IIM AHMEDABAD

NSE

Centre for
Behavioral Science

ANNUAL
REPORT
2021 - 22

ABOUT NSE CENTER FOR
BEHAVIORAL SCIENCE

The NSE Center for Behavioral Science was established at IIMA in March 2020 with a grant from the National Stock Exchange of India Ltd. The objective of the center is to work and build a platform for conducting and disseminating research grounded in neuroscientific and behavioral knowledge across the fields of management. The center is a cross disciplinary effort to harness the substantive body of research and findings on behavioral science across different academic disciplines such as finance, economics, marketing, organizational behavior and human resource management. The center is equipped with EEG, eye-tracking machines, and Galvanic skin response systems, and the laboratory is designed to explore the applicability of behavioral science theories in marketing, finance, and economics. With academic rigor and experimental-based research, the centers aim to produce meaningful decision-making insights not only for industries but also to help shape better policies and improve services. And to become a hub in this part of the world for academics, policy makers and managers in industry for generating and disseminating ideas around these themes.

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MESSAGE FROM
CHAIRPERSON NSE-CBS IIMA

Professor Arvind Sahay
Chairperson
NSE Centre for Behavioral Science at IIMA

Professor of Marketing and International Business,
International Economics
Chair, India Gold Policy Centre @ IIMA
Exec Ed Program Chair:
1. Pricing for Profit
2. Neuroscience in Marketing
3. Enhancing Sales Force Performance
4. Fintech

I am delighted to share NSE Center for Behavioral Science in Finance, Economics, and Marketing's second Annual Report for the year 2021-2022. The status of behavioral science in business research across the world is gaining huge attention in today's time and advancing with great speed. Through the NSE Center for Behavioral Science, IIMA aims to lead the way with applied research to improve management practices across sectors of finance, health, public policy, marketing, economics, organizational behavior, and human resource management as well as making path-breaking contributions to academia, industry and policy making in these areas. The center would like to engage in rigorous but relevant research and will look to connect with interested researchers in academia and practitioners in the industry. The goal is to do relevant and rigorous research in behavioral science and to be able to disseminate the research to scholars, practitioners and policy makers.

The year 2021-22 has been an eventful year for the Center. We were able to procure equipment like EEG, eye tracker and GSR and get them stabilized. Two waves of Covid did not help in getting respondents for many of our studies that were lab based but by February 2022, the lab has started gathering data. This helps to be able to gather data on campus in a more efficient manner than having to go to different institutions to gather the data. More importantly, we were able to hire skilled personnel that can help leverage the presence of the equipment to do research that is both relevant and rigorous. And the first set of data across different projects are being gathered as this report goes to press – the results of this research will become available in the coming few months. A key highlight of the year was the nationwide study done for Food, Safety and Standards Authority of India (FSSAI) for making a recommendation on which Front of Package Label (FOPL) to adopt for packaged goods in India.

A 20564 sample Randomized Control Trial that selected respondents based on a stratified sampling design built around consumption was conducted with a first of its kind app that allowed live physical and online data collection. A faster and more robust large scale experimental and control group data collection using the app in a hugely diverse place like India was a bonus that we now have access to for more such studies. The influence of loss aversion and anchors on the selection of mutual funds was another important study that was completed.

As a part of the dissemination process, the Center held its annual conference in March 2022 to foster research and build connections with researchers and practitioners across Indian and abroad. Furthermore, NSE – CBS was able to launch the first of its kind "Applications of Behavioral Science in Management: The CXO Playbook," executive education program that was targeted at CXOs who would like to better leverage the insights of Behavioral Science in their decision making. Members of the Executive Committee of the Center came together to create and deliver the program which was delivered in April 2022. The preliminary feedback suggests that the program was well received.

The Center now has a firm base to build on its activities in the future and I look forward to seeing the center grow to become the location for research, teaching and dissemination on tropics related to behavioral science in this part of the world.

NSE CBS
EXECUTIVE COMMITTEE

Prof. Arvind Sahay
Chairperson

Prof. Aditya Moses

Prof. Pranav Singh

Prof. Subhadip Roy

Prof. Joshy Jacob

Prof. Viswanath Pingali

Prof. Jeevant Rampal

CHAPTER - 1
WEBINARS

There were four online events hosted by the NSE-Center for Behavioral Science, IIMA in the 2021-2022 session, the key speakers were from diverse fields who have done a fair amount of work in the domain of behavioral sciences.

1.1
Scaling Choice Architecture Interventions in Business and Policy
Prof Dilip Soman,
BEAR Rotman School of Management,
University of Toronto
September 14, 2021

R&P Webinar in collaboration with NSE Centre for Behavioral Science in Finance, Economics and Marketing
Scaling Choice Architecture Interventions in Business and Policy
September 14, 2021, 6 p.m. IST.

Prof. Dilip Soman
Canada Research Chair in Behavioural Science and Economics & Director,
BEAR Rotman School of Management,
University of Toronto

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1.1.1 About the Speaker

Prof. Dilip Soman is a Canada Research Chair in Behavioral Science and Economics and is the Director of the Behavioral Economics in Action Research Center at Rotman [BEAR]. His research is in the area of behavioral science and its applications to individual wellbeing (financial wellbeing, health, and wellness), policy, welfare programs, and business (customer experience, pricing). He is the author or editor of several books including "The Last Mile (UTP: 2015)" and teaches a massive open online course "BE101X: Behavioral Economics in Action" on EdX. He has degrees in Engineering (Bombay), Management (IIM), and Behavioral Science and Marketing (Chicago). He serves on the advisory/research boards of Impact Canada (Privy Council Office) and the Financial Consumer Agency of Canada and has previously taught in the U.S.A. and Hong Kong

1.1.2 Summary

Choice architecture interventions are now being increasingly used in deploying behavioral interventions on a large scale, with the goal of helping citizens make better decisions. Many of these interventions are designed by mimicking other successful projects, or by conceptually extending ideas from published academic research. In this talk, Dr. Soman describes two such specific interventions in the area of financial wellbeing. The first intervention is an initiative by the government in South Korea on helping consumers make better spending decisions while using credit cards by sending text messaging alerts after every instance of credit card use. The second set of interventions in Mexico uses a redesigned pension account statement and text messaging alerts designed to motivate and remind citizens to make (recommended) voluntary contributions to their pension accounts. Both sets of interventions were designed on the basis of a conceptual analysis of evidence published in the behavioral sciences. Results in both cases show that while the intervention worked for a subset of the target population, it did not work (and in some cases, actively backfired) for others. In South Korea, the intervention was only successful for 15% of the recipients. For the other 85%, a different psychological process (which arose from the particular design features of the intervention) played a stronger role and resulted in an opposite effect. The results point to the importance of pre-testing interventions, especially in domains where there is an expectation of strong context dependence. In Mexico, the strength of the effect varied as a function of age and gender. The researchers were able to use machine learning to detect the effects of heterogeneity. In ongoing work, Dr. Soman plans to customize the choice architecture interventions to account for heterogeneity.

1.2 Expectation or Exception: Examining the effect of norms in social dilemmas on moral self-image and behavioral spillovers

Ms. Fatima Koaik,
Behavioral Scientist at eMBeD,
World Bank
January 17, 2022

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1.2.1 About the Speaker

Fatima Koaik is a Ph.D. candidate behavioral scientist with World Bank's Mind, Behavior & Development Unit (eMBeD), within the Poverty and Equity Global Practice. Before joining the Bank, she worked with the IMF-Middle East Centre for Economics and Finance in Kuwait and the United Nations Development Programme (UNDP) in Kuwait on establishing the Kuwait Public Policy Centre (KPPC) and the Kuwait Policy Appraisal Lab (KPAL). She also co-founded Nudge Lebanon, a regional NGO on the application of behavioral science into public policy. With 10 years of experience working for international organizations on development projects in the MENA region, she is focused on drawing behavioral insights, gathering quantitative and qualitative data, and writing research reports. She led multiple workshops across different countries around behavioral diagnostic and design of behavioral experiments. Fatima holds an MSc in Behavioral Science from the London School of Economics (LSE) and is currently a Ph.D. candidate in the Psychology and Behavioral Science department at LSE, working on social norms and behavioral spillovers.

1.2.2 Summary

Is there a difference between breaking the queue and not taking a rapid COVID-19 test on emotions and moral self-regard? What about waiting in line and buying an electric car? The presentation introduced the concept of behavioral spillovers and explores how each behavior leads to different spillover effects, more specifically how "Expectation" versus "Exception" moderates the effect of conforming on one's moral self-image (MSI) and affect. How does the difference in how socially the behavior is observed and expected, influence one's moral self-concept? To answer this, the research proposes a novel theoretical model that aims to demonstrate that (not) conforming to prescriptive/ descriptive norms lead to (not) improving perceived moral self-image and increase (decrease) the likelihood of moral balancing versus moral consistency.

1.3 High-Stakes Failures of Backward Induction: Evidence from The Price Is Right

Dr. Bouke Klein Teeselink,
Post-Doctoral Researcher,
Yale School of Management
January 27, 2022

CLICK HERE

1.3.1 About the Speaker

Dr. Bouke Klein Teeselink is a postdoctoral researcher at Yale School of Management. He holds a Ph.D. in behavioral economics/finance from Vrije Universiteit Amsterdam and an MPhil in Economics from Tinbergen Institute. His research lies on the intersection between economics, psychology, and political science. He predominantly focuses on studying behavioral phenomena in large, naturally occurring data sets.

1.3.2 Summary

The research examines high-stakes strategic choices using more than 40 years of data from the American TV game show The Price Is Right. In every episode, contestants play a simple sequential game of perfect information for which the optimal strategy can be found through backward induction. The research finds that contestants systematically deviate from the unique subgame perfect Nash equilibrium and from the equilibrium of an agent quantal response model. Omission bias cannot explain the deviations from optimality. Instead, the observed behavior is well captured by a model of limited foresight, where a sizable fraction of the contestants myopically considers the next stage of the game only. In line with learning, the quality of contestants' choices improves over the course of the sample period.

1.4
Predicting Retail Sales with fMRI, Attitudes, Incentivized purchases, and Market Data

Prof. Hilke Plassmann
April 15th, 2022

Live Webinar on

Predicting Retail Sales with fMRI, Attitudes, Incentivized Purchases, and Market Data

April 15, 2022 at 13.30 IST and 10.00 CEST

Prof. Hilke Plassmann
Associate Professor in INSEAD's Marketing Area
INSEAD's Octapharma Chaired Professor of
Decision Neuroscience

CLICK HERE

1.4.1 Speaker Biography

Hilke Plassmann is the Octapharma Chaired Professor of Decision Neuroscience and Associate Professor in INSEAD's Marketing Area, where she has built a Decision Neuroscience Group. She is also an Affiliated Faculty at the Paris Brain Institute (ICM) of Sorbonne University and has been visiting faculty at University Hospital Bonn, The Wharton School, and the Stern School of Business. Hilke's primary research area is judgment and decision-making at the intersection of neuroscience, psychology, and economics. In recent and current research projects she investigates the neural basis of different decision-making-related value signals and ways to self-regulate these signals. Hilke is also interested in the influence of pricing, branding, and health information on consumer decision-making. Her work has implications for both, management and public policy.

1.4.2 Summary

This paper studied the relevance of different types of data for a retailer's ability to predict sales of new products before their launch. Their approach combined four information sources: (1) in-house observable market data such as price and promotion level, (2) customer attitudes based on a representative survey, (3) incentivized purchasing decisions, and (4) functional magnetic resonance imaging (fMRI) data from a relatively small sample of individuals collected in a laboratory. The researchers used a large German retailer's weekly sales data to define an estimation data set containing 34 packaged foods and drinks. This estimation data set was used to estimate the parameters of the model. The research then used the parameter estimates to predict sales of 17 different products before they were launched. Results indicate that using fMRI data to forecast sales of new products significantly increased forecasting accuracy: It led to a 28.6% better forecast than a naïve model that considered historic sales data only, while the model combining all data led to an improvement of 38.6%. Using this approach, managers can quantify the benefits of collecting different types of data beyond observable market data—including neuroscientific data—to predict the market success of new products.

CHAPTER - 2
NSE-CBS CONFERENCE ON BEHAVIORAL SCIENCE IN MARKETING, MARCH 3rd - 4th 2022

The conference aimed to build an understanding of the need to humanize marketing products and services impacting businesses and organizational practices at multiple levels.

2.1 Panelist & Speakers

Behavioral Science in Marketing Conference
March 3rd & 4th, 2022

KEYNOTE SPEAKERS

Prof Arvind Sahay
Chair: NSE CBS IIMA

Prof. Dilip Soman
Director, BEAR Centre, Rotman

PANEL SPEAKERS
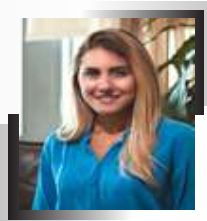
Ms. Fatima Koaik
Behavioral Scientist
World Bank, eMBeD

Prof. Dilip Soman
Director, BEAR Centre
Rotman

Mr. Nitin Sethi
CDO, Adani Groups

Dr. Samar Das
CEO, C3 Research

Prof. Akshaya Vijaylaxmi
IIMA

WORKSHOP RESOURCE

Ms. Shaon Sengupta
Studio Director, Philips, Bangalore

Ms. Smriti Kesarwani
User Experience Expert, Out systems Inc., Singapore

SESSION MODERATORS

Prof Arvind Sahay
IIMA

Prof Subhadip Roy
IIMA
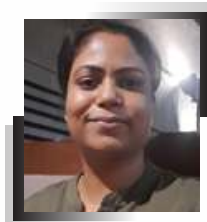
Ms. Richa Nigam
NSE CBS, IIMA

2.2 Academic Presentations

The conference solicits papers addressing the following themes:

1. Role of communication in financial services marketing
2. Application of neuroscience to study neuro-management
3. Behavioral science in organization development.
4. Behavioral Science in Branding
5. Case studies on behavioral science in marketing research

2.3 Additional Sessions

1. Presentations by industry experts on behavioral designs and interventions adopted to address recent trends and best practices in marketing.
2. Workshop sessions by experts from academia/industry discussing a specific topic based on behavioral applications/interventions in marketing.

2.4 Welcome Note

The event was inaugurated by Prof. Arvind Sahay, Chairperson, NSE Centre for Behavioral (IIMA). Prof. Sahay opened the session he shared details about the purpose of the center and the equipment/facilities the center has; viz; EEG, eye tracker, and GSR which are widely used in academic research, business, and in industries to name a few like Marketing, HR, Finance, Economics. Stressing upon the relevance of the conference, Prof. Sahay said that part of the Centre's remit here is not just to be able to do and support research, but also to be able to disseminate research to a wider audience, combining academia, industry, and policy in our country.

Chairperson: Prof Arvind Sahay

He is currently a Professor of Marketing and International Business at IIMA. He is the chairperson of the NSE Center for Behavioral Science and the Indian Gold Policy Center. Professor Sahay's recent research has been in the areas of brand relationships, tensile pricing, life cycles in marketing, customer dimensions of gold in India, customer responses to dynamic pricing and how and when to implement dynamic pricing, customer loss aversion at different price levels, and brand preference reversal due to cognitive load and discount framing. He has authored more than 60 cases and published 30 peer reviewed articles in leading international journals like the Journal of Marketing, Journal of Product Innovation Management, Journal of International Business Studies, European Journal of Marketing, Judgment and Decision Making, Journal of Consumer Marketing and Sloan Management Review.

Sectorally, he has worked extensively in pharmaceuticals, cement, building materials, telecom, broadcast, automotive, FMCG, education and financial services sectors among others. He offers courses on pricing, international trade, brand management, neuroscience and consumer behavior, tracking organizational performance, innovation and valuation, enhancing salesforce performance, Fintech: Business Models, Strategy and Marketing and Doing Business in India. He has been a visiting faculty at many colleges and universities, some of them are, EADA (Spain), the Mason School of the College of William and Mary (USA), University of Texas at Austin (USA), IIM Lucknow, and Indian School of Business, Hyderabad and Asian Institute of Technology.

2.5 Keynote Speeches

2.5.1 Prof. Arvind Sahay

In his presentation, he described the connections between neuroscience and behavioral science by using different applications in a business domain. He talked about how information flows in different parts of the brain and gives rise to different kinds of behaviors. He also talked about key brain operating principle and their objectives and processes. For instance, the brain always has the objective to Feel Good, and secure, Avoid Pain, Get Rewards; each of these correspond to neurotransmitters like dopamine, serotonin, etc. The brain also wants to Conserve Energy, categorize things, Pay attention to contrasts and to Mirror.

Furthermore, he explained how a large part of our decision-making process is driven by our unconscious mind. Taking about the unconscious, he also described the role and importance of emotional intelligence in decision making. Emotional intelligence is described as control over the amygdala which is self-awareness – knowing and identifying feelings as they occur. This means living in the moment and awakening to our current experience, rather than dwelling on the past or anticipating the future. The practice of purposely focusing your attention on the present moment and accepting it without judgment. This is a tool that allows people to be more aware of their physical and emotional conditions without getting bogged down in self-criticism and judgment. However, It is difficult to find out all parts of the brain involved in this process but some of the Brain regions involved in the components of emotional intelligence are the posterior cingulate cortex, anterior cingulate cortex, multiple prefrontal regions, striatum, and most importantly amygdala and insula.

In the last part of presentation, he describes the application related to the above processes. For example, how we perceive gains and losses during any purchase, how brands influence our choices, and where they are located in the brain. In his recent study, he also demonstrated the difference between weak and strong brands in which they found significant activation in Rostral Anterior Cingulate Cortex (ACC), Dorsal ACC, and Right Dorsolateral Prefrontal Cortex (DLPFC) for weak brand choices.

2.5.2 Prof Dilip Soman

A brief summary of this talk follows.

"Everybody is in the business of behavior change. There are four types of behavior change people want to do: Compliance, switching/purchasing, consumption, and acceleration.

Understanding psychology and behavior is the key. The difference between Homo sapiens and Homo economicus is that Homo economicus has an immense mental power to calculate and understand their utility functions. They are 100% rational and understand their welfare correctly. Homo sapiens, on the other hand use heuristics and biases for decision-making; from a new-classical viewpoint, homo sapiens is "irrational." People either don't think at all, they just do things in a flow or use heuristics to reduce their cognitive load. We have limited mental power and hence we use heuristics to make our life easy. The issue is that we tend to design things/products/ policies for the homo economicus while they are intended to be used by homo sapiens with no superpower. Assume basic things that humans require and not what the econs needs.

We have a beautiful science, but we don't have the science for implementing this science. Behavioral economics changes the choice architecture to make people do what they desire. Making small changes in the environment make big changes in the behavior. People change their decisions when the framing is changed. This has a lot of use in public policy. They use this in the flu vaccination in Canada. How you present the information is an important factor in human decision-making."

Dr. Soman presented his 4 ways of changing behavior- restrictions, incentives, information, choice architecture. Behavioral scientists can consult many things. Right from designing little things like designing the websites, and forms and going up to the complex part of the chosen setup. While working in behavioral economics, one needs to however understand the ethics, Choice architecture is always going to be to help people What they want and always remember to value individual welfare than the firm's welfare.

Dr. Soman talked about the idea of "Sludge:" the evil cousin of nudge. Making it difficult for people to make it work. In his view, it is friction in decision making that is sometimes useful but when it harms people it is sludge. Sludge is like weeds in the garden no one intends to plant them. No concept in behavioral economics that is universal. There are context-dependent things, and nothing is plug and play.

2.6 Abstracts/Papers Presented at the Conference

1. Does the customer complain or appreciate it? Nudging them to feel grateful
Dr. Bala Subramanian R,
Assistant Professor
(Xavier University, Bhubaneswar)

Customer feedbacks and handling complaints are crucial for any organization. Companies approach and encourage customers for feedback in various methods. Unless the customers are rational, they tend to complain more. Companies can also encourage the customers to feel appreciative and grateful for the service and products. This is another way to enhance satisfaction and build a relationship with them. Through two studies, the research explored whether the customer complaints or appreciates and whether companies can nudge them to be appreciative and grateful. The study is in the process of data collection.

2. Consumer Perception of Luxury Products Manufactured by Robots vs. Humans: A comparative study
Abhishek Sahai, Assistant Professor
(FLAME University, Pune)

The advancement of technology has given rise to robots and artificial intelligence (AI) making manufacturing quick and efficient. Businesses like Tesla, Ola and fashion brands like Gucci, BIBA are adopting robotic manufacturing. This in essence means robots are replacing humans. Studies show that job seekers who perceive technological replacement as a danger to their employment are less excited about robotic intervention (Granulo et al., 2019). However, the effect of robotic manufacturing on consumer's perception has remained unexplored, especially luxury products which are exclusively largely manufactured by hand. Are consumers concerned just about robots replacing humans? Research (Aaker, Vohs & Mogilner, 2010) shows that 'cognition' and 'emotion' are two dimensions on which consumers evaluate products as well as make the distinction between 'humanness' and 'otherness' (Gray, Gray & Wegner, 2007). This research proposed a series of experiments with the aim to understand how the luxury industry's technological advancement affects consumers' perception of robotically manufactured products and their willingness to buy.

3. What do you vote for? A case of Neuromarketing in Bengal Elections 2021
Raveena Gupta Kapoor, Research Scholar,
University of Delhi

This research explored the impact of facial and hand gestures on the propensity of voters to lean in a particular direction in terms of their liking, preference and vote. Respondents were shown pictures of different political figures in different poses and with different facial features and facial and hand gestures. Eye tracking was used to construct heat maps of where the respondent attention was focused. Respondents then answered questions on their priors and their preferences. Data was also collected on the demographics and the priors of the respondent in terms of political leaning. The results suggested a strong level of attention and preference for particular features and hand gestures and subsequent voting behavior.

4. Gamification as an effective tool for enhancing Consumer Brand Engagement (CBE)
Gurpreet Kaur,
Research Scholar, Punjab Agriculture University, Ludhiana

Gamification is an emerging concept that has its roots in the world of gaming, overpowering the domain of commerce in recent times. With the advent of technological advancements and digitization, the marketing process will experience metamorphic changes in the coming decades. The technological advances in the process of marketing and the increasing importance of brand engagement for the success of the organization have led to the application of the concept of gamification for marketing purposes. Gamification is an emerging business practice widely used by various businesses to achieve goals related to customer engagement in the market (Hammedi et al 2018). Maintaining harmonized customer relationships by securing continuous engagement of the customers with the brand is the key to retaining brand loyalty. The concept of gamification is not novel in the sense that it is widely accepted in various domains such as education, healthcare, lifestyle, human resource training, simulation training, etc. to motivate, train or engage people. But the application of gamification in marketing, especially concerning the digital world, is an interesting area for research.

5. Sentiment analysis of celebrity-endorsed advertisement
M. Sivaranjan, Gnanam School of Business

The usage of Celebrity endorsers in brand advertising has become popular since the presence of a celebrity endorser is likely to positively influence the consumer to buy their products. Marketers expect that the celebrity's endorsement will create an emotional tie to the product/brand and his/her good attributes will be transferred to the brand. This research has focused on the impact of celebrity advertisements on consumers using sentiment analysis. The objective was to use sentiment analysis to calculate sentiment scores of celebrity-endorsed advertisements. The research used four celebrity-endorsed advertisements and collected responses/reactions from consumers. The advertisements responses were analyzed using 'sentimentr' for endorser congruence and endorser frequency conditions. The findings revealed that brand-endorser congruence and highly frequently appearing endorsers received high sentiment scores. This research has shown that marketers need to choose brand-congruent and highly frequent endorsers for creating advertising impact.

6. Effect of Brand and Product Design in Product as a Service: An Automotive Practice Evaluation of Customer Lease versus Buy Decision
Pradeep K., Research Scholar, IIT Madras

In today's competitive world, Product as a Service (PaaS) is seen as one method for traditional product companies to make their offerings more attractive, move up the value chain and find more customers. In PaaS, the product and service are combined and offered as one bundle, and the consumer pays for the outcome or use of the product and not for the product. This paper empirically analyses, from an outside-in user perspective, the effects of brand, the main external attribute of a product, and product design, the main internal attribute, of an existing PaaS example of lease versus buy decision of automobiles. The effect of the brand is seen as significant in lease compared to buying. Results did not suggest any significant difference in consumer expectations on product design in automotive lease versus buy. The research also further explored, as a practice evaluation of an existing PaaS example, expectations and experience of automotive lease users and provide meaningful insights to help organizations transition to PaaS.

2.7 Workshop on Design Thinking

The design Thinking workshop was held in collaboration with Philips India. The workshop was completely online and was led by the designers from Philips India. The situation was to design a mechanism by which a female middle-aged homemaker who has been ignoring her health even in the presence of some conditions will take care of herself. The workshop consisted of four rounds. The first round was dedicated to understanding the causes and the factors affecting the problem. In the first round, the participants were designated into four groups and were asked to deliberate and come up with factors that affect the situation in question. In the second round, the four teams were merged into two groups and solutions to the factors affecting the woman in question were deliberated. In the third round, each of the two groups presented their findings and solutions that they were proposing to the whole gathering.

The importance of design thinking in this scenario was to understand why a woman is taking such a decision. In the process of analyzing the woman's considerations for taking such a decision, it was important to analyze the practical aspects such as her not having enough time due to kids as well as behavioral aspects such as inconsistencies in taking medicines due to forgetfulness among others. In the first round, each group was given a task to analyze what were the factors that were leading to her neglecting her health. There was also an elongated discussion on the causes of the presented factors. For instance, if the woman was ignoring her health due to household chores that she had to do, it might have been that she could not afford domestic help. Hence, proposing an expensive solution for her predicament would not be the optimal way to think about the ways to help this woman. Several factors which ranged from rational, socio-cultural to behavioral were analyzed. Each team first prepared a list of all the factors that might be in play. The factors were thoroughly discussed and put to vote. The factors that got the highest vote were selected for further analysis. The four groups were then merged into two to understand the factors that were presented. Further in the next round, to address the causes, solutions were discussed. Some very specific but some general solutions came to the fore which were taken up by each group for deliberations. After the completion of deliberations within each group on the solutions to these factors affecting the problem at hand, a vote was taken. The solution winning the highest votes were taken as selected for presentation. Each group came up with a presentation in the final round where one member of both the groups presented their findings and the solution. The solutions involved various mechanisms through which the woman who had been ignoring her health could be persuaded and helped. The solution presented involved multiple behavioral persuasion tools like nudge among others. The presentation involved both the teams proposing an app that could track the woman's health and her taking care of health in turn. The seminar presented an interesting mechanism about how to approach a problem and design its solution. The participants' involvement and their problem-solving strategies were highly appreciated by the team from Philips India.

2.8 Significance of design thinking in business by Smriti Kesarwani

The presentation mainly focused on the application of the design thinking approach using user experience (UX). She started off, by highlighting the need for user experience understanding and searching for the hidden problem and the best probable solution for that. Moving forward she explained why user experience is an integral part of any business process or what value a user experience brings to the company. She explained this by taking business to customer and business to business services in separate ways. The main benefits of user experience in business-to-customer kind of services are customer acquisition, as successful user experience and design, brings a competitive advantage, and customer retention.

At the end, she explained the design thinking process by introducing three interesting case studies. In this process, there are six mandatory steps that a user expert needs to follow to achieve the best solution for any problem. Every step asks some sort of question and ultimately leads to the perfect solution. The first one is "Empathized" which asks who is the user? What matters to this person? Where does this feature fit into their lives? After that, a user expert needs to "Define" the problem in which he/she needs to ask what are the problems this project attempts to solve for the user? The third is to "Ideate" which deals with the main ideas related to the problem. Next will be "Prototype" which deals with the issue of how the idea will be represented? This step then leads to the next step called "Test" which provides us the opportunity to get feedback from users about whether the prototype works for the user. The final step will be "Implementation" which means that the revised prototype is then operationalized as the solution.

Photo Credit: The Hindu Business Line

3.1 Consumer preferences for different nutrition front-of-pack labels in India
Prof. Arvind Sahay, Rahul Sanghvi, and Prof. Ranjan K. Ghosh

Summary

It is now globally well established that front-of-pack labels (FOPLs) on packaged, processed food items have the ability to direct consumers' attention toward healthier options. The back of the pack Nutrition Facts Table is rarely used and difficult to interpret, even by those literate. Looking them up and comprehending them takes time and cognitive effort. Especially in a country like India which has a plethora of regional languages and where a majority of consumers can read only one or two regional languages, text-heavy nutritional labels are less effective in influencing behavior. However, many developing countries are reluctant to introduce such systems owing either to paucity of reliable research, resistance from vested interests, or lack of clarity about which kind of FOPL is most comprehensible, acceptable, and yet effective. In this context, research conducted by IIMA, a first-ever large scale randomized controlled trial within the complex socio-economic-demographic setting of the Indian consumers to determine which among the five popular formats of nutrient specific labels and summary ratings – Multiple Traffic Lights (MTL), Monochrome GDA, Nutri-Score, Warning Labels, and Health Star Ratings (HSR) – is the easiest to understand and influences purchase intention alike. A no-health prime, a healthy, and an unhealthy prime were given to a total of 20,564 face–to–face survey respondents covering all major states of India. The respondents were randomly allocated to 15 treatment groups and asked about their purchase intention for packaged biscuits and chips. They were then asked to rate important aspects of FOPLs.

The results indicate that on average the summary ratings of HSR and Warning Labels are in the highest pecking order from the perspective of ease of identification, understanding, reliability, and influence. Among the two, HSR appears most acceptable, outdoing the nutrient-specific formats on ease of understanding. HSR finds greater support among the Southern, Central, and Western regions of the country. MTL was most preferred when it came to reflecting necessary health information and the presence of an unwanted nutrient. In terms of change in customer behavior as reflected in purchase intention, all five FOPLs lead to a significant change in purchase intention at the 99% confidence level with MTL having a marginal advantage.

The research also ran additional tests for ease of identification, understanding, and reliability on sub-populations that bear a higher consequence to influencing purchases, that is, females, individuals primarily responsible for grocery shopping, urban individuals, individuals that read labels presently, individuals who don't read labels because they are not aware of labels, and individuals who do not want information about good nutrients on the FOPL. In all of these sub-populations, HSR performed the best. Researchers/Authors, therefore, quoted "that if the objective of introducing a FOPL in India is a careful combination of both, ease of identification and understanding as well as influence on purchase intentions, then we recommend HSR as the preferred format."

The research report 'Consumer preferences for different nutrition front-of-pack labels in India' has been uploaded on the Food Safety and Standards Authority of India (FSSAI) website.

3.2 Analysis and impact of COVID-19 disclosures: is IT-services different from others?
Prof. Adrija Majumdar, Prof. Pranav Singh

Summary

There is ambiguity regarding whether coronavirus disease 2019 (COVID-19) is a boon or bane for the IT services industry. On the one hand, it has created opportunities, especially with the growth of collaborative technologies. On the other hand, many firms have reduced their IT budgets owing to the ongoing recession.

Specifically, the authors seek to address the following research questions in this study:

1	**2**	**3**
Have IT services firms communicated about the coronavirus in their annual reports filed in 2020?	**What is the risk sentiment of the disclosures concerning coronavirus?**	**What is the impact on information asymmetry when coronavirus-related disclosures are made by IT services firms?**

This study explores how IT firms have assessed the risk of the pandemic in the early days and informed capital market participants. In addition, it examines the impact of such online disclosures on information asymmetry.

The authors analyzed annual reports of publicly listed firms in the USA filed on the Securities and Exchange Commission website in 2020 and examined whether the disclosure scenario of technology firms was different from that of the other industries. Moreover, the risk sentiment of COVID-19-related disclosures was assessed by employing text analytics. Information asymmetry was measured using the bid-ask spread.

Overall, it was found that IT services firms were less likely to discuss the COVID-19 pandemic in their annual reports. Interestingly, it was observed that technology firms that chose to communicate about the pandemic had a lower incidence of words related to risks. Furthermore, communicating about COVID-19 in annual reports calms investors and improves the information asymmetry situation about the firm. Variation in the severity of the pandemic and the responses of state governments were controlled for by employing state-fixed effects in the empirical models. The work examined the reporting of coronavirus-related disclosures by IT services firms (a sector that primarily enables digital transformations). The authors examined the annual reports filed by all the US-listed companies and their outlook on the pandemic. The impact of the pandemic on IT services is mixed, with some benefiting from it because of the profusion of collaborative technologies and some suffering owing to the downward slide of the economy. The results highlight that overall, IT services firms are less likely to disclose information about the coronavirus compared with other firms. Furthermore, the risk sentiment of those who mentioned coronavirus is lower than the risk sentiment of filings of firms from other industries that disclosed COVID-19. Discussions about COVID-19 benefit technology companies by reducing information asymmetry. This work is particularly important for technology firms that are seeking inputs to communicate effectively with stakeholders about a crisis.

The research can be extended to other geographical areas. In this study, the disclosures filed with the US SEC were examined. Future research may investigate the disclosures of IT firms across other geographies. Although the coronavirus has created turmoil across the globe, the digital readiness of firms outside the USA may not be the same. Furthermore, a few economies are over-reliant on IT services firms, which increases the importance of this discussion for those economies. Our objective of evaluating the differences between IT services firms and the rest requires a cross-sectional setting, which may yield a lower explanatory power when compared to the panel data studies.
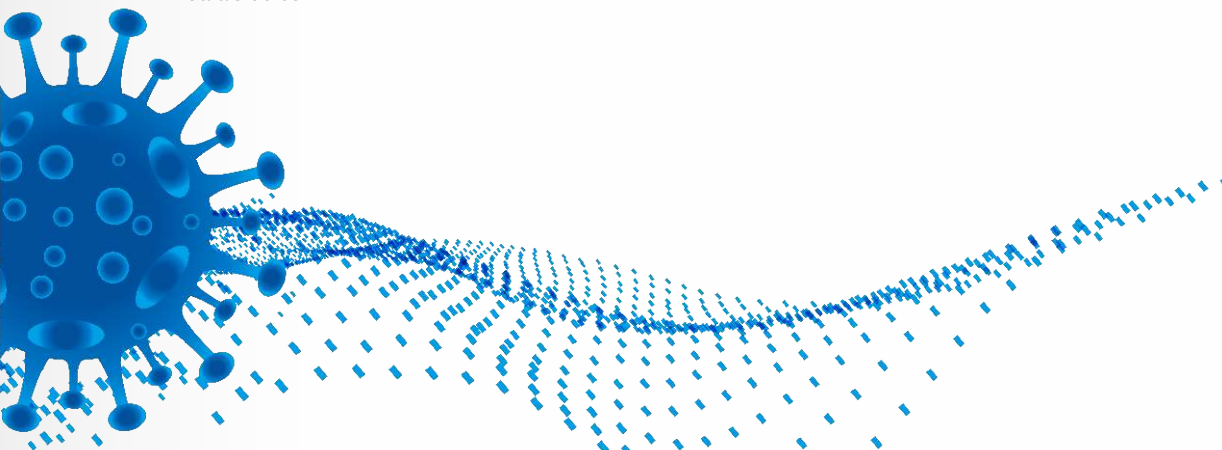
3.3 Prospect theory preferences and global mutual fund flows
Nilesh Gupta, Anil V Mishra, Prof. Joshy Jacob

Studies have observed that biases of mutual fund investors distort Mutual Fund flows. There has been extant literature discussing mutual fund flows dependent on recent high performance indicating extrapolation of mutual funds' recent performances. It has also been observed that funds showing higher speculative features demonstrate greater fund flows indicating investors' overestimation of the probability of extreme returns. Investors in mutual funds are also found to exhibit loss-aversion, overestimate the probability of extreme outcomes, and hold lottery-like stocks. Motivated by the research on behavioral biases influencing retail investors, the paper investigates whether fund flows into mutual funds are explained by Cumulative Prospect Theory (Tversky and Kahneman, 1992) [CPT from hereon] preferences of investors with global data of equity mutual fund flows. The paper focuses on a specific question: whether the CPT valuation of the past returns explains the variation in capital flows across equity mutual funds.

Two specific channels of CPT, loss aversion and the overestimation of small probabilities may independently influence investor judgment about future fund performance. Loss aversion suggests that investors may excessively dislike funds that earn negative returns, hence funds with negative returns are likely to face significantly lower fund flows, irrespective of their future performance potential. The overestimation of small probability outcomes suggests that investors are likely to overestimate the occurrence of infrequent large positive (negative) returns and thus could irrationally increase (decrease) their investments into such funds, If the fund flows are significantly sensitive to the CPT value of past fund returns, then several dynamics need to be considered. First, mutual funds with relatively poor performance are more likely to shift their portfolio to stocks generating higher CPT value. Second, if a high CPT value of funds is associated with incremental fund flows, we expect fund managers to cater to the market preference through continued fund allocation to such stocks. Finally, the susceptibility of stocks with higher CPT values to overpricing leads the paper to speculate that funds with higher CPT values are likely to earn lower alphas in the medium term than their peers with lower CPT values.

The paper finds that a larger CPT value of the style-adjusted past returns is associated with higher fund flows in the subsequent quarter. The impact is greater for retail-oriented funds, relatively younger funds, and those with higher active shares. While funds that score high on the CPT value attract incremental fund flows, they earn a lower alpha than their peers in the following year. The findings imply that investors have misplaced expectations about the future performance of funds that show higher CPT values, and the fund managers cater to these investor preferences.

CHAPTER - 4
LAB ACTIVITIES

Three distinct types of usage of the equipment is taking place.

1 The first is usage by students as a part of their course projects. 2021-22 was the first year where a couple of student groups were able to use the lab for their term projects. This will enhance their understanding of the field and make them better practitioners of the applications of behavioral science. Two such works are described below.

2 The second is by faculty and research officers for the purpose of research. Some sample projects are discussed below.

3 The third is by Ph.D. students as a part of their thesis. As this report goes to press, two Ph.D. students have just started doing the first pilots for a part of their thesis.

4.1 Studies conducted by the Course student groups in association with the NSE CBS lab

Group 1

Summary

The following hypothesis ▶ H1. Consumers evaluate one or two parameters only while making purchasing decisions.

▶ H2. The validity of the plan and the data limit is the most common parameters consumers used to evaluate while making their purchasing decisions.

Key Findings from the Eye-Tracker experiment:

▶ The hypothesis turned out to be validated with the limited data points from the limited number of subjects. However, there could be additional features besides data and validity that might be of interest to the consumer.

▶ Additionally, eye-tracking also exhibited that most consumers compared individual parameters across the plans. However, some consumers do go through all the parameters within a plan before evaluating another plan and then comparing both the plans in their entirety.

Most of the subjects were able to come up with the biases that affected their decision-making mainly due to the limited number of sets shown as cues and also the shorter duration of the experiment. The biases were related to the subject's own preferences for individual parameters – such as data/day, OTT features, etc.
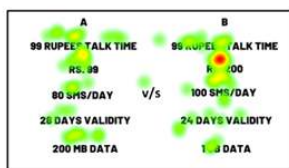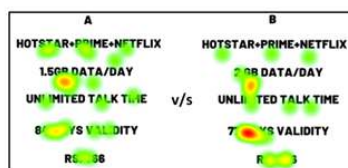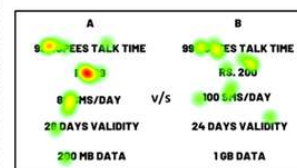
Most subjects looked at all the options before making their decision. However, the heat maps indicated extra focus on the parameters of price, validity and data.

Thus, the original hypothesis can be validated with some degree of confidence.

Some subjects did not look at a few parameters while making their purchase decisions, thereby signaling their indifference to such parameters

The hypothesis that consumers try to minimize their cognitive load cannot be validated from this experiment but it is clear that they prioritize certain parameters over others

Fig: Snapshot taken from the report

Group 2

Summary

The group set out to answer 4 important questions for NBFC Co., a leading vehicle and tractor financing company:

> **Q1. How do we maximize revenues in the face of increasing competition?**

> **Q2. How can the existing credit appraisal be reviewed and improved through consumer insights?**

> **Q3. How should we adapt to the new generation customer?**

> **Q4. Should we cross-sell multiple products to our existing customer base?**

To answer these questions, they brought together the three approaches to consumer insights from the course. The group tested the following hypotheses through an eye-tracker experiment.

Hypothesis:

The research questions for the eye-tracker experiment were a smaller subset of the conjoint analysis, which used four factors and the trade-off between them, namely – brand name, physical evidence, penalty, and interest charged.

> 1. There can be a trade-off between the interest charged and the brand trust.

> 2. There can be a trade-off between the interest charged and physical evidence.

There can be a trade-off between the interest charged and the penalty for default. This hypothesis is based on the idea that the younger and educated customer segment will look at the fine print and be concerned with the penalty as they might also have just started earning and saving and thus be financially unstable

Design Overview and Preliminary Results

They had created three iterations of the test stimulus after constant feedback. The basic idea was to have a visual communication for a loan and a financial company depicting all the four factors.

Through the help of Mahindra finance's employees, they were able to collect 16 responses for the conjoint analysis. Even though they optimally require at least 30 responses to call the results valid, the conjoint analysis result based on 16 responses validates their hypothesis.

4.2 Effect of mood induction on the disposition effect
Kunal Apastamb, Prof. Arvind Sahay

Summary

The disposition effect, identified by Shefrin & Statman (1984) is a robustly studied bias in behavioral finance. It states that the individuals hold the losing stocks for a long time and they sell the winning stocks early. According to the standard economic theories – like the expected value model, the rational investor will maximize the gains by selling off the losers and holding the gainers. But investors do not trade so optimally. A robust conclusion about the effect was found when Odean (1998) studied the trading pattern of 10,000 traders. The author calculates the Propensity of Gains Realized and the Propensity of Losses Realized to understand the pattern. It is compared with paper losses and paper gains. It clearly established the disposition effect.

There have been studies to explain the reasons behind the bias. The mean reversal hypothesis, prospect theory, and the realization utility hypothesis are some of the main reasons cited. Moving ahead in the individual differences causing the disposition effect, the study by Thornton (2021) discusses the effect of weather on mood and that mediates the disposition effect. Apart from the weather, other exogenous variables like air pollution, which are not technically related to trading also affect investment decisions. Li et al. (2021) find that air pollution increases the disposition effect. It significantly caused trading inefficiency.

This study extends an interesting observation in the literature. The disposition effect reverses while a person is in a negative mood. This is studied at a macro level by Thornton (2021). This study proposes an EEG experiment for robust conclusions and argues that there would be only a partial reversal of the disposition effect.

Research Question: Does a negative utility burst reverse the disposition effect only partially?

Hypothesis:

> H1. Negative Utility Burst makes a person sell the losing stock; and/or

> H2. Negative Utility Burst makes the person sell the winning stock (as well)

Methodological Overview:

EEG Experiment will be conducted using the E-Prime stimulus presentation software. A basic trade simulator is being designed in the E-Prime. The mood induction techniques will be deployed in order to see the effects on the trading pattern. There will be two types of mood induction – Market Induced Mood and Personal Negative Mood.

4.3 Multimodal EEG – Eye-tracker study to determine differences in neural responses to HSR and Warning labels
Prof. Arvind Sahay, Rahul Sanghvi, Yash Chakarvarty

Summary

Based on the behavioral research findings in the 'Consumer preferences for different nutrition front-of-pack labels in India'. (Sahay et al. (2022)). The results indicated that on average the summary ratings of HSR and Warning Labels are in the highest pecking order from the perspective of ease of identification, understanding, reliability, and influence.

This study would set a benchmark if we're able to scrutinize the neural correlates of which FOPL to adopt and also if it supports the evidence discussed in the paper.

Using Multimodality, EEG & Eye-tracker, and the stimulus presentation software; E-Prime, for the generation of the paradigm, we would like to test the above-mentioned.

4.4 Creating an online survey for risk profiling of inventors
Prof. Arvind Sahay, Prof. Joshy Jacob, Mayank Prakash

Lately, in the field of behavioral finance, there has been a rising cognizance of how biases and heuristics affect decision-making. Along with these cognitive factors, investment decision-making is also heavily influenced by the environmental and personal factors of the investors. Emotions, habits, risk-taking ability, and social influences have been observed to impact people's economic decisions. People's risk propensity is seen to vary across domains, i.e., people may display higher risk-taking abilities in the recreational and social domains but exhibit risk-averse behavior in the financial domain. In the present project, we aim to profile investors based on their behavioral biases and risk propensity.

4.5 Understanding Indian Millennial Investors Stock Preferences
Prof Arvind Sahay, Anushka Oza, Divya Reji, Mayank Prakash

Even though the financial year 2020-21 seemed to have locked everybody in their houses due to the Covid-19 pandemic, it witnessed an unusually high influx of young Indians who decided to step in and try their hand in the Indian stock market. The Indian economy observed a shift in the investment pattern, as more people decided to opt-out of traditional financial avenues to switch to alternatives like the stock market. The outcome of this switch was seen in the data from the National Securities Depository Ltd (NSDL) and the Central Depository Services Ltd (CSDL) which reported a stunning boom of 14.2 million new Demat accounts opened in FY21 (Sultana and Ramarathinam, 2021). The present study is an exploratory study aimed to assess the choices made by Millennial investors in the Indian stock market.

4.6 Household Investor Survey
Prof Jeevant Rampal, Prof Joshy Jacob, Mayank Prakash, Abhishek Tripathy

We intend to collect granular data on how Indian households take investment decisions. The survey will try to understand what drives the Indian household investor to invest in the way they choose to invest and what factors influence the asset allocation for the Indian household investors. We will try to analyze if there is the persistence of the household finance puzzles in the Indian context which has been extensively talked about in the literature. We also intend to understand the behavioral aspects of the decision-making process of the Indian household. This would be one-of-a-kind survey for Indian household investors.

4.7 Paper about the strategic interaction between the government and various agents in developing a market infrastructure institution
Prof Arvind Sahay, Mr. Sudheesh Nambiath, Mayank Prakash

This paper tries to analyze games of strategic complementarities using the Global Games literature for situations where the fundamental is endogenous, and players are heterogeneous. We intend to understand it as a single-period game where a principal and continuum of heterogeneous players play the game. The fundamentals evolve positively with the participation of more players. The principal has a role to persuade the players toward a socially optimal equilibrium. The decision of a player to play a particular strategy depends on the fundamentals and other strategies of other players. Global Games literature has modeled the game in situations of a bank run or regime change where the fundamental is the strength of the bank or regime given exogenously at the beginning of the game. The players get a noisy signal about the fundamental and other players' strategies and hence decide their strategy. In this paper, we propose that the fundamental is endogenous. Suppose the principal presents an idea that has a particular strength i.e initial fundamental value but it can only be successful if it is supported by enough players. So, the fundamental strength of the idea is dependent on the number of players participating in support of the idea. The basic strength of the idea i.e fundamental will hence depend on the actual strength of the idea and the number of players supporting it. The players would have a situation of strategic complementarity. We intend to understand the equilibrium in such situations.

4.8 Institutional Noise trading and its effect on volatility in the Stock Markets due to behavioral biases specifically Diagnostic Expectation
Prof Joshy Jacob, Mayank Prakash

There might be ample reason to believe that institutions might have some behavioral biases while trading especially when they are noise trading. We strive to study if, in the event of a shock like the crash of March 2020, these institutional investors relying on Diagnostic Expectations lead to excessive volatility. We would also like to understand if the results depend on whether the institutions are Domestic Institutional Investors or Foreign Institutional Investors. Further, we also like to investigate if there is a difference in the results in developed and developing markets with a keen focus on India.
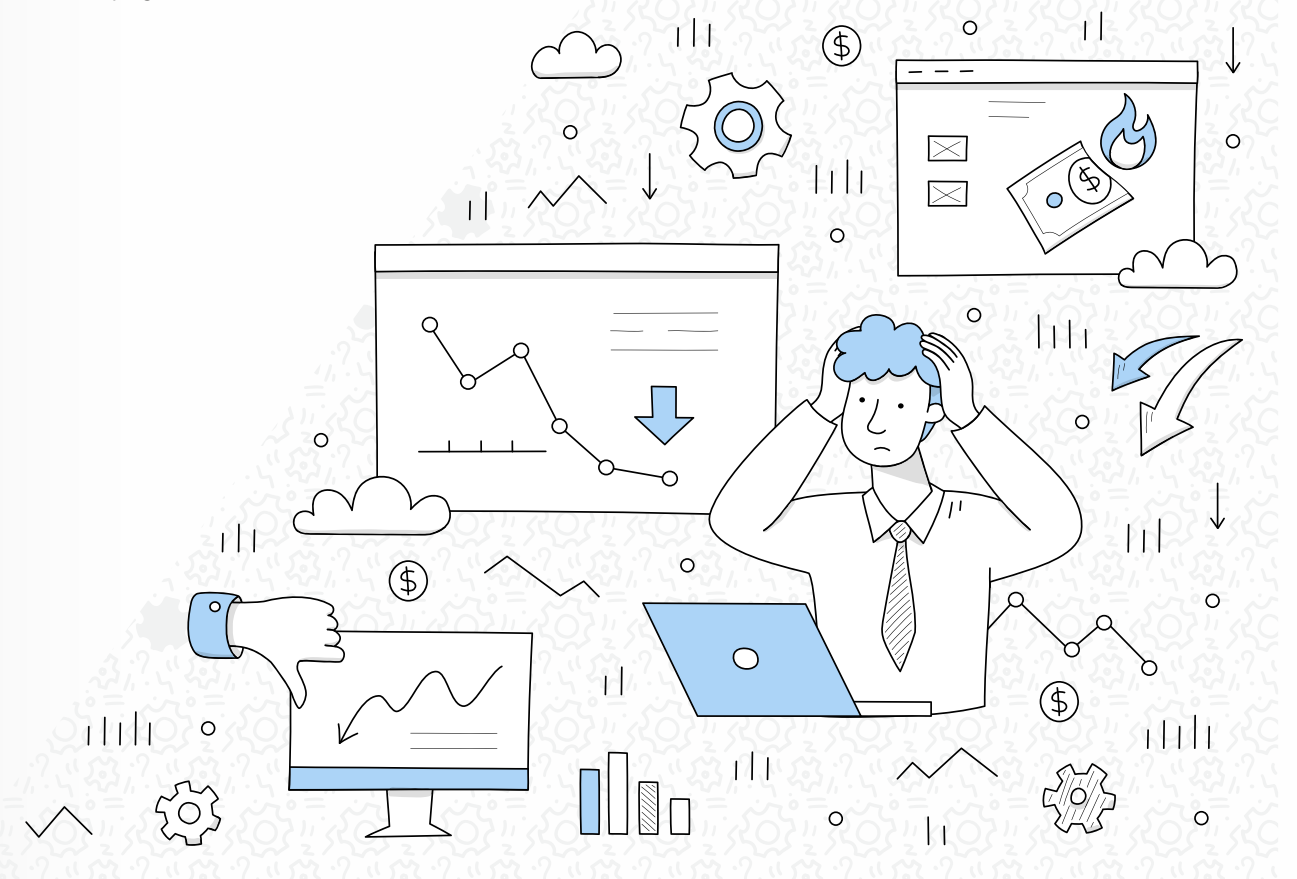
4.9 The Impact of Vague versus Precise Temporal Framing on Behavioral and Purchase Intentions of Products and Experiences: An Event-Related Potential Study

Sukriti Sekhri, Prof. Arvind Sahay, Richa Nigam, Yash Chakarvarty

Introduction and Research Objectives

Imagine Tejas, who is browsing on an e-retail platform and comes across an advertisement for a new phone model. The advertisement has a picture of the phone, the brand name, and the words "Coming Soon!" in big, bold letters. Consider Seema, who is in a similar situation when she sees an ad for a sleek set of headphones, where the ad promises, "Coming this Week!". Which of the two individuals would be more likely to pre-book the product or have higher purchase intentions?

We often see the use of such temporal framing (vague versus precise) in pre-launch communication about products and experiences. Would varying the temporal framing alter behaviorally and purchase intentions towards the product or experience? Specifically, how would these findings differ across product categories (utilitarian versus hedonic) and experience valences (positive, neutral, negative)?

In this research project, we thus examine two broad research questions. First, whether a vague versus a precise date framing (precise-near future versus precise-distant future) affects purchase intention differently for hedonic versus utilitarian products. Second, whether varying the date framing leads to different behavioral intentions towards experiences that are positive, negative, or neutral.

Temporal Distances - Vague versus Precise Framing

Extant research has examined the role of defined near versus far temporal distances, but not vague versus precise temporal distances in differing contexts. For instance, in a neurological study, it was found that when participants were asked to imagine adjectives for their near future selves (1 month from now) and adjectives for negative traits elicited more positive event-related potentials (ERPs) deflections than positive traits in the 500-800 ms interval (LPP) (Luo et al., 2013). In the distant future selves (3 years from now) condition, there were no significant differences between positive and negative traits in the same interval (Luo et al., 2013). Another recent study involved giving participants moral dilemmas based in the near versus distant future and asking them to choose between a self-interest serving an immoral choice versus a moral one. The researchers found that "human brains discount the decision utility of the moral outcomes that will occur in the distant future" (Yun et al., 2019).

Like the examples above, current research has compared objectively near versus objectively distant situations, but we will examine how psychological distance, i.e., the perceived distance, plays a role. Our study focuses on evaluating products and experiences based on vague versus precise time frames.

Hedonic versus Utilitarian Products

Hedonic products are considered fun, exciting, and enjoyable, while utilitarian products are functional, necessary, and practical (Dhar & Wertenbroch, 2000). For instance, a mineral water bottle is more likely to be considered utilitarian, while a chocolate bar is hedonic.

Recent research suggests that hedonism is linked with a higher construal level (abstract mindset) while utilitarianism to a lower construal level (concrete mindset) (Scarpi, 2021). Our behavioral experiments suggest that a vague date is more likely to be perceived as farther off than a precise date, as its inherent uncertainty increases the psychological distance and construal level. Thus, we expect to find that a vague date (higher construal level) will have a better "fit" with hedonic products, while a precise date (lower construal level) will align better with utilitarian or functional products. This fit should exhibit in terms of greater interest and purchase intentions towards the products.

There are two schools of thought on the neurological impact of both product categories. On the one hand, a recent event-related potentials (ERPs) study has found that utilitarian products lead to a relatively larger N2 component which suggests greater attention in the initial cognitive stage (Shang et al., 2020). Utilitarian products also give rise to a relatively smaller LPC component than hedonic products, implying a smaller negative affective reaction at a later stage (Shang et al., 2020). On the other hand, there is contradictory evidence that suggests that both hedonic and utilitarian products elicit emotions, but in the case of utilitarian products, these are unconsciously generated without the individual being aware of them (Bettiga et al., 2020). In the case of hedonic products, however, consumers are aware of these feelings and thus are able to express them in self-reported measures. We will examine ERP measures to examine if there are differences in the impact of both product categories, specifically in affective reactions when the date framing is varied.

Products versus Experiences

There is evidence that our reactions towards products versus experiences may be different; thus, it is worth investigating whether temporal framing impacts intentions towards experiences differently. People may exhibit more risk aversion towards negative experiences but greater risk-seeking behavior towards positive ones (Martin et al., 2016). We will thus examine our research question for everyday experiences, which differ in their degree of pleasantness (determined by a pre-test) and their emotional loading (valence: positive, neutral, negative). Specifically, the objective is to uncover whether lack of certain information (vague temporal framing) or precise information (precise temporal framing) alters reactions to and preferences for such experiences.

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