar is reset appropriately. After participants have made 200 selections, they are informed of their net winnings (total winnings less the total amount borrowed) and the task ends.

Youth Decision-Making Questionnaire (YDMQ)

Risky decision making is assessed via the Youth Decision-Making Questionnaire (YDMQ; Ford, Wentzel, Wood, Stevens, & Siesfeld, 1990). Participants are presented with five hypothetical dilemmas, each involving a risky decision. The dilemmas include decisions about allowing friends to bring drugs into one's home, stealing a car, cheating on an exam, shoplifting, and skipping work without an excuse, all of which adolescents, college undergraduates, and adults potentially could have done. Decisions about each dilemma are made within the context of three different scenarios.

In the first scenario, participants are informed that no matter what their decision, no negative consequences would result. The second scenario—introduced by Cauffman and Steinberg (2000)—state that negative consequences might result if the
risky course of action were taken. The final scenario stated that negative consequences would definitely occur if the risky course of action were Taken. Only responses from the second decision-making scenario (i.e., negative consequences might result) are included in the analyses for the present study, as this is the only scenario that involve some degree of uncertainty or risk.

Results and Dicussion

.We may find significant effects of peer presence
on all three measures of risk orientation. Specifically, compared with those who completed the measures by themselves, participants who completed the same measures with peers present took more risks during the risk-taking game i.e IGT
Also, Means, standard deviations of YDMQ task is calculated and considered as a dependent variable.
Further, advanced data analysis technique like LMM (linear mixed model) is applied to the variables.

IGW and YDMQ are a closer approximation to real-life risk-taking situations than are the typical decision-making questionnaires used in most research of this sort, no laboratory task can adequately simulate real life. No matter how realistic the task, it is difficult to determine whether participants' performance in the test is an accurate representation of their real-world behavior. That is the experiment has above average ecological validity.

Implications and Applications

As per the hypothesis
The risk taking tendency is significantly higher when adolescents perform the task in a group as compared to performing it alone.
The decision making is influenced by peers and the tendency of increasing social conformity is high in adolescents.

The implications of the IGT Gambling task can be used to understand and bring down the elevated risk taking and unethical behaviours like engaging in ragging, mass bunks where the cost can be

reputation and career.Recklessness in alcohol consumption, drug abuse where health and well being is at stake

The results can be utilized to increase positive influences in individuals like volunteering in a project because all of his or her friends are doing it, or getting good grades because the social group he or she belongs to think getting good grades is important, encouraging each other to study, try out for sports, or follow new artistic interests. also, the 'not risky' decisions like which courses to opt for, eating out frequently, what to play, when to study etc.

References

- Peer Influence on Risk Taking, Risk Preference, and Risky Decision Making in Adolescence and Adulthood: An Experimental Study Margo Gardner and Laurence Steinberg Temple University

- Decision making in healthy participants on the Iowa Gambling Task: new insights from an operant approach Peter N. Bull,Lynette J. Tippett and Donna Rose Addis School of Psychology, The University of Auckland, Auckland, New Zealand

- Albert D, O'Brien L, DiSorbo A, Uckert K, Egan DE, Chein J, Steinberg L. Peer influences on risk taking in young adulthood; Poster session presented at the biennial meeting of the Society for Research in Child Development; Denver, CO. 2009. Apr,

- Chein J, Albert D, O'Brien L, Uckert K, Steinberg L. Peers increase adolescent risk taking by enhancing activity in the brain's reward circuitry. Developmental Science. 2011;14:F1–F10.[PMC free article] [PubMed]