

Promoting Entrepreneurship Using Behavioral Intervention in Association with “Tripoli Entrepreneurs Club”

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Abstract

“Entrepreneurs are not born, but made” [1]. Made by dedication, effort, work and time. We work on ourselves in order to improve and realize our dreams and purposes. The aim of this study is to promote the spirit and education of Entrepreneurship. Tripoli Entrepreneurs Club reaches out to different audiences, organizes workshops, events and meetups to train people to become successful entrepreneurs. From idea generation, until implementation and collection of profit, this pre-accelerator program helps you find your business idea, work towards it and achieve it! A major problem diagnosed where 50% to 70% of the people who register to these workshops do not attend. Behavioral interventions that put our actions, decisions and behaviors on the right track, search to maximize our utilities far away from our biases, heuristics and mind deviations. Registering and attending the workshop was our precise objective, using Nudging as a solution to encourage people who registered to attend. Nudging experiment is done using the randomized control treatment trial that consists of dividing the total sample size into two equal groups: treatment group who received the nudge (behavioral intervention), and the control group did not receive anything [2]. A descriptive analysis showed a little improvement in the attendance when comparing the treatment group with the control. The statistical analysis conducted, p-value calculated, and the results were that no significant difference exists between the control and the treatment group, in other words, the nudge was not very effective. We should always try to understand the limitations of our experiment that can be various, build another and test new nudges and hypotheses.

Keywords

Nudging, Behaviors, Actions, Behavioral Finance, Behavioral Economics, Psychology, Entrepreneurship, Rationality

1. Introduction

The universe is defined as space, time and its content. It includes galaxies, stars, asteroids, planets, moons etc.

Our galaxy known as Milky Way includes eight planets orbiting the sun (solar system): Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. We live on the third planet Earth where plants, animals, humans belong!

What do we mean by humans? Who are they?

Biologically speaking human is a multicellular eukaryote consisting of an estimated 100 trillion cells.

As provoked in philosophical debates, human nature is a bundle of characteristics, including ways of thinking, feeling, and acting, which humans are said to have naturally.

Psychology as a Human Science: Human beings are fundamentally transcendent [3]. This means that human beings are fundamentally conscious, interpreting and interacting with the events in their lives, using a degree of freedom in how they interpret their experience and make choices accordingly.

And as the universe operates, we do too! We are all in continuous evolutions. We act and interact with each other affecting not only the universe, but also everyone's life.

Respectively, when we want to observe and analyze a person's actions or decisions, we have to take into consideration that he used: what is inherited by chromosomes, learnt through education, acquired by experience, mind operating at the moment, mood affected by hormones and bouncing emotions [4].

View that we cannot say that people are 100% rational, analyzing and interpreting objectively all things around them, and also not totally emotional, feeling things and reflecting back. This is the complexity of the human being [5].

Rational agents, logically speaking, should be self-controlled, self-interested, well-informed with stable preferences and always managing their utility optimization. This is the traditional thinking in different fields like management, decision-making, business, and economics supposed that humans are rational agents [6].

The behavioral perspective takes this view and suggests that we are humans distinguished by fallible judgment and malleable preferences and behaviors, can make mistakes calculating risks, can be impulsive or shortsighted, and are driven by social desires. In other words, we are simply humans [7]. Starting from this point that the studies and researches in the behavioral sciences were born.

Accordingly, when we talk about behavioral science, we mean the part of sciences related to human beings, that studies their actions, aiming that their conclusions can be adopted and generalize it for the whole society. Behavioral sciences were shortlisted to psychology, sociology and anthropology [8].

That is basically, what the behavioral science theory is all about.

The business world is changing, evolving and the sure thing is that nothing stays the same. The future of the business world activities will rest under the

“Entrepreneurial” spirit, concept and practices. Well, after decades we reached that conclusion was “Entrepreneurs are not born, but made”.

Nevertheless, economists, financial analysts, entrepreneurs, business people are all human beings at the end who make mistakes, when choosing, deciding and acting.

Here comes the role of behavioral economics and finance to understand, correct and improve business behaviors full of stereotypes, biases and deviations [9].

Trying to stay rational, improve decisions about health, wealth and happiness especially business decisions, is our macro objective. The micro one is to promote entrepreneurship and encourage people towards this education in order to maximize their own utility in every decision and action [10].

Different accelerators, incubators programs address all public interested in getting into entrepreneurship world and working on their own businesses.

“Tripoli Entrepreneurs Club” is an example of a pre accelerator program. It is an apolitical, non-religious, and non-governmental organization founded in 2013. The latter aims to create, foster, and nurture entrepreneurial culture in Lebanon. It helps students and young investors to upgrade their skills and education to a higher level of intellect, through awareness campaigns, and training on idea generation, entrepreneurship, social entrepreneurship, business planning, fundraising and pitching with focused workshops, competitions and boot camps.

Mission: empower youth to become entrepreneurs and realize their ideas, becoming key drivers of innovation and economic development.

TEC Values: Motivation, inspiration, commitment, professionalism.

After analyzing data for a period of eight month at TEC, considered being a baseline, we reached that 50% to 70% of the people who register to those events do not attend. The people who register in the first place are subject to different biases (present bias, choice architecture, action bias, decision fatigue), and all kinds of mind shortcuts. This is a major problem when it comes to attendance we decided to tackle. Using behavioral interventions, Nudges are considered to be small changes in context that produces effect in a predictable way, maintaining the freedom of choice and keeping it cost effective.

Sending emails to a group of the total sample size to test if these small nudges will be effective and increase the attendance to TEC’s workshops.

The hypotheses to test are:

H0: TG = CG, no significant difference

H1: TG ≠ CG, there is a significant difference

2. Literature Review

2.1. Behavioral Economics and Finance

Classical theories of choice emphasize decision making as a rational process. In general, these theories fail to recognize the process and formulation stages of de-

cision-making [11].

In response to such limitations, numerous descriptive theories have been developed over the past forty years, intended to describe how decisions are made and improve them.

Let us start by taking a flashback to a last time you went to buy a certain product. What exactly was the process of you contemplating various sets of similar products and choosing the one that best suits you? How did you know you took the best option? For example, when buying a laptop, did you check all the qualifications, specifications and prices that best serve you? Moreover, did you make the right decision that best satisfy your needs and future ones? (At the end, it is not a one-time use product)

Daniel Kahneman in his book “thinking fast and slow” talks about two-system approach to judgment and choice [12].

- System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control.
- System 2 allocates attention to mental activities associated to concentration and analysis.

To get back to our example and know which laptop to choose, and after knowing that our brain has both emotional and rational processes; we should consider revising our choices and the way we take them. When we want to take financial investment decisions, emotions are unnecessary and unwanted. We opt for free emotions type and rationality. However, no one is born with super powers, to remember all information and delete all emotions. There is an economist deep inside each and every one of us. But also, a very sensitive, full of emotions individual. We have to balance, know what use and when.

Here come studies in behavioral economics and finance to explain the decision-making processes for a better understanding that will lead to a better behavior [13].

It is where psychology and finance meet!

2.2. Nudging and Conceptual Theories

Some observations on behavioral economics: The Fear of Loss Vs the Excitement to Gain; where the fear of losing money is a lot bigger than the excitement to gain [14].

Figure 1 clearly shows the value of gains versus the value of losses for the same quantity of gains and losses if we can say. The impact when we lose is the double of the impact when we win for the same amount. That explains the loss aversion theory when we are willing to take more risks for an uncertain loss and much fewer ones for certain gain [15]. A clear example of humans’ biased and irrational decisions, where sometimes are risky and illogical, and others are not risky but still irrational. Only irrationality and emotions (like fear) control these kinds of decisions.

This is the Loss aversion theory that goes under the Prospect Theory.

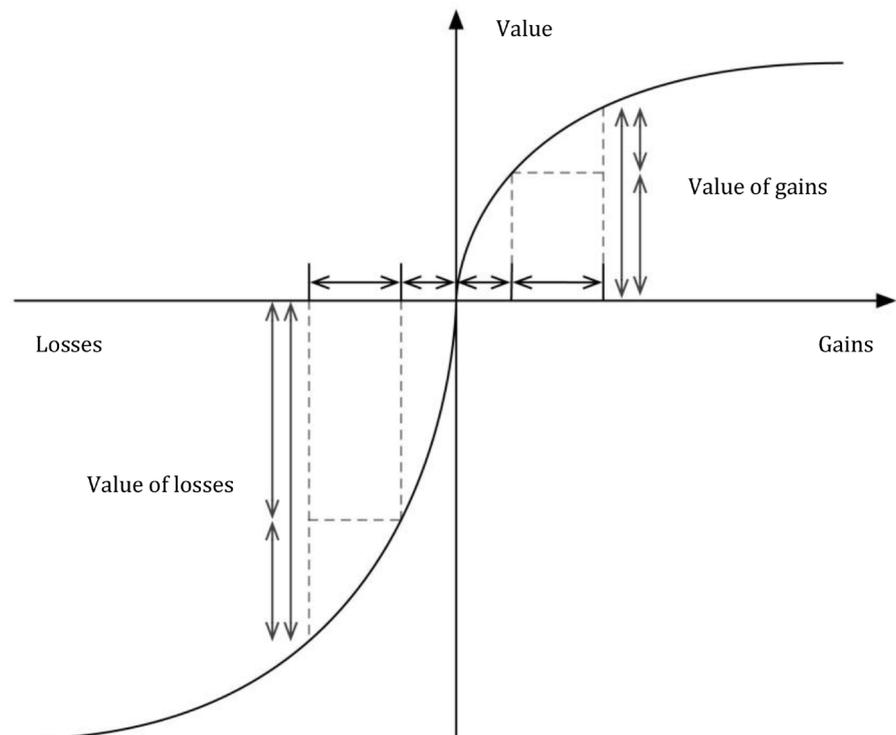


Figure 1. Loss aversion.

Prospect theory is by far the most prominent theory of decision making under risk [16]. Hesitation, risk, irrationality, uncertainty, emotion driven, analogical shortcuts, etc. all aspects of the human brain!

Now, prospect theory shows three biases people do when making decisions:

- Certainty: people tend to overestimate options that are certain
- Isolation effect: people act on information that stands out and differs from the rest
- Loss aversion: when people prefer to avoid losses to acquire equivalent gains

Kahneman and Tversky offer Prospect Theory (PT) as an alternative to Subjective Expected Utility (SEU) to describe decision-making under risk and uncertainty [17].

All based on the uncertainty and the cognitive limitations of the human brain.

It is Psychology & Finance; Your Brain and You!

Irrational theory and practice theory explains numerous irrational humans' behaviors. Cognitive bias, herding effect, irrational exuberance, sunk cost fallacy, lack of control, present bias, discrimination are all examples when a decision is made without being well informed, with a cognitive deficiency, we call it irrational [18].

The cognitive dissonance theory explains this tension that takes people to change and alter their behaviors, actions, attitudes and beliefs. The bounded rationality, the mental accounting theory shows us different ways on how we perceive money or money illusions [19].

These tendencies usually arise from:

- The way we process information shortcuts
- The limited processing ability of the brain
- Moral/Emotional motivations and declinations
- Deformation in storing and retrieving memories from the brain
- Social influence and impact

They are known as “cognitive biases”, or “psychological biases”.

Like the existence of biases, deficiency, lack, deviations from logic, there exist also some other deviations that put us on the right track and let know ourselves again in order to take best benefit/utility in all kind of situations (from buying a laptop, eating diet to bigger investment decisions).

Research in multidisciplinary fields, such as economics, psychology and neuroscience helped gather behavioral insights to better understand humans’ behavior. BI aim at improving the welfare of all citizens and consumers through policies, regulations that are formed based on empirically tested experiments [20].

Nudge experiments have been done, tested and relied on.

A Nudge is a function of any attempt at influencing people’s judgment, choice or behavior in a predictable way, without eliminating any other choice or forbidding any options or significantly changing their economic incentives. “Richard Thaler” and “Cass Sunstein” clearly stated that in their book “Nudge” [2].

3. Research Methodology

3.1. Experimental Research

Experiments play an important role in research purposes and progress.

In the following, we are going to research the methods of research and design the adequate ones for this project: RCT, quantitative and qualitative methods are important.

After determining the methods and design, data collected in order to be processed and interpreted later.

Tripoli Entrepreneurs Club experiment is our case study here.

As shown in **Figure 2**, this experimental research is going to be analyzing

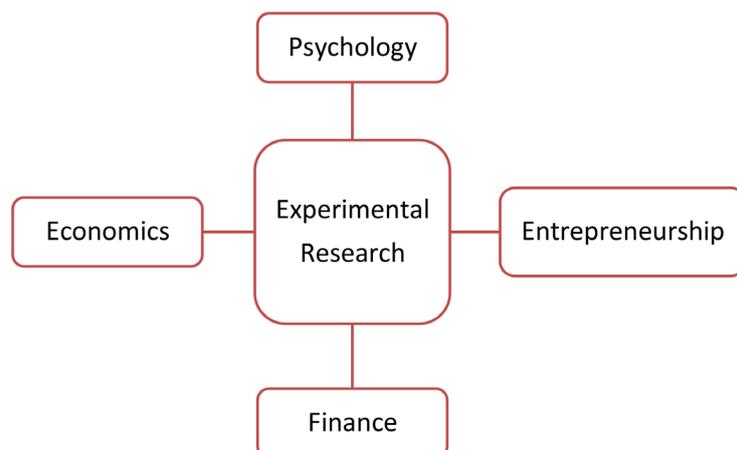


Figure 2. The four fields of the experimental research.

different aspects from these four fields. All related to human subject, ethically considered testing human decisions and actions in a first starting as entrepreneur.

Why does an entrepreneur or the people who want to be successful entrepreneurs need nudging? Well, as mentioned before, entrepreneurs are eventually human beings with biased and irrational choices [21].

Let us put it all in one sentence: experimental research in nudging to promote entrepreneurs.

The new way of research is combining both quantitative and qualitative methods together. To improve the quality of research, for more validation of data, accuracy, better analysis, and precise results, it is proved that combining the two methods will help more.

3.2. Research Methods and Design

Based on behavioral insights team methodology, we should start by defining the problem, the desired outcome and then follow certain steps:

- Understand the issue and context: identify the biased behavior by observation. Spending time in the field is very important.
- Build your insights and interventions: use ‘MINDSPACE’ and ‘EAST’ frameworks to generate some ideas.
- Test, Learn and Adapt: use of RCT, Randomized Control Trials or other similar methods which compare the effectiveness of the intervention (treatment group) against what would have happened if nothing had changed (control group). Then we evaluate the results [22].

As shown in **Figure 3**, the RCTs consist of dividing randomly a sample of people into two identical groups: control and treatment group. The treatment group will receive a certain nudge (in our case an email) or poke or a small change in context to alter behavior.

The results are measured from the treatment group based on the control group.

Attendance problem is a worldwide issue and it exists in different domains

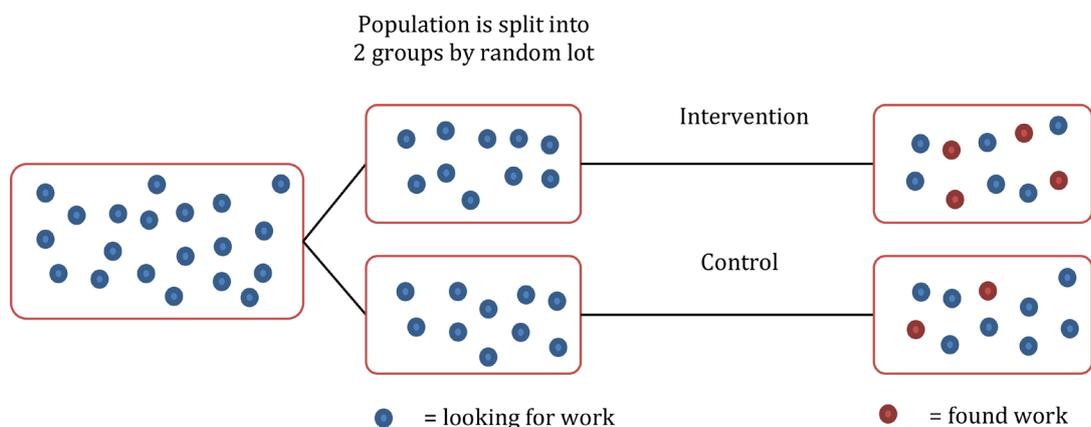


Figure 3. The basic design of a randomized controlled trial (RCT).

such as absenteeism in schools, missing appointments in hospitals and omitting seminars and informational workshops (like our case) [23].

In order to gather some insights on how people value time, what are the possible reasons of registering and not attending? Are they not serious about it in the first place? And what could be considered as a solution to this problem?

Using Google forms, a survey was completed and sent to the sample. Here are the basic questions asked.

“Age—Short answer

Do you usually register to TEC events before attending?—Multiple choice. 3 options

How many times did you register and not attend?—Checkboxes. 4 options

What are the possible reasons of missing out attendance?—Checkboxes. 5 options

Do you think that registering and not attending is an issue?—Multiple choice. 3 options

Do you need a reminder to every event?—Multiple choice. 3 options

How much do you value. Time 1 lowest value and 5 highest value—Linear scale

How much do you value. Workshops 1 lowest value and 5 highest value—Linear scale

Why do you think people register and do not show up? How can we help in this?—Paragraph”

This questionnaire has been conducted on a small sample of people, we reached that 80% of the people need a reminder before every event and 20% “maybe”.

Most common reasons for not Attending

- Something urgent
- Forget
- Not serious from the beginning (should make people liable for their actions)
- Lack of commitment
- Time management

A small focus group composed of the people whose ideas been selected to participate in the bootcamp and work on their business projects helped us in gathering some insights in addition to the survey to know how we could help in registration and attendance including other suggested tools to be used later on.

Based on all of this, RCT protocol was prepared in order to perfectly design the experiment. It is divided into these parts: objective, behavioral barriers, intervention ideas, evaluation feasibility, touch points, data availability, potential impact, project roles.

Behavioural Map is a product of observation and a tool for design and analysis: key stakeholders, overall framework and processes, structural and behavioural bottlenecks, psychological factors and biases, finally behavioural tools [24].

TEC's experiment was conducted using randomized control treatment trial only.

Details of the experiment:

- Experiment Duration: June, July, August, September till mid-October (8 workshops)
- All variables not considered, 100% randomization
- Two identical groups: same total number, males & females

RCT conducted on an individual level and not based on workshop level, because not the same people register every time due to event diversification and we were not sure about the total number of workshops to be held.

4. Findings and Analysis

4.1. Data Collection and Processing

As the experiment began, workshop after workshop, event after event, we have all the data was collected. Through excel sheets, the sample is gathered together to reach 198 individuals. Using statistical methods and formulas, the total sample size was accepted. Necessary sample size = $(Z\text{-score})^2 \text{ StdDev} (1 - \text{StdDEv})/(\text{margin of error})^2$. In addition, the sample size calculator on qualtrics.com, having a population of 350 individuals, confidence interval of 95%, margin of errors = 5%, we obtained the ideal sample size = 184. Having a sample size of 198 individuals ensured the reliability of data. 8 workshops divided into 8 excel sheets: each divided into three sections:

- Total number of registration
- RCT conducted: total number of registration divided into two identical groups
- Attendance

The Nudge selected focused on the framing parts as follows:

“Dear [Name]

‘The first step to success is to start now’. TEC workshops point you to the right track and prepare you to become the future successful entrepreneur! Do not miss this workshop you have already registered to!

Looking forward to see you there!

TEC Team”

Let us put **Figure 4** into words.

- Sample size = number of people who registered = 198.

Registration v/s Attendance		
198 Registered		Not registered
92 Attended	106 Not Attended	62 Attended

Figure 4. Registration v/s attendance.

- It is divided into 2 parts: 92 people Registered and attended, 106 of them registered and did not attend.
- 62 added value, are the people who did not register and attended the workshop.
- 198 is the sample divided equally between treatment and control groups: 99, 99.

4.2. Evaluation of Findings

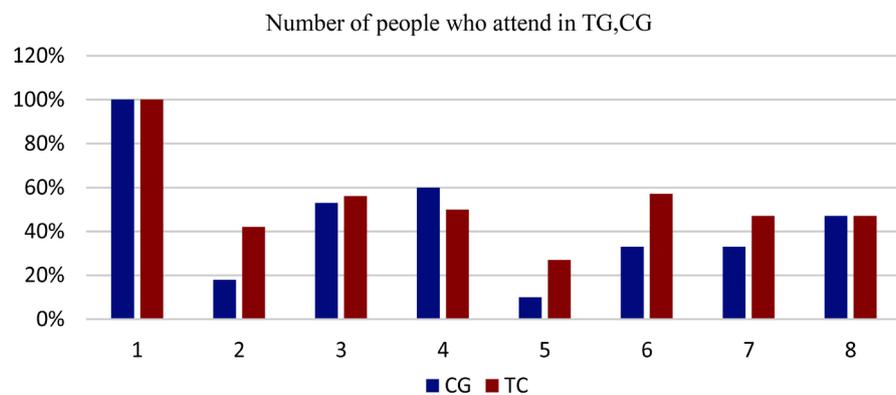
According to **Table 1**, more than the half (54%) has registered and not attended! which is not very satisfying to see.

62 is the number of people who did not register and attended, it was considered before the experiment as an added value and it was okay for TEC to not register (considering it to be a very small number). After this experiment, it should not be anymore, comparing it to the total sample size.

We compared in **Figure 5** the number of attendance in each group to check and see if the nudge was pretty effective.

Table 1. Sample divided and the added value.

Workshop	Sample size	Registered Attended	Registered Not attended	Not registered Attended
1	7	7	0	0
2	23	7	16	12
3	34	20	14	12
4	31	17	14	9
5	21	4	17	6
6	13	6	7	6
7	37	15	22	10
8	32	16	16	7
Sum	198	92	106	62
Percentage	100%	46%	54%	62



CG: Control group, did not receive anything, no modifications in this group; TG: Treatment group, received a nudge, the alteration group

Figure 5. Number of people who attended every workshop, according to the CG, TG.

Obviously, it shows that, in most cases the number of people who registered and attended and who belonged to the treatment group are more than the people who registered and came and belonged to the control group.

We see here, three types of relationships between the two groups when it comes to nudging.

- Positive relationship (nudging with positive effect, it worked, workshops 2, 3, 5, 6, 7)
- Negative relationship (nudging with negative effect, did not work, workshop 4)
- Neutral effect (nudging with no effect at all, workshops 1, 8)

A better evaluation of findings does not stop on descriptive statistics and analysis. It goes far beyond that to more advanced statistical tests, using SPSS and STATA.

- Are the samples independent or dependent? Independent
- How many groups? 2
- What kind of data? ORDINAL
- Are the data for all groups normally distributed and do the groups have equal variances? YES
- Use independent t-test

The hypotheses to test are:

H0: TG = CG, No Significant difference

H1: TG \neq CG, there is a significant difference

The goal of this experiment is to Nudge people, and see if this Nudge did a work.

How do we see that? By comparing the treatment and the control group together testing the significance and effectiveness of the message

Based on **Table 2**, the regression shows that treated individuals were 5

Table 2. Logit ANA CGTG.

ANA	Coefficient	Std. Err.	Z	P > z	[95% Conf.	Interval]
CGTG	0.2333185	0.3027623	0.77	0.441	-0.3600847	0.8267216
gender	0.2791611	0.3193269	0.87	0.382	-0.3467081	0.9050302
_Iworkshop_2	1.051811	0.5824754	1.81	0.071	-0.0898196	2.193442
_Iworkshop_3	0	(omitted)				
_Iworkshop_4	0.6235816	0.583751	1.07	0.285	-0.5205493	1.767713
_Iworkshop_5	-0.6053736	0.719336	-0.84	0.400	-2.015246	0.804499
_Iworkshop_6	0.413043	0.5667458	0.73	0.466	-0.6977583	1.523844
_Iworkshop_7	0.5867693	0.7261371	0.81	0.419	-0.8364332	2.009972
_Iworkshop_8	1.167531	0.5744279	2.03	0.042	0.0416734	2.293389
_cons	-1.039536	0.4950193	-2.10	0.036	-2.009756	-0.0693165

percentage points more likely to attend the workshop than those in the control group. The result however is not statistically significant at any reasonable significance level (since $p\text{-value} = 0.438 > 0.05$).

The common significance level used for testing hypothesis is 5% (0.05). The coefficient on the gender variable implies that females (which have a value of 1 on the gender dummy variable) are around 6 percentage points more likely to attend than males. The coefficient however is not statistically significant.

The test done is enough to measure if the people in the treatment group are more likely to come. This clearly shows the relation between control and treatment groups with the correlation.

$P\text{-value} = 0.438 > 0.05$, which means H_0 is accepted.

We accept the null hypothesis and we can say that the nudge was insignificant in this case.

The descriptive analysis shows a positive relation between the two groups and it is similar to the Stata analysis, because here $p\text{-value}$ is positive which includes a positive relation also but no significance.

5. Conclusions

To sum things up, there is no specific outcome for a study that can be generalized and used for all similar cases. This means that what we got in this experiment as results, for nudging and affecting the attendance of certain group of people do not apply necessarily on other nudging experiments and events attendances. Because, every experiment will have its own dependent and independent variables that differ from another one.

Here, in our case, the relationship deducted was positive but not very significant which means that the Nudge did not have as very much of an impact on the treatment group. We can state some possible limitations such as limited time, limited number of workshops, issue of the people who do not register and attend, lack of variables can be a reason. Not many variables to control and compare can be the cause of an incomplete statistical test. For further studies, we can say a higher confidence interval; a lower error percentage can make this study more useful. A lot of reward systems are used in these kinds of experiments (increasing attendance) and showed many improvements. Some further recommendations can be using reward systems, making the content of the nudge more powerful and intense, having a larger impact and results that are more desirable. We would like to mention here, that even though this nudge did not increase significantly the number of attendance, there exist a lot of recorded experiments in this field in different behavioral insights teams all around the world (BI in UK, US, Australia, Canada, France and Middle East).

Some of the best nudges were conducted and exercised through these kinds of experiments and significant results were recorded. These kinds of experiments are given as examples to support the behavioral sciences in general, and the nudging processes in particular.

As a conclusion, we interpret this situation as the beginning of stairs and chains of nudging experiments, the notebook that tells us all the tricks so we can take care of them.

Nudging will keep improving our decision-making, actions and behaviors, but keep in mind that results will always differ from a test to another in the same field, and this is required in most of the time to keep improving and progressing.

The aim of any research and study is the projection into the future. Everything reached until now must be scalable and usable in the near and far futures.

The principles of any experiment are the ease of data collection, data measurement and finally data analysis.

After we ensure all of these, it is important to know how shareable our data is and how other people, students, researchers and all groups interested in this field, reach our experiment in all its details.

All experimental data is imperfect.

Even scientists know that they will always face errors, but their goals are to shrink this margin of errors to the minimum possible number. One of the ways, is using the significant digit, it keeps track of how many errors are in the measurement.

So because they know that all results might contain errors, they never give definite answers. Eventually, they will give you answers like “it is likely that” or “it is probable that...” than to give an exact answer.

As researchers, we must understand that we must provide the most accurate results we can reach and report them. This will boost our confidence towards more successful experiments in the future!

Every day in our life, we make choices—whether what to buy or about financial investments or our children’s health and education, even about the planet by itself. Unfortunately, we choose poorly. Nudge is about how we make these choices and how we can make better ones [25]. Using dozens of eye-opening examples and drawing on decades of behavioral science research.

Respect the freedom of choice, all ethical considerations and morals, just a little tickling in the choice architecture to better performances.

WHY NOT GIVE IT A TRY?

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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