

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

COLLECTIVE OVER INDIVIDUAL DECISION:
DOES PURCHASE PROBABILITY INCREASE?

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Abstract

Consumers frequently find support on others to decide about their purchases. Particularly for experiential products, decisions are commonly made jointly. Current literature does not study the impact of *joint decisions* on purchase probability. Therefore, this study aims to explain if and how does the purchase probability vary from an individual consumer decision to a consumer *joint decision*. Results of the experiment conducted with 120 consumer simulations point to the low impact of a *joint decision*; nevertheless, *joint decisions* are favorable to purchase probability in specific niches: experiential risky products, and 40-or-more-years-old consumers.

Keywords: Consumer behavior, *Joint decision*, Purchase probability, Decision-making

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1. Introduction

You never buy alone. Even when an individual makes a purchase decision by himself, he is always being influenced by others (Engel, et. al, 2006). It is already known that other individuals or groups impact one's way of thinking and therefore his/her course of action: in fact, according to a Business Wire report (2020), 82% of consumers either purchase, research or consider purchasing a product or service after seeing friends, family or influencers post about it, and other studies reveal that 71% consumer buying decisions are indeed influenced by publications of others on social media (Barysevich, 2020).

Inside and outside social networks, real people are the key when influencing decisions. Almost 50% of consumers admit to totally depend on influencer decisions (Digital Marketing Institute, 2021). But word-of-mouth is the most effective tool – 2 to 10 times more effective than paid ads, as BCG discovered –, by being the primary factor behind 20% to 50% of all purchasing decisions, as published by McKinsey&Company (Buyapowa, 2022). Nielsen even finds that consumers were 77% more likely to buy a product if their friends recommended it (Buyapowa, 2022).

Companies and marketing strategists seem to take this into account: influencer marketing economy hits now more \$16.4 billion worldwide (McKinsey&Company, 2022) and online word-of-mouth marketing spend is expected to grow by 70% (Saleh, 2022). However, both companies and academics currently lack one insight: not all decisions are made by individuals affected by others (Simpson et. al, 2012). Many decisions are totally made with someone's company or jointly with other individuals. Consumers tend not to go alone to a shopping center and frequently ask for physical help when it comes to buying a computer or a car. Also, experiential purchases, like a cinema ticket or a vacation trip, are very frequently decided jointly with other people.

Therefore, this study intends to fill the knowledge gap by understanding if – and why

– the purchase probability of the same product varies between individual and *joint decisions*, which may be beneficial to open the door to studies in this specific field, as well as to help companies understand if (and when) should a marketing campaign be targeted to an individual or to a group. Should companies stimulate *joint decisions* for their products?

Having that in mind, the current paper explores existing bibliography about the factors that shape, at first individual consumer decisions, and then *joint consumer decisions*, with the aim to run an experiment that allows the understanding of the purchase probability variation between those 2 types of consumer decisions, as well as the drivers that sustain this deviation, having as reference the bibliographical factors.

2. Literature review

The current chapter will review bibliographical sources on the relevant topics for the intended discussion: firstly, the factors affecting regular (individual) decision making will be systematized; then, specific *joint consumer decision* factors will be introduced after the definition of this type of decision; finally, remaining important references will be mobilized to build the final question “Do joint decisions improve purchase probability?”.

2.1. Consumer Decision Making factors

Consumer Decision Making (CDM) refers to the process under which consumers decide what to purchase, which includes a set of phases: need recognition, search for information, pre-purchase evaluation of alternatives, purchase, consumption, post-consumption evaluation and divestment (Engel, et. al, 2006).

The variables that influence the different stages of this process (and therefore, the decision itself) were already deeply explored in existing bibliographies about the topic. After the review of different sources, this chapter proceeds to a systematization of the different

factors, dividing them into individual and situational factors, which, despite being presented separately, commonly interact with one another. The structure followed was slightly inspired by Engle, Blackwell and Miniard (2006), but considerably redesigned to include a consistent broad-sourced systematization.

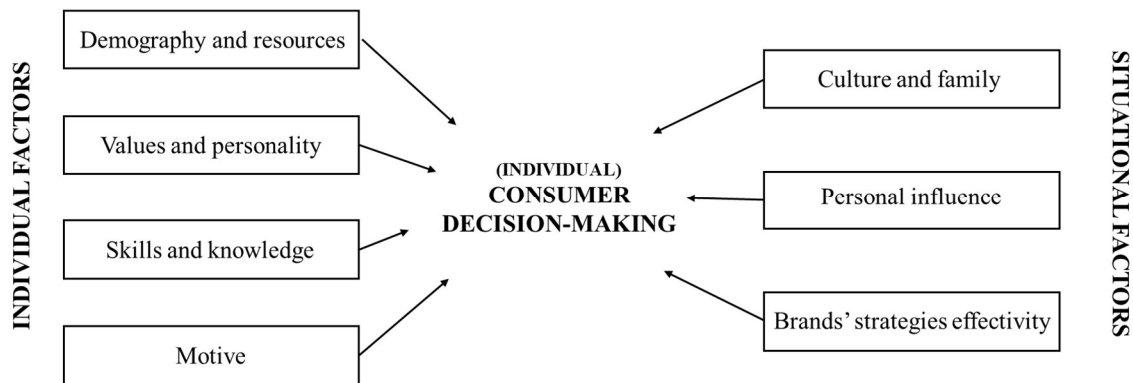


Figure 1: (Individual) consumer decision-making factors

2.1.1. Individual factors

This category considers not only the personal demographic variables, but also (and mainly) the psychological ones (Stavkova, 2008). Indeed, CDM is a process made of phases that are essentially psychological (Engel, et. al, 2006); consequently, psychological-related variables are the individual-specific factors that are more explored in the current chapter.

Demography and resources. “Above all data like age, sex, place of domicile, occupational and economic conditions (...)” (Stavkova, 2008), this category also includes the resources that arise as a result from them, and that may be interpreted as more than money (e.g. time) (Engel et. al, 2006). Connecting both subdimensions, the role of the social class in consumption patterns and decisions is undiscussable (Longhurst & Savage, 1997); the studies on this relation are based on the work of Bourdieu (1990).

Values and personality. Personal characteristics influence the way people behave (Stavkova, 2008), which extends to consumer behavior. Values and personality can influence

the type of consumer products one decides to purchase and, if seen as a grey area instead of a black-and-white duality, the purchase probability of the referred product. It is proven by several papers that personality influences consumption patterns in various sectors, from alcoholic drinks (Cook et. al, 1998) to organic food (Gustavsen & Hegnes, 2020). Particularly in experiential consumptions, personality is a fundamental psychological construct that allows to understand its consumption patterns (Mehmetoglu, 2012). However, even if different descriptive models arise, such as *VALSTM* (Kahle et. al, 1986), which also relates this dimension with resources to foresee behavior, predictions on this base are considerably hard to conduct, since it is “(...) difficult to find a reliable connection between the individual personality and the behavior type” (Stavkova, 2008).

Skills and knowledge. Consumers’ decisions are influenced by their possession of product-specific skills, as it is not expected to see an illiterate individual buying books to read. However, the focus is on the information present in the memory allied with capabilities to receive, process, and transform, which constitute a fundamental asset to the consumer (Engel et. al, 2006). In particular, skills and knowledge constitute a variable to consumer’s decision-making efficiency and outcome (Alhabeeb, 2007) by including product knowledge and buying skills (Engel, et. al, 2006).

Motive. This concept describes “(...) an internal energizing force that orients a person's activities toward satisfying a need or achieving a goal.” (Brown, n.d.). Motives can arise in a conscious, but also unconscious way, which determines the impacts felt in terms of consumer decisions and attitudes (Raaij, 2005). As expected, motive is different between diverse individuals, and play along with each other in every decision (Engel, et. al, 2006).

2.1.2. Situational factors

This category of variables is related to contingency circumstances, which are external to the individual and (for most of them) are outside consumer's area of influence (Engel et. al, 2006).

Culture and family. Culture is a pattern of basic assumptions that are shared by a group and taught to its new members due to the sense of validity (Godwyn & Gittel, 2011). Different theories (many of them conceptually related by Shaw and Clarke (1998)) recognize the impacts of culture on consumer decisions, from religion affiliation and orientation (Delener, 1994) to ethnic identity (Xu et. al, 2004). An example of culture's influence is the way brand symbolism is differently faced and interpreted between distinct societies (Holt, 2005). On the other hand, family deeply impacts one's personality, values and behaviors (Barber, 1992); more specifically, parenting styles are able to configure how children will behave in the present, or as adults in the future (Sarwar, 2016), in some cases by the development of childhood traumas (Zarse, 2019).

Personal influence. Other individuals and groups influence consumers' decisions immensely. Dynamics as socialization, self-concept, social comparison, and conformity are central for reference groups, for example (Engel et. al, 2006). However, consumption group influences are less impactful on minorities (e.g. gay men) (Hildebrand et. al, 2013). Simultaneously, individuals may play a similar role. A particular case is celebrities and other opinion leaders, who are mediators of media effects on personal values and subjective well-being, especially influent over adolescents (Chia & Poo, 2009; Javed et. al, 2021). Hence, both groups and individuals exert influence on the consumers, whether it is normative, value expressive or informational (Engel et. al, 2006).

Brands strategies effectiveness. It is broadly known that promotion, price and brand image are central when it comes to a buying decision (Hermiyenti & Wardi, 2019). A good

promotion strategy is able to increase purchase probability, as well as quantity bought and fastness of consumption (Ailawadi & Neslin, 1998); the intensity of this relation is bigger on product categories perceived as versatile and substitutable (Sun, 2005). On its side, price is sometimes ambiguous, because, although it is expected that purchase probability increases inversely to the price (Dale, 1955), it is also a quality cue, working as an inductor of quality, frequently at an unconscious level (Boyle & Lathrop, 2009); this quality association is less consistent in the industrial sector (Lambert, 1981). Finally, brand image has been studied as a statistically significant inductor of purchase probability (Rao & Monroe, 1989), and, to improve this effect, Graeff (1998) highlights the importance of considering potential situations in which the product is to be consumed. In conclusion, corporate decisions that strategically move these factors of the marketing mix are relevant for the study, and therefore may help to determine the result of a consumer decision (Hermiyenti & Wardi, 2019).

2.2. Joint decisions and its specific factors

A big slice of research on consumer choice assumes that decisions are mainly made by individuals. Consequently, its content is centered on his/her characteristics and contingency factors, meaning that “(...) much consumer behavior (...) is directly or indirectly shaped by people with whom we have some relationship” (Simpson et. al, 2012). Particularly, many of those decisions are what literature denominates *joint decisions* and are the result of an inter-individual interaction and decision-making process (Greenhalg & Chapman, 1995). Specifically, *consumer joint decisions* are the ones related to “(...) renting, gifting, swapping, and buying” decisions (Roos & Hahn, 2017). As a type of collective choice, it “(...) involves the aggregation of individual preferences by some method (...)” (Schwartz, 2011), which usually is determined by negotiation (Greenhalg & Chapman, 1995). But many other variables influence this kind of decisions outcome (and so the purchase probability when the decision

happens in this particular field). *Joint decisions* specific factors are synthesized after a careful broad bibliography analysis.

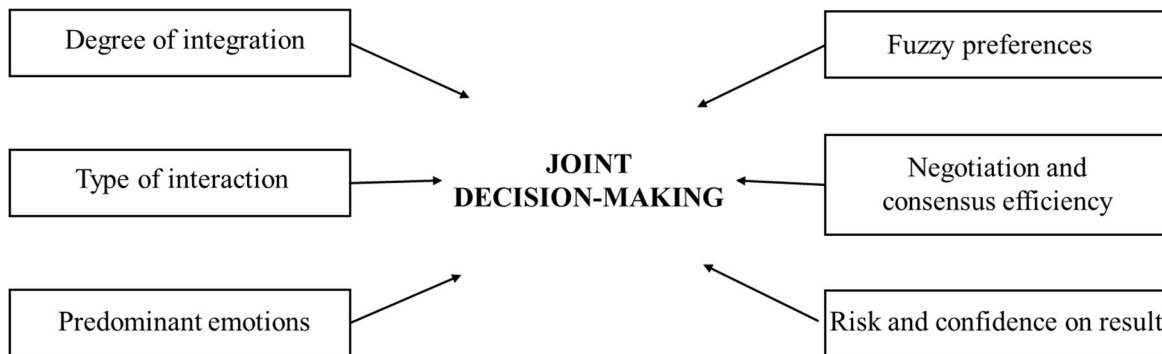


Figure 2: Joint decision-making factors

2.2.1 *Joint decisions'* specific factors

Degree of integration. Defined as the level on which values, ideas and lifestyles were harmonized and became nearly unique (Turner & Pratkanis, 1998). High levels of group cohesion lead to faster decisions, but also to less critical ones, prompting phenomena like groupthink (Turner & Pratkanis, 1998). This is also true for couples' decisions, that show up to be the most influential relationship for an individual (Cavanaugh, 2016). The bigger the closeness and intimacy shared are, the higher the level of integration is, and therefore the more influential the relationship is, leading to higher impacts in terms of critical thinking (Cavanaugh, 2016), which may change the outcome of the decision.

Type of interaction. Group dynamics are very important when thinking about a decision, which explains why many companies train their employees specifically in group dynamics and this strategy effectively works out, leading to considerably better and faster outcomes (Hall & Williams, 1970). Indeed, groups tend to decide less effectively when there is no safe space or when one or more of the elements benefits from any type of power over the others (Emmerling & Rooders, 2020), which may happen due to factors like hierarchical

position, information asymmetry or control centralization (Yoshikawa, 1978). At the same time, as in an organizational decision, informal interactions that occur in a safe place are most likely to produce a better result (White et. al, 2022), meaning that this interpersonal space, achieved by “(...) building psychological safety and lowering inhibitions (...)” (White et. al, 2022) can influence the outcome of the decision, which in this case is the purchase probability.

Predominant emotions. Feelings during shopping affect consumer’s attitudes and behaviors (Engel et. al, 2006). Those emotions can be simplified and structured in the emotional circumplex model (Larsen & Diener, 1992), and are induced by many drivers, like personality (Arnold, 1960) or even store environment (Madjid, 2014) or advertisements’ target emotions (Engle et. al, 2006). Baggozi (2016) explains with his study that the purchase intentions change according to emotions, since the purchase may be faced as a supplier of certain emotions and the way one feels impacts the way he/she looks to feel, not forgetting that this influence may be the vehicle for different bias (Guo & Wang, 2020). In particular, groups are made of emotions: groups shape emotions and emotions shape groups (Gerben, 2015). For understanding these affective influences and their effects on group life, Janice and Sigal (2001) proposed an organized model that brings up the view that individual-level affective characteristics of individual members, such as emotions, combine to form a group's affective composition. In this process, some emotions are more regular than others (Janice & Sigal, 2001) and those predominant emotions may influence purchase group decisions. The topic has not been deeply studied yet, but some new findings prove this logic applies to purchase decisions in specific relations; for example, in families’ various stages of the purchase decision processes (Park et. al, 1995).

Fuzzy preferences. *Joint purchase decisions* are affected by the preference structures of the members and the influence they have in the whole group (Arora & Allenby, 1999). Recognizing that decision makers benefit from different experiential, cultural and educational

backgrounds, it is also normal to assume that they will convey their preference information by heterogeneous preference structures, such as “utility values, preference orderings, numerical preference relations and multigranular linguistic preference relations” (Chen et. al, 2015). Nevertheless, those preferences do not affect the final decision in the same way, that is why Arora and Allenby (1999) developed a model that “relates the measures of influence to covariates useful for identifying high-influence individuals”. Therefore, group decisions may result more strongly from the individual preference level or from the group preference level (Tanino, 1990). Either way, the degree of closeness of the preferences impacts the final outcome, since this harmonization becomes more needed, explaining why so many studies look to develop models that aggregate fuzzy preferences, such as the ones from Tanino (1998) or Huang et. al (2013). According to Herrera-Viedma et. al (2007), solving a group decision problem due to fuzzy preferences is possible through consensus and selection as a flow process. Again, the topic of the impact of fuzzy preferences was not yet studied deeply in a connection with group purchase decisions, and just a few articles trying to make a bridge in particular product categories or groups, as Corfman and Lehmann (1987) or Hensher et. al (2011).

Negotiation and consensus efficiency. The consensus reaching process is the one responsible for the formation of final solutions with a certain level of agreement (Herrera-Viedma et. al, 2007). The importance of this phase to the group decision’s outcome leads various authors to develop consensus models that are able to improve its efficiency: for example, Herrera-Viedma et. al (2007) present a model for group decision making with incomplete fuzzy preference relations; Chao et. al (2021) focused on detecting and managing non-cooperative behavior during this process; Gupta (2018) built an “algorithm that maps the consensus evolution process [of group decision-making] based on interrelationships of members in the group”; and Herrera and Herrera-Viedma (1996) define a model of consensus

in group decision-making under linguistic assessments. This process may be influenced by a set of different bias or even strategic manipulations (Dong, 2013), especially when time constraints create a sense of pressure, which enhance or reduce decision quality, “(...) depending on the strength of initial preferences and the content of the group interactions.” (Kelly & Karau, 1999) The mechanism that fastens consensus and simultaneously influence the quality of the decision (impacting its outcome) is negotiation, which constitutes a response to conflict (Greenhalgh & Chapman, 1995). The different negotiation strategies (e.g. distributive strategy, integrative strategy) influence the value created for the group and therefore the final outcome (Brett & Thompson, 2016). Once more, this topic has not been studied for purchase decisions in specific, but scientific papers like Nelson (1998) use purchase decisions scenarios to critic existing literature on the topic.

Risk and confidence on the result. Each member of the group brings a certain level of confidence for the group decision process, which defines the influence he/she has over the group (Zarnoth & Snizek, 1997). However, the process of creating group confidence is not always about confidence matching, since it is usually suboptimal (Bang et. al, 2017). The current study intends to focus specifically on group confidence rather than individual ones. “Group confidence may be a misleading indicator of decision quality, and vice versa. Confidence is conceptually distinct, and a major outcome of decision making.” (Snizek, 1992) The origin of group confidence is not well defined by bibliography yet. However, group confidence research shows that there is a strong relation between group confidence and its environment (Snizek, 1992). This environment is a source of uncertainty that drives to risk (Szienek, 1992). Literature about group decisions in risky contexts comes up with divergent results, but Morone et. al (2021) proved that individuals are more risk seeker than groups “when facing gambles with positive expected payoff difference and more risk-averse in the opposite case”. Also, in both dimensions, group decisions are the most risk neutral, which

may connect to the collective need of confidence on the final decision, that is able to impact the final outcome of the decision (Morone et. al, 2021).

2.3. Do *joint decisions* improve purchase probability?

Do an individual buy with more likelihood alone or in a group? Is it beneficial to stimulate *joint decisions* when it comes to selling a product? The truth is that, at this moment, this comparison has not been studied yet in the academic environment. Nevertheless, some connections are trying to be made. For example, Peng et. al (2022) use the pandemic context to drive a study that connects loneliness with purchase probability, arguing that the lonelier one feels, the higher the purchase probability will be. The result of loneliness on the consumer is particularly relevant experiential purchases (Yang et. al, 2021), and amplified in women, who seem to be more attached to the need of loneliness alleviation (Silvera & Roche, 2013).

However, not every consumer fit in with this sense of loneliness even when buying alone: being alone is not the same as being lonely (Baarsen et. al, 2001), and that connection varies between cultures (Ding, 2015). Furthermore, a variety of different factors may influence the purchase probability and the global effect may happen to drive the conclusion in the opposite direction. But what factors to use in this prediction? With the aim to solve that gap, the current study commits to evaluate the application of general *joint decisions* factors into the field of *joint purchase decisions*. At the same time, the effect of having a group on the individual and situational factors that an individual faces when purchasing will also be studied. Therefore, to understand whether and how *joint decisions* increase or decrease the purchase probability in comparison to an individual decision (which builds the research question of this study), the following questions need to be clarified on a real environment:

Q1 Do the traditional decision-making factors impact the magnitude of the influence that a group decision has on a consumer’s decision outcome?

Q2 Do the suggested *joint decisions* specific factors impact the process outcome of a consumer decision?

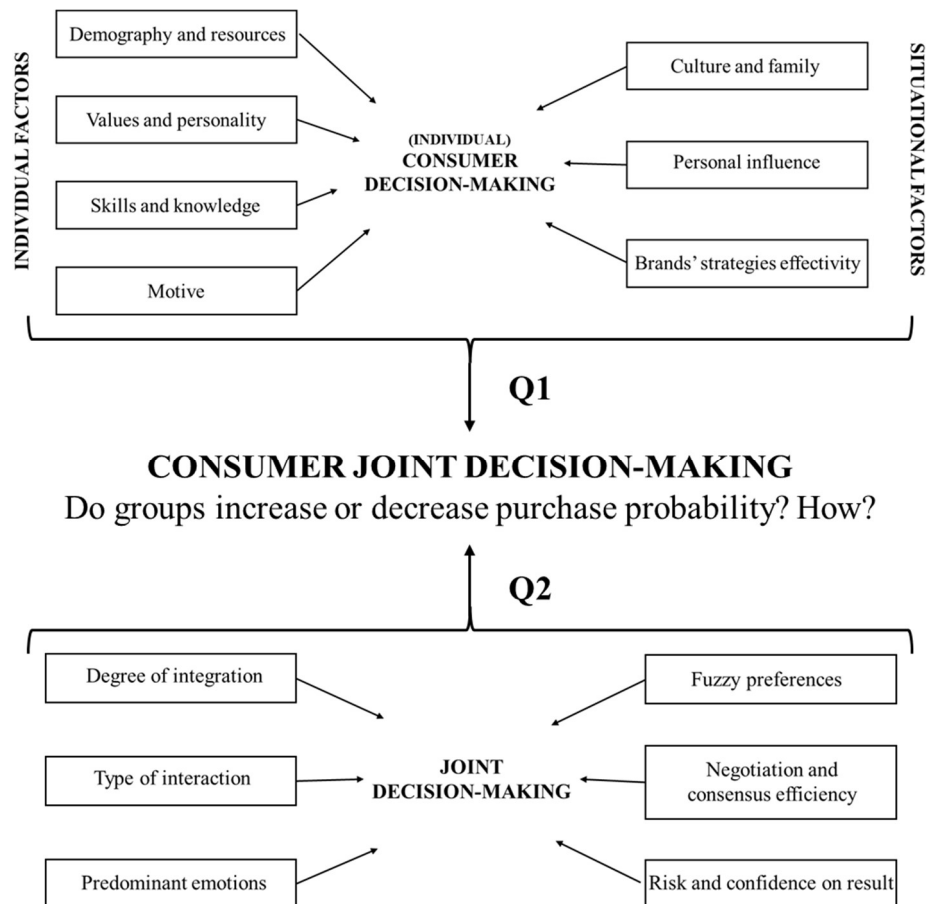


Figure 3: Research Question definition

3. Method

3.1. Procedure and sample

To study the 2 questions presented, a set of consumers was challenged to decide on a specific purchase, individually and in pairs. The sample was composed of 120 consumers organized in pairs that were connected by some type of relationship (friends, couples, family, etc.). Regarding basic demographic statistics, 60.83% of consumers were female and 39.17%

male, being nationalities spread around the globe (e.g. Turkey, USA, Brazil), even if the majority was composed by Portuguese consumers (90.00%). The different pairs (reached by several giveaways pages and academic collaboration directed websites) participated in an experiment, conducted in four stages (individual choice, first online questionnaire, discussion: *joint choice*, and second online questionnaire), described below.

Individual choice. In this phase, each participant is in a different room, where he/she watches a product's advertisement and has 3 minutes to choose if he/she buys it or not. The product will have into account diversification within two categorizations: experientiality and risk. Therefore, there will be four possible products, which pairs are randomly allocated to: cinema ticket (experiential, non-risky purchase), trip to a specific city (experiential, risky purchase), set of pens (non-experiential, non-risky purchase), personal computer for school/work (non-experiential, risky purchase) (Appendix 1).

First online questionnaire. Each participant fills in a form with the relevant information for the research in 0-10 scale (allowing to understand about the impact of the majority of individual and situational factors) and answers if he/she would buy the product or not (Appendix 2).

Discussion: joint choice. Both participants are conducted to the same main room and have 5 minutes to discuss a *joint decision* on the same product. During the discussion, the interviewer evaluates the presence of negotiation (0-10 scale), choose the most accurate profile of interaction and track the time until consensus is reached.

Second online questionnaire. Each participant fills in a form that allows the understanding of the new decision and also the confidence he/she has towards it. In the second page, it is possible to study the remaining *joint decision* specific factors and some variations of the individual factors when in a group context (Appendix 3).

3.2. Segmentation and variables

The experiment resulted in the creation of a broad and complete set of variables (Appendix 4), sourced from participant's answers and discussion notes took by the mediator (which was the same in all the experiments in order to keep results consistency). Moreover, different string variables (like nationality or type of product) were transformed into nominal numerical variables to be inserted on SPSS software, which happened through a simple replacement by a category code (Appendix 5). Nevertheless, to extract the relevant content of emotions, those were positioned in the circumplex model of affect of Russel (1980) and the two axes of this model originated one new variable each: emotion arousal and emotion valence. For each, scales went from -4 to 4, according to the scale developed by Sharar et. al (2016) (e.g. serenity is now equivalent to 3 in emotion valence and -1 in emotion arousal).

Age was divided into 4 categories, as follows:

Age group	Nominal numerical variable
Age group 1	<20 y.o.
Age group 2	20-29 y.o.
Age group 3	30-39 y.o.
Age group 4	>40 y.o.

Table 1: Age categories created

Finally, the dependent variables needed to be created, aiming to a thoughtful analysis. For each participant based on his/her purchase probability before and after discussion (*likelihood_before* and *likelihood_after*, respectively), the different variables were constructed:

Name	Calculation	Answers the question...
Probability variation	$probvar_i = likelihood_after_i - likelihood_before_i$	How does the purchase probability vary after influence of a pair?
Probability variation in absolute value	$probvar_mod_i = probvar_i $	In which degree does the purchase probability vary after influence of a second person?

Probability influence by the initial pair position	$\text{influenced}_i = \text{likelihood_before}_i - \text{likelihood_before}_i^p - \text{likelihood_after}_i - \text{likelihood_before}_i^p $	In which degree was the purchase probability influenced by the initial opinion of the second person?
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Table 2: Dependent variables created for individual analysis

(Please consider that X_i corresponds to the value of variable X for participant i , and X_i^p to the value of X for the second person of participant i 's pair.)

To evaluate the degree of approximation of purchase probabilities of the pairs, Bernoulli variables were created to understand if the nominal variables for the two participants were the same or different (eg. gender, nationality), and various ordinal variables of both participants were subtracted in absolute value to create scale variables of deviations (eg. advertisement stimulation) (Appendix 6). The dependent variable is explained below:

Name	Calculation	Answer the question...
Probability approximation	$\text{Approx}_j = (\text{likelihood_after}_j^1 - \text{likelihood_after}_j^2) - (\text{likelihood_before}_j^1 - \text{likelihood_before}_j^2)$	How does the purchase probability approximate (or move away) after a discussion?

Table 3: Dependent variables created for pair analysis

(Please consider that Approx_i corresponds to the value of Probability approximation for pair j , and X_i^a to the value of variable X for the element a of pair j .)

4. Results

For this study, 451 regression analysis and ANOVAs were executed with a 5% significance level, to study the different dependent variables presented. Descriptive statistics for dependent and independent variables may be found in Appendix 7. However, it is important to understand the mean of the dependent variables, which illustrate focus results regarding the main question: purchase probability is barely influenced by a *joint decision*, and when it happens the influence tend to separate two opinions and mainly in a direction of purchase probability decrease. Nevertheless, that is not the case for all the different subsamples. Therefore, those differences and relevant drivers will be exposed individually.

	probvar	dev_mod	influenced
Average	-5.42	16.42	-0.28
Standard deviation	23.689	17.860	2.103

Table 4: Individual analysis dependent variables' descriptive statistics

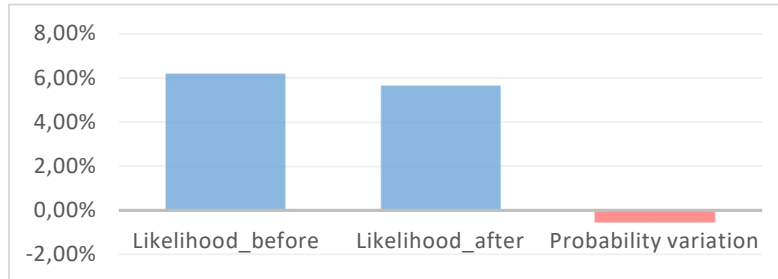


Figure 4: Probability variation explanation

(Note: Probability variation in absolute value did not show any relation, so it will not be presented (Appendix 8).)

4.1. Probability variation (Appendix 9)

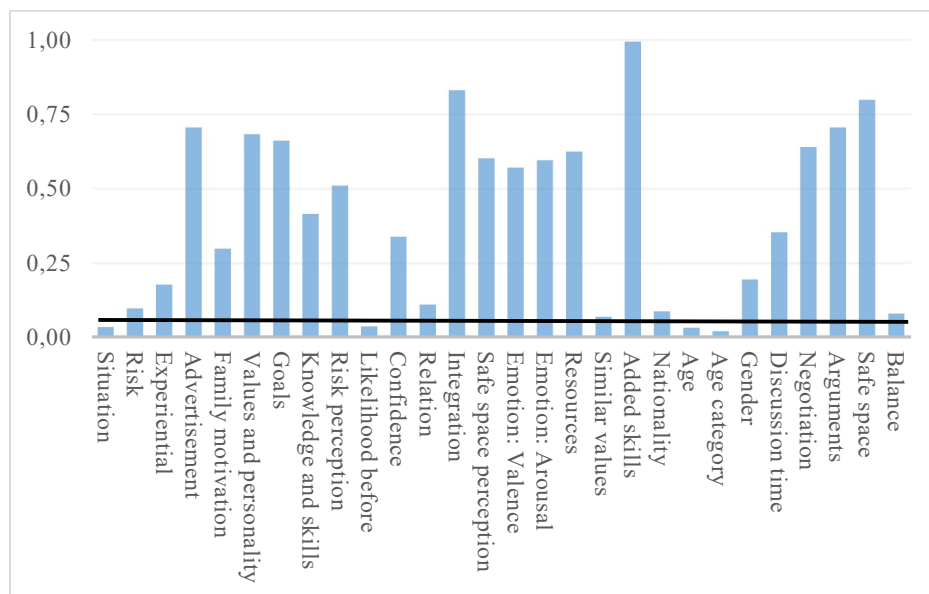


Figure 5: Different variables' p-values for Probability variation

Presenting an approximately normal distribution, probability variation shows up to be averagely almost 0. However, on average, a consumer buys -5.42 percentual points after being confronted with other opinions and choosing jointly. Main drivers are the situation presented ($p = 0.036$), the likelihood before discussion ($p = 0.038$) and age, both in scale

($p = 0.022$) and category ($p = 0.022$). Estimated coefficient point to a negative relation ($\hat{\beta} = -0.189$) with purchase probability before the discussion; on the opposite, the ones generated for age ($\hat{\beta} = 0.195$) and age category ($\hat{\beta} = 0.208$) suggest that, the older the consumer is, the higher this deviation is too (meaning the purchase probability increases more – or decreases less – when the age is more advanced). For the significant nominal factor variables (whose means are presented below), the same type of analysis was made, and conclusions are very particular.

Subsample	Mean	Subsample	Mean
Age group 1	-28.572	Situation 1	2.667
Age group 2	-5.600	Situation 2	-6.333
Age group 3	-7.368	Situation 3	-7.667
Age group 4	13.333	Situation 4	-10.333

Table 5: Probability variation means for age group and situation subsamples

The only situation where purchase probability increases on average is the experiential risky product, whose significant factors are confidence on the decision ($p = 0.008$), involvement with the other participant ($p = 0.040$), values similarity ($p = 0.036$) and age ($p = 0.052$); all the statistic relations are positive (Appendix 10). The remaining 3 scenarios show that *joint decisions* decrease purchase probability, especially when the product is non-risky and non-experiential, which did not present any relevant factor to explain its behavior except the perception of resources gap with the other element ($p = 0.026$; $\hat{\beta} = -0.406$). On the other hand, the two middle categories have clear drivers: purchase Probability variation of non-experiential risky products is higher the lower family motivation ($p = 0.043$; $\hat{\beta} = -0.372$), values and personality adjustment to the product ($p = 0.023$; $\hat{\beta} = -0.414$) and the value of purchase probability before discussion ($p = 0.019$; $\hat{\beta} = -0.424$) are; for experiential non-risky products, age presents a positive impact on deviation ($p = 0.020$; $\hat{\beta} = 0.421$), while the safe space detected by the interviewer ($p = 0.019$; $\hat{\beta} = -0.425$) and the balance between elements in the pair discussion ($p = 0.012$; $\hat{\beta} = -0.451$) decreased this

deviation.

The older consumers tend to increase their purchase probability after the discussion in pairs, which is mainly explained by the involvement and integration felt with the other element ($p = 0.019$; $\hat{\beta} = 0.752$). The other extreme is composed by the younger consumers, whose considerable decrease in purchase probability could not be explained by the chosen variables. Finally, consumers between 30- and 39-years rely on the confidence on the decision to increase their purchase probability ($p = 0.027$; $\hat{\beta} = 0.506$) (Appendix 11).

4.2. Probability influence by the initial pair position (Appendix 12)

Consumers were weakly influenced by the other element, on average. Nevertheless, there is a significant mean difference across product scenarios ($p = 0.032$). The values on the table below point to the conclusion that risky products are the ones where consumers end up being influenced on. On the other hand, non-risky products have the opposite effect: a *joint decision* moves the consumer away from the initial position of the other element. In specific, in experiential non-risky products, knowledge and skills ($p = 0.042$; $\hat{\beta} = 0.374$) and values similarity ($p = 0.024$; $\hat{\beta} = 0.410$) explain positively this mirrored influence (Appendix 13).

Subsample	Mean
Situation 1	0.667
Situation 2	0.200
Situation 3	-0.467
Situation 4	-0.933

Table 6: Probability influence by the initial pair position means for situation subsamples

4.3. Probability approximation (Appendix 14)

Even if a *joint decision* is not able to approximate two elements' purchase probabilities, there are significant factors that explain it: this approximation will be bigger the higher the age gap between elements ($p = 0.047$; $\hat{\beta} = 0.257$) is, and essentially the lower negotiation is present during pair discussion ($p = 0.041$; $\hat{\beta} = -0.263$).

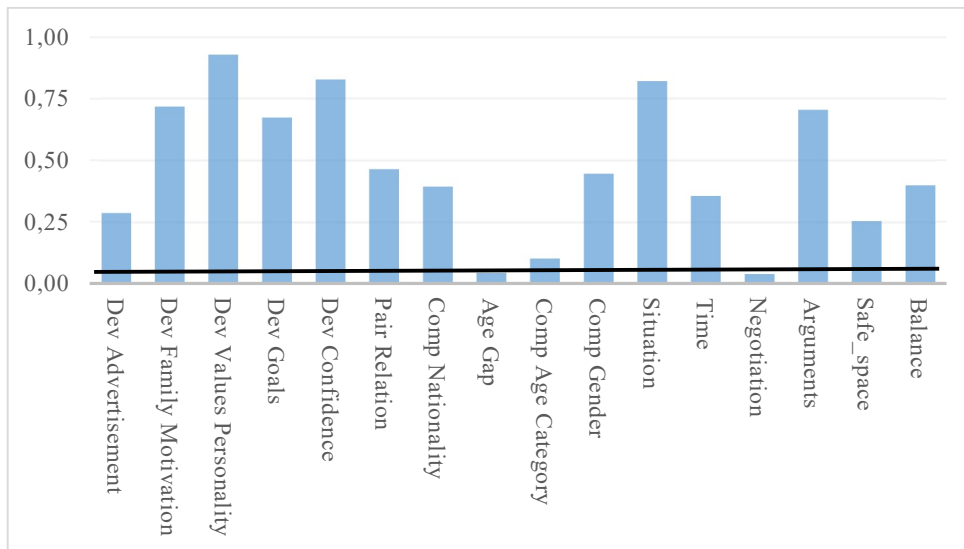


Figure 6: Different variables' p-values for probability approximation

5. Discussion

Purchase probability appears not to change considerably when an individual decision turns out to be a *joint decision* and do it negatively when it happens. However, the general results are different from the conclusions for specific categories of products and even age groups (e.g., older consumers or decisions about experiential risky products). Influence is low, but occurs in risky products, and approximation of purchase probabilities inside a pair is nearly null.

5.1. Theoretical implications

The results may now be confronted with existing bibliography and establish a base for the drivers behind *joint decisions*. Regarding individual decisions factors, demographic variables (Stavkova, 2008) were not very promising, except age, which had demonstrated a significant impact on the deviation of purchase probabilities and its approximation between elements of the same decision group. Other consumer decision-making factors, both individual and situational, did not reveal themselves to be particularly relevant to general

decisions. However, for specific product categorizations, values and personality, as well as skills and knowledge, were impactful (in terms of similarity) if reinforced (or discouraged) by the other element of the group. Also, for the specific case of non-experiential risky products, family motivation and values and personality are significant factors for explaining negatively probability variation. Brands' strategies effectiveness and motive, on the other hand, seem not to have any impact on the study object.

Proposed *joint decision-making* factors, stemming from varied fields of group and general consumer decision-making literatures, were mainly significant, but not for all dependent variables, or even in all situations within each one. Risk is positively relevant in probability influence by the initial pair position and the presence of negotiation avoids approximation of purchase probabilities in a *joint decision*. Confidence on the decision is significant for the probability variation in several circumstances (non-experiential risky product and consumers between 30 and 39 years old), and always in a positive correlation. On the other hand, degree of integration shows itself relevant for the same dependent variable, but for experiential risky products and for older consumers (above 40 years old); nevertheless, correlation presents different directions (negative and positive, respectively). Type of interaction, particularly the existence of balance and safe space, is significant, with both dimensions leading to the conclusion that, the safer and more balanced the interaction is, the weaker the probability variation shows up to be. Furthermore, predominant emotions and consensus efficiency seem to never influence group's effect on purchase probability variation.

A new factor that arose as relevant is the purchase probability before *joint decision*. This new relation suggests that, when a consumer presents a low probability to buy the product, then a discussion becomes more fruitful and able to increase the purchase probability of this consumer.

5.2. Practical implications

The current study is deeply connected to a practical question: should companies promote *joint decisions* for their products aiming to increase purchase probability and therefore increase sales? Now, the answer is not obvious: it depends. It reinforces the need for the company to understand specifically its product and its client, because results can become the totally opposite depending on the type of product and the age category that will jointly decide about the target purchase. While in some circumstances this kind of strategy would be a marketing flop, in other sales could grow interestingly. Stimulating *joint decisions* in marketing strategies is more promising for experiential risky products' sellers. Nevertheless, if the campaign targets the pair to be someone that already possess a high purchase probability, then all the risky products may be considered, even if not experiential. At the same time, stimulating consumers older than 40-years through this type of campaign may be an accurate shot, especially if the stimulus goes in the direction of deciding with someone very close, who the consumer is deeply integrated with.

When the company does not benefit from the power of choosing the customer to target and for some reason needs to follow this kind of strategy, then there are specific factors to have into account to increase its chances. For example, for non-experiential non-risky products, the focus must be to stimulate decisions with pairs that possess less resources than the target customer. Conversely, experiential risky products' campaigns will be more effective when the pair is more integrated with the target customer, who feels their values are aligned, or finds a mechanism to induce confidence in the final decision. It is also relevant to highlight that the best targets are consumers that start with a low probability of purchasing the product to be sold. Therefore, this strategy is good to attract customers that do not know much about the specific product or believe they are not interested in it. Companies may use this stimulus when looking to sell their products to new segments, for example.

5.3. Limitations and future research

This study is totally broad when it comes to *joint decisions*. The purpose was to study a specific impact in several products by various factors. This means that it is not possible to study any kind of factor or product deeply enough. However, positively, it may help to build the basis for those connections to be studied, in a field where no connections have been established, connections that can be practical and useful to companies more than to academy. One clear example of this limitation is the use of emotions. Even if studied and worked to be quantified, emotions needed a fuller understanding, and more dimensions could have been brought to the table instead of just arousal and valence. Following the same logic, future studies could develop the impact of different types of risks instead of focusing in financial one. Furthermore, all the significant relations with age, age categories and age gaps underline the sense of opportunity of an eventual study relating purchase probability variations and influences with decisions made within and between generations (e.g., are Millennials more influenceable by a Gen Z than another Millennial?).

Other limitations comes from the experiment itself: all the data was collected through a simulated environment, which may not correspond perfectly to reality. It would be valuable to evaluate this kind of process in real situations of individual and *joint consumer decision-making*. Natural dynamism is always more accurate to evaluate real dynamics and its real consequences on the purchase probability. Simultaneously, there were measurement difficulties in more than one variables: negotiation, argument, safe space and balance were rated by the mediator; even if this person was the same one for all the experiments in order to guarantee consistency within the sample, each individual is biased in a particular way and that can influence the final results for these variables. The sample could also be more diverse regarding nationalities and generations, since the quantities for the different subgroups were not homogeneous.

Finally, studies about combination of different factors seem to be a field with interesting results. All the linear regressions and ANOVAs were conducted with one independent variable. Mixing them and understanding how the purchase Probability variation changes with these factors may open the door to different conclusions or even the construction of an entire explanatory quantitative model.

6. Conclusions

Purchase probability seems to keep still or slightly decrease when a consumer buys jointly with someone rather than alone. Also, the influence of a consumer by the other element of a pair is approximately zero. Nevertheless, the result is not the same for every type of product or consumer's age category, which revealed to be the main explaining variables of probability deviation (along with the consumer's initial purchase probability) and it can be particularly valuable for older consumers and for risky experiential products. Therefore, marketing campaigns stimulating *joint consumer decision-making* may be able to be beneficial in those categories and therefore increase companies' sales. Since this article builds the basis connection between the different factors affecting consumer decisions (and *joint purchase decisions*) and purchase probability variation, it is recommended to explore the different factors and their measurements deeper. For the future, studies focusing on different generations could be an interesting path.

7. References

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Appendix 1 – Product advertisements

Product	Situation	Risk/Price	Experiential	Advertisement
Laptop	2	Risky/449.99€	Non-experiential	https://youtu.be/rZKLdNUJSno
Ballpoint pen	4	Non-risky/0.35€	Non-experiential	https://youtu.be/IAZN-MTqiBA
Seven-day Ireland trip, flights and stay included	1	Risky/489.00€	Experiential	https://youtu.be/IAZN-MTqiBA
Movie ticket	3	Non-risky/3.55€	Experiential	https://youtu.be/0IOsk2Vlc4o

Table 7: Product advertisements

Appendix 2 – First individual questionnaire questions

- How stimulated did you feel by the advertisement? (0: Absolutely not stimulated; 10: Totally stimulated!)
- Would your family demotivate/motivate you to purchase? (0: strongly demotivate; 10: strongly motivate)
- Does this product align with your values and personality? (0: the product fits with my values and personality; 10: the product does not fit with my values and personality)
- Is this product valuable to your goals? (0: Absolutely not valuable; 10: Absolutely valuable)
- Do you have knowledge and skills to decide on the product? (0: I have no knowledge or skills; 10: I have all the needed knowledge and skills)
- How financially risky is this purchase for you? (0: Not risky at all; 10: Very risky)
- How likely are you to buy the product? (0: 0%; 10: 100%)

Link:

https://docs.google.com/forms/d/e/1FAIpQLSe4Rvf_iV7Eiv8kKBd3toy8O21gyIL3j8vAYPMf_NKcM4hzjA/viewform

Appendix 3 – Second individual questionnaire questions

Page 1:

- How likely are you to buy the product? (0: 0%; 10: 100%)
- How confident are you with the decision? (0: Not confident at all...; 10: Very confident!)

Page 2:

- How are you and the other participant related to? (Single choice: {Friends,couple,nuclear family,non-nuclear family,other})
- How involved/integrated are you with the other participant? (0-10 scale; 0: Absolutely not integrated; 10: Deeply integrated)
- What is the most predominant emotion that you feel when you are with the other participant? (Short answer)
- During the discussion, did you feel comfortable to speak and give your opinion openly? (0: I didn't feel I could speak openly...; 10: It was a true safe space!)
- Does the other participant have less/more resources than you? (0-10 scale; 0: The other participant has considerably less resources; 10: The other participant has considerably more resources)
- Does the other participant has values and personality traits that are similar to yours? (0-10 scale; 0: Opposite values and personality traits; 10: Same values and personality traits)
- Did the other participant added you skill/knowledge in the decision process? (0: No skills/knowledge were added by the other participant; Essential skills/knowledge were added by the other participants)

Link:

https://docs.google.com/forms/d/e/1FAIpQLSdAiViVhYT3UcVYxYQCZqJKS2p6-aloqUwQqbH9aBKaM3yaIw/viewform?usp=sf_link

Appendix 4 – Independent variables

Variable	Description	Source
Situation	One of the four different scenarios presented randomly in different interviews. These situations stimulate the buying process of a pen, laptop, cinema ticket and a seven-day trip to Ireland.	-
Risk	Expresses if the product being debated is financially risky or non-risky.	(From Situation)
Experiential	Expresses if the product being debated is experiential or non-experiential.	(From Situation)
Advertisement	Stimulation of the interviewed participant caused by the advertisement watched.	Question: “How stimulated did you feel by the advertisement?”
Family motivation	Interviewed participant’s perception of the motivation their family would convey as to buying the product.	Question: “Would your family demotivate/motivate you to purchase?”
Values and personality	Interviewed participant’s perception of the alignment of their values with the product.	Question: “Does this product align with your values and personality?”
Goals	Interviewed participant’s perception of the relevance the product has on their personal goal.	Question: “Is this product valuable to your goals?”
Knowledge and skills	Interviewed participant’s perception of their knowledge and skills to decide on the purchase.	Question: “Do you have knowledge and skills to decide on the product?”
Risk perception	Interviewed participant’s perception of the financial risk associated with the purchase.	Question: “How financially risky is this purchase for you?”
Likelihood before	Interviewed participant’s purchase probability before discussing the purchase with someone else.	Question: “How likely are you to buy the product?”
Confidence	Interviewed participant’s confidence on the purchase decision after discussing the purchase with someone else.	Question: “How confident are you on the decision?”
Relation	Interviewed participants’ relation with each other.	Question: “How are you and the other participant related to?”
Integration	Interviewed participant’s perception of the degree of emotional integration with the other participant.	Question: “How involved/integrated are you with the other participant?”
Safe space perception	Interviewed participant’s feeling of comfortability to share his/her opinion.	Question: “During the discussion, did you feel comfortable to speak and give your opinion openly?”
Emotion: Valence	Valence coordinate of the emotions interviewed participant feel with the other participant in the pair	Question: “What is the most predominant emotion that you feel when you are with the other participant?”
Emotion: Arousal	Arousal coordinate of the emotions interviewed participant	Question: “What is the most predominant emotion that you

	feel with the other participant in the pair	feel when you are with the other participant?"
Resources	Interviewed participants' perception of the other's resources.	Question: "Does the other participant have less/more resources than you?"
Similar values	Interviewed participant's perception of the similarity with the other's values and personality.	Question: "Does the other participant has values and personality traits that are similar to yours?"
Added skills	Interviewed participant's perception of the skills and knowledge added to their decision by the other participant.	Question: "Did the other participant added you skill/knowledge in the decision process?"
Nationality	Participant's nationality.	Inscription form
Age	Participant's age.	Inscription form
Age category	Participant's age category.	-
Gender	Participant's gender.	Inscription form
Discussion time	Time used by the participant and his/her pair to get to a purchase joint decision.	Measured by the mediator, in seconds.
Negotiation	Presence degree of negotiation in the pair discussion.	Measured by the mediator, in a 1-10 scale.
Arguments	Presence degree of argumentation in the pair discussion.	Measured by the mediator, in a 1-10 scale.
Safe space	Degree of the pair ability to let the other be heard in the pair discussion.	Measured by the mediator, in a 1-10 scale.
Balance	Degree of equilibrium between both participants interventions in the pair discussion.	Measured by the mediator, in a 1-10 scale.

Table 8: Independent variables

Appendix 5 – Variables categorization

Variable	Possible values
Situation	1: Trip to Ireland 2: Laptop 3: Movie ticket 4: Ballpoint pen
Relation	1: Couple 2: Friends 3: Nuclear family 4: Other
Risk/Experiential	1: Yes 0: No
Nationality	1: PT 2: US 3: BR 4: UK 5: CH 6: DE 7: BE 8: FR 9: TR
Gender	0: M 1: F

Table 9: Variables categorization

Appendix 6 – New variables (for pair analysis)

Variable	Answers the question	Calculation
Age gap	What is the difference of age between the 2 elements of the pair?	$Age\ gap_i = Age_i^1 - Age_i^2 $
Dev Advertisement	What is the difference of advertisement stimulation between the 2 elements of the pair?	$Dev\ Advertisement_i = Advertisement_i^1 - Advertisement_i^2 $
Dev Family Motivation	What is the difference of family motivation level between the 2 elements of the pair?	$Dev\ Family\ Motivation_i = Family\ Motivation_i^1 - Family\ Motivation_i^2 $
Dev Values Personality	What is the difference of values and personality alignment with the product between the 2 elements of the pair?	$Dev\ Values\ Personality_i = Values\ and\ Personality_i^1 - Values\ and\ Personality_i^2 $
Dev Goals	What is the difference of goals alignment with the product between the 2 elements of the pair?	$Goals_i = Goals_i^1 - Goals_i^2 $
Dev Confidence	What is the difference of confidence on the purchase decision between the 2 elements of the pair?	$Dev\ Confidence_i = Confidence_i^1 - Confidence_i^2 $
Comp Nationality	Do the 2 elements of the pair have the same nationality?	1: Yes 0: No
Comp Age Category	Do the 2 elements of the pair belong to the same age category?	1: Yes 0: No
Comp Gender	Do the 2 elements of the pair have the same gender?	1: Yes 0: No

Table 10: New variables (for pair analysis)

(Please consider that $Approx_i$ corresponds to the value of Probability approximation for pair j , and X_i^a to the value of variable X for the element a of pair j .)

Appendix 7 – Descriptive statistics

7.1. Individual analysis

	Advertisement	Family_motivation	Values_personality	Goals	Knowledge_skills	Risk_perception	
N	120	120	120	120	120	120	
Average	7,13	6,28	6,79	6,15	7,85	2,99	
Median	7,00	6,00	7,00	7,00	8,00	2,00	
Mode	7	5	8	7	10	1	
Standard deviation	1,763	2,114	2,211	2,556	1,994	2,655	
Range	9	9	9	9	8	9	
Minimum	1	1	1	1	2	1	
Maximum	10	10	10	10	10	10	
Percentiles	25	6,00	5,00	5,25	4,00	7,00	1,00
	50	7,00	6,00	7,00	7,00	8,00	2,00
	75	8,00	8,00	8,00	8,00	10,00	4,00

	Likelihood_before	Confidence	Likelihood_after	Integration	Safe_felt	Emotion_pleasure	
N	120	120	120	120	120	120	
Average	6,18	8,34	5,64	8,72	9,81	2,48	
Median	7,00	9,00	6,00	10,00	10,00	3,00	
Mode	9	10	8	10	10	3	
Standard deviation	2,849	1,617	3,343	2,051	0,555	1,181	
Range	10	6	10	9	4	7	
Minimum	0	4	0	1	6	-3	
Maximum	10	10	10	10	10	4	
Percentiles	25	4,00	8,00	2,25	8,00	10,00	2,00
	50	7,00	9,00	6,00	10,00	10,00	3,00
	75	8,75	10,00	8,75	10,00	10,00	3,00

	Emotion_arousal	Resources	Values_simil	Skills_add	Age	Age_category	
N	120	120	120	120	120	120	
Average	-0,33	5,84	7,75	6,53	28,92	2,50	
Median	-1,00	5,00	8,00	7,00	23,00	2,00	
Mode	-1	5	9	7	22	2	
Standard deviation	1,133	2,066	1,701	2,576	11,711	1,013	
Range	6	9	7	9	61	4	
Minimum	-3	1	3	1	13	1	
Maximum	3	10	10	10	74	5	
Percentiles	25	-1,00	5,00	7,00	5,00	22,00	2,00
	50	-1,00	5,00	8,00	7,00	23,00	2,00
	75	1,00	7,00	9,00	8,00	34,00	3,00

		Time	Negotiation	Arguments	Safe_space	Balance	probvar
N		120	120	120	120	120	120
Average		117,35	6,55	7,13	7,35	7,43	-5,42
Median		120,00	7,00	7,50	8,00	8,00	0,00
Mode		30 ^a	7	8	8	8	0
Standard deviation		75,892	1,539	1,865	1,679	1,592	23,689
Range		350	7	9	9	8	150
Minimum		10	2	1	1	2	-90
Maximum		360	9	10	10	10	60
Percentiles	25	60,75	6,00	6,00	7,00	6,00	-17,50
	50	120,00	7,00	7,50	8,00	8,00	0,00
	75	153,50	8,00	8,00	8,00	9,00	10,00

		probvar_mod	Influenced
N		120	120
Average		16,42	-0,28
Median		10,00	0,00
Mode		10	0
Standard deviation		17,860	2,103
Range		90	10
Minimum		0	-6
Maximum		90	4
Percentiles	25	0,00	-1,00
	50	10,00	0,00
	75	20,00	1,00

Table 11: Individual analysis variables' descriptive statistics

7.2. Pair analysis

	N	Range	Minimum	Maximum	Mean	Standard deviation
Dev_advertisement	60	6	0	6	1.53	1.567
Dev_family_motivation	60	7	0	7	2.25	1.781
Dev_values_personality	60	8	0	8	1.98	1.682
Dev_goals	60	7	0	7	2.20	1.912
Dev_confidence	60	6	0	6	1.25	1.492
Pair_Relation	60	3	1	4	1.98	0.930
Comp_nationality	60	1	0	1	0.88	0.324
Age_gap	60	52	0	52	6.43	12.278
Comp_age_category	60	1	0	1	0.80	0.403
Comp_gender	60	1	0	1	0.45	0.502
Pair_situation	60	3	1	4	2.50	1.127
Pair_time	60	350	10	360	117.35	76.212
Pair_negotiation	60	7	2	9	6.55	1.545
Pair_arguments	60	9	1	10	7.13	1.873
Pair_safe_space	60	9	1	10	7.35	1.686
Pair_balance	60	8	2	10	7.43	1.598
Approx	60	14	-7	7	-0.02	3.213

Table 12: Pair analysis variables' descriptive statistics

Appendix 8 – Probability variation in absolute value tests

Dependent variable:	Module of purchase Probability variation			
Degrees of freedom:	119			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	0.325	3.579	0.570	0.052
Risk	0.586	7.649	0.446	-0.070
Experiential	0.065	6.912	0.800	0.023
Advertisement	-	-	-	-
Family motivation	1.430	4.343	0.234	-0.109
Values and personality	0.336	2.545	0.563	0.053
Goals	0.096	3.550	0.758	0.028
Knowledge and skills	0.430	1.828	0.513	0.060
Risk perception	0.040	6.791	0.842	-0.018
Likelihood before	0.742	3.412	0.391	0.079
Confidence	0.988	2.884	0.322	-0.091
Relation	0.036	4.426	0.850	-0.017
Integration	0.014	2.170	0.905	0.011
Safe space perception	0.898	1.512	0.345	-0.087
Emotion: Valence	1.572	3.187	0.212	0.115
Emotion: Arousal	0.502	9.837	0.480	0.065
Resources	1.153	2.334	0.285	0.098
Similar values	0.069	2.399	0.793	-0.024
Added skills	0.730	2.881	0.395	0.078
Nationality	0.402	7.612	0.528	-0.058
Age	0.025	3.899	0.873	-0.015
Age category	0.144	4.104	0.706	-0.035
Gender	0.051	6.101	0.822	0.021
Discussion time	0.854	6.225	0.357	-0.085
Negotiation	0.505	2.981	0.479	-0.065
Arguments	0.021	2.666	0.885	-0.013
Safe space	1.287	1.130	0.259	0.104
Balance	1.559	0.883	0.214	0.114

Table 13: Probability variation in absolute value tests' outcomes

Appendix 9 – Probability variation tests

Dependent variable:		Purchase Probability variation		
Degrees of freedom:	119			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	4.475	0.894	0.036	-0.191
Risk	2.787	-2.965	0.098	0.152
Experiential	1.832	-2.734	0.178	0.124
Advertisement	0.144	-0.228	0.705	-0.035
Family motivation	1.094	0.195	0.298	-0.096
Values and personality	0.169	-0.379	0.682	-0.038
Goals	0.195	-0.547	0.660	-0.041
Knowledge and skills	0.670	-1.407	0.415	0.075
Risk perception	0.437	-2.150	0.510	0.061
Likelihood before	4.388	0.845	0.038	-0.189
Confidence	0.926	-1.419	0.338	0.088
Relation	2.582	0.385	0.111	-0.146
Integration	0.046	-0.360	0.830	-0.020
Safe space perception	0.275	-0.664	0.601	0.048
Emotion: Valence	0.324	-1.583	0.570	0.052
Emotion: Arousal	0.285	-2.546	0.595	-0.049
Resources	0.241	-0.366	0.624	-0.045
Similar values	3.355	-2.330	0.070	0.166
Added skills	0.000	-0.921	0.992	0.001
Nationality	0.007	-1.721	0.088	-0.84
Age	4.661	-2.954	0.033	0.195
Age category	5.361	-3.101	0.022	0.208
Gender	1.698	-0.556	0.195	-0.119
Discussion time	0.869	-0.572	0.353	-0.086
Negotiation	0.221	-1.026	0.639	0.043
Arguments	0.144	-0.262	0.705	-0.035
Safe space	0.067	-0.301	0.797	-0.024
Balance	3.104	1.196	0.081	-0.160

Table 14: Probability variation tests' outcomes

Appendix 10 – Probability variation tests for different values of Situation

Dependent variable:		Purchase Probability variation Restricted to situation 1 (Trip: Experiential – Risky)		
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.082	0.399	0.777	-0.054
Family motivation	0.636	0.947	0.432	-0.149
Values and personality	0.212	-0.322	0.649	0.087
Goals	0.016	0.294	0.899	-0.024
Knowledge and skills	0.424	-0.497	0.520	0.122
Risk perception	0.445	0.927	0.510	-0.125
Likelihood before	1.839	1.489	0.186	-0.248
Confidence	8.115	-2.683	0.008	0.474
Relation	2.551	1.715	0.121	-0.289
Integration	4.658	-2.101	0.040	0.378
Safe space perception	2.336	1.552	0.138	-0.278
Emotion: Valence	0.590	-0.497	0.449	0.144
Emotion: Arousal	0.537	0.365	0.470	-0.137
Resources	0.508	-0.410	0.482	0.134
Similar values	4.867	-2.010	0.036	0.385
Added skills	0.313	-0.323	0.580	0.105
Nationality	-	-	-	-
Age	4.109	-1.775	0.052	0.358
Age category	3.266	-1.531	0.081	0.323
Gender	2.088	1.532	0.160	-0.263
Discussion time	-	-	-	-
Negotiation	1.366	-0.991	0.252	0.216
Arguments	0.017	0.224	0.898	-0.024
Safe space	1.126	-0.842	0.298	0.197
Balance	0.215	-0.299	0.646	0.087

Table 15: Probability variation tests' outcomes for situation 1

Dependent variable:		Purchase Probability variation Restricted to situation 2 (Laptop: Non-experiential – Risky)		
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	1.317	0.717	0.261	-0.212
Family motivation	4.494	1.464	0.043	-0.372
Values and personality	5.808	1.709	0.023	-0.414
Goals	4,125	1.291	0.052	-0.358
Knowledge and skills	0.733	-1.326	0.399	0.160
Risk perception	0.000	-0.873	0.999	0.000
Likelihood before	6.143	1.075	0.019	-0.424
Confidence	0.021	-0.150	0.885	-0.027
Relation	0.120	-0.291	0.731	-0.065
Integration	0.665	-1.132	0.422	0.152
Safe space perception	1.422	-1.275	0.243	0.220
Emotion: Valence	0.292	-1.240	0.593	0.102
Emotion: Arousal	0.388	-1.210	0.538	0.117
Resources	0.183	-1.056	0.672	0.081
Similar values	0.124	-0.770	0.727	0.066
Added skills	0.035	-0.864	0.852	0.035
Nationality	0.028	-1.254	0.868	0.032
Age	0.121	-0.247	0.730	-0.066
Age category	0.134	-0.198	0.717	-0.069
Gender	0.662	-0.639	0.423	-0.152
Discussion time	0.007	-0.852	0.932	-0.016
Negotiation	0.183	0.050	0.672	-0.080
Arguments	1.155	-1.437	0.292	0.199
Safe space	0.256	-0.933	0.617	0.095
Balance	0.027	-0.187	0.870	-0.031

Table 16: Probability variation tests' outcomes for situation 2

Dependent variable:		Purchase Probability variation Restricted to situation 3 (Movie ticket: Experiential – Non-risky)		
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.005	-0.488	0.946	-0.013
Family motivation	0.938	0.201	0.341	-0.180
Values and personality	0.061	-0.462	0.806	-0.047
Goals	0.367	0.358	0.550	-0.114
Knowledge and skills	0.039	-0.629	0.845	0.037
Risk perception	0.545	-1.672	0.476	0.138
Likelihood before	0.256	-0.406	0.617	-0.095
Confidence	0.170	0.078	0.683	-0.078
Relation	0.072	-0.281	0.790	-0.051
Integration	1.302	0.873	0.264	-0.211
Safe space perception	0.120	0.255	0.731	-0.065
Emotion: Valence	0.518	-1.128	0.478	0.135
Emotion: Arousal	0.418	-1.453	0.523	-0.121
Resources	0.041	-0.281	0.842	-0.038
Similar values	2.490	-1.848	0.126	0.286
Added skills	0.683	-1.432	0.416	0.154
Nationality	0.007	-1.259	0.932	-0.016
Age	6.039	-2.990	0.020	0.421
Age category	2.778	-2.263	0.107	0.300
Gender	0.010	-0.875	0.919	-0.019
Discussion time	3.191	0.511	0.085	-0.320
Negotiation	0.873	0.453	0.358	-0.174
Arguments	4.156	1.313	0.051	-0.360
Safe space	6.162	2.178	0.019	-0.425
Balance	7.157	2.159	0.012	-0.451

Table 17: Probability variation tests' outcomes for situation 3

Dependent variable:		Purchase Probability variation		
		Restricted to situation 4 (Ballpoint pen: Non-experiential – Non-risky)		
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.001	-0.380	0.977	0.005
Family motivation	0.210	-0.955	0.650	0.086
Values and personality	0,02	-0.583	0.888	0.027
Goals	0.139	-0.876	0.712	0.070
Knowledge and skills	0.431	-1.001	0.517	0.123
Risk perception	0.483	-1.912	0.493	0.130
Likelihood before	0.726	0.306	0.401	-0.159
Confidence	0.753	-1.289	0.393	0.162
Relation	0.100	-1.025	0.755	0.060
Integration	1.821	0.464	0.188	-0.267
Safe space perception	0.469	-0.844	0.499	0.128
Emotion: Valence	0.106	-0.952	0.748	-0.061
Emotion: Arousal	0.042	-1.723	0.840	-0.039
Resources	5.534	1.679	0.026	-0.406
Similar values	0.128	-0.089	0.723	-0.067
Added skills	3.236	0.984	0.083	-0.322
Nationality	0.171	-1.746	0.682	0.078
Age	0.310	-1.422	0.582	0.105
Age category	1.418	-1.970	0.240	0.220
Gender	0.012	-1.159	0.913	0.021
Discussion time	2.494	-2.486	0.126	0.286
Negotiation	2.517	-1.989	0.124	0.287
Arguments	0.464	-1.105	0.501	0.128
Safe space	0.000	-0.361	0.993	-0.002
Balance	0.350	0.286	0.559	-0.111

Table 18: Probability variation tests' outcomes for situation 4

Appendix 11 – Probability variation tests for different values of Age category

Dependent variable:		Purchase Probability variation Restricted to Age Group 1 (<20 y.o.)		
Degrees of freedom:		6		
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	0.662	-0.221	0.418	0.095
Risk	0.869	-2.374	0.354	0.108
Experiential	0.001	-1.674	0.975	-0.04
Advertisement	0.000	-0.499	0.983	-0.002
Family motivation	0.241	0.0228	0.625	-0.057
Values and personality	0.058	-0.933	0.811	0.028
Goals	0.012	-0.743	0.914	-0.013
Knowledge and skills	0.319	-1.127	0.574	0.066
Risk perception	0.103	-1.792	0.750	0.037
Likelihood before	1,934	0.347	0.169	-0.161
Confidence	0.796	0.398	0.375	-0.104
Relation	1.612	0.146	0.208	-0.147
Integration	0.027	-0.809	0.869	0.019
Safe space perception	0.866	-1.072	0.355	0.108
Emotion: Valence	0.219	-1.591	0.641	0.055
Emotion: Arousal	1.175	-2.599	0.282	-0.126
Resources	0.001	-0.791	0.970	0.004
Similar values	2.842	-2.169	0.096	0.194
Added skills	0.627	-1.540	0.431	0.092
Nationality	0.077	-1.960	0.782	0.033
Age	3.279	-2.011	0.074	0.207
Age category	-	-	-	-
Gender	1.463	0.691	0.230	-0.140
Discussion time	0.167	-0.653	0.684	-0.048
Negotiation	0.003	-0.543	0.957	0.006
Arguments	2.272	0.439	0.192	-0.559
Safe space	0.004	-0.280	0.953	0.027
Balance	1.069	0.416	0.348	-0.420

Table 19: Probability variation tests' outcomes for age category 1

Dependent variable:		Purchase Probability variation Restricted to Age Group 2 (20-29 y.o.)		
Degrees of freedom:	74			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	0.869	2.374	0.354	0.108
Experiential	0.001	-1.674	0.975	-0.004
Advertisement	0.000	-0.499	0.983	-0.002
Family motivation	0.241	-0.228	0.625	-0.057
Values and personality	0.058	-0.933	0.811	0.028
Goals	0.012	-0.743	0.914	-0.013
Knowledge and skills	0.319	-1.127	0.574	0.066
Risk perception	0.103	-1.792	0.750	0.037
Likelihood before	1.934	0.347	0.169	-0.161
Confidence	0.796	0.398	0.375	-0.104
Relation	1.612	0.146	0.208	-0.147
Integration	0.027	-0.809	0.869	0.019
Safe space perception	0.866	-1.072	0.355	0.108
Emotion: Valence	0.219	-1.591	0.641	0.055
Emotion: Arousal	1.175	-2.599	0.282	-0.126
Resources	0.001	-0.791	0.970	0.004
Similar values	2.842	-2.169	0.096	0.194
Added skills	0.627	-1.540	0.431	0.092
Nationality	0.077	-1.960	0.782	0.033
Age	3.279	-2.011	0.074	0.207
Age category	-	-	-	-
Gender	1.463	-0.691	0.230	-0.140
Discussion time	0.167	-0.653	0.684	-0.048
Negotiation	0.003	-0.543	0.957	0.006
Arguments	0.027	-0.346	0.870	-0.019
Safe space	2.531	1.016	0.116	-0.183
Balance	0.277	0.054	0.600	-0.061

Table 20: Probability variation tests' outcomes for age category 2

Dependent variable:		Purchase Probability variation Restricted to Age Group 3 (30-39 y.o.)		
Degrees of freedom:	18			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	0.917	0.224	0.352	-0.226
Risk	1.534	-1.742	0.232	0.288
Experiential	0.000	-1.006	0.984	-0.005
Advertisement	0.005	-0.401	0.942	0.018
Family motivation	0.086	-0.096	0.773	-0.071
Values and personality	0.023	-0.610	0.882	0.037
Goals	0.034	-0.370	0.855	-0.045
Knowledge and skills	0.357	0.234	0.558	0.144
Risk perception	0.045	0.691	0.834	-0.051
Likelihood before	0.898	0.040	0.357	-0.224
Confidence	5.838	-2.680	0.027	0.506
Relation	0.623	0.051	0.441	-0.188
Integration	1.014	-1.121	0.328	0.237
Safe space perception	0.027	-0.206	0.871	0.040
Emotion: Valence	3.246	-2.112	0.089	0.400
Emotion: Arousal	2.862	-1.851	0.109	-0.380
Resources	0.021	-0.628	0.887	0.035
Similar values	2.183	1.170	0.158	-0.337
Added skills	0.008	-0.460	0.931	-0.021
Nationality	0.022	-0.501	0.884	0.036
Age	3.249	-1.914	0.089	0.401
Age category	-	-	-	-
Gender	1.116	0.000	0.306	-0.248
Discussion time	0.288	-0.543	0.598	-0.129
Negotiation	1.377	-1.479	0.257	0.274
Arguments	0.857	-1.158	0.368	0.219
Safe space	1.199	-1.426	0.598	0.257
Balance	0.014	-0.373	0.908	0.029

Table 21: Probability variation tests' outcomes for age category 3

Dependent variable:		Purchase Probability variation Restricted to Age Group 4 (>40 y.o.)		
Degrees of freedom:	18			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	3.851	2.206	0.090	-0.596
Family motivation	1.905	1.863	0.205	-0.467
Values and personality	3.492	2.256	0.104	-0.577
Goals	1.866	1.873	0.214	-0.459
Knowledge and skills	4.600	-1.858	0.069	0.630
Risk perception	3.336	-0.146	0.111	0.568
Likelihood before	1.088	1.510	0.332	-0.367
Confidence	0.638	0.927	0.451	-0.289
Relation	0.044	0.702	0.840	-0.079
Integration	9.100	-2.706	0.019	0.752
Safe space perception	1.287	-0.981	0.294	0.394
Emotion: Valence	1.287	-0.527	0.294	0.394
Emotion: Arousal	1.474	1.717	0.264	0.417
Resources	4.235	-1.411	0.079	0.614
Similar values	-	-	-	-
Added skills	-	-	-	-
Nationality	-	-	-	-
Age	-	-	-	-
Age category	-	-	-	-
Gender	-	-	-	-
Discussion time	-	-	-	-
Negotiation	-	-	-	-
Arguments	-	-	-	-
Safe space	-	-	-	-
Balance	-	-	-	-

Table 22: Probability variation tests' outcomes for age category 4

Appendix 12 – Probability influence by the initial pair position tests

Dependent variable:		Probability influence by the initial pair position			
Degrees of freedom:	119	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	4.701	1.367	0.032	-0.196	
Risk	4.863	-2.62	0.029	0.199	
Experiential	0.187	-1.346	0.666	0.040	
Advertisement	0.081	-0.627	0.777	0.026	
Family motivation	0.147	-0.105	0.702	-0.035	
Values and personality	0.066	-0.209	0.798	-0.024	
Goals	2.076	-1.898	0.152	0.131	
Knowledge and skills	0.135	-0.717	0.714	0.034	
Risk perception	0.104	-1.215	0.784	0.030	
Likelihood before	0.406	-0.035	0.525	-0.068	
Confidence	0.176	-0.691	0.676	0.039	
Relation	0.991	0.275	0.322	-0.091	
Integration	1.455	0.837	0.230	-0.110	
Safe space perception	2.381	1.457	0.126	-0.141	
Emotion: Valence	0.519	0.021	0.473	-0.066	
Emotion: Arousal	0.409	-1.230	0.524	0.059	
Resources	0.108	-0.798	0.743	0.030	
Similar values	0.569	-1.052	0.452	0.069	
Added skills	0.549	0.151	0.460	-0.068	
Nationality	0.076	-0.856	0.784	-0.025	
Age	1.789	-1.794	0.184	0.122	
Age category	3.172	-2.209	0.077	0.162	
Gender	0.022	-1.036	0.882	0.014	
Discussion time	0.082	-0.555	0.775	-0.026	
Negotiation	0.362	0.251	0.548	-0.055	
Arguments	0.165	0.023	0.685	-0.037	
Safe space	0.390	0.282	0.534	-0.057	
Balance	2.671	1.289	0.105	-0.149	

Table 23: Probability influence by the initial pair position tests' outcomes

Appendix 13 – Probability influence by the initial pair position tests for different values of Situation

Dependent variable:		Probability influence by the initial pair position Restricted to Situation 1 (Trip: Experiential – Risky)		
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.572	0.773	0.456	-0.141
Family motivation	1.653	1.285	0.209	-0.236
Values and personality	0.021	0.172	0.887	0.027
Goals	0.033	-0.135	0.856	0.034
Knowledge and skills	0.224	-0.429	0.640	0.089
Risk perception	1.085	0.968	0.307	-0.193
Likelihood before	0.001	0.066	0.981	-0.005
Confidence	0.243	-0.459	0.626	0.093
Relation	1.727	-1.241	0.199	0.241
Integration	0.082	0.297	0.777	-0.054
Safe space perception	0.032	0.183	0.860	-0.034
Emotion: Valence	0.009	-0.033	0.927	0.018
Emotion: Arousal	0.009	0.118	0.924	-0.018
Resources	0.506	-0.599	0.483	0.133
Similar values	0.983	-0.936	0.330	0.184
Added skills	0.017	0.173	0.899	-0.024
Nationality	-	-	-	-
Age	3.727	-1.821	0.064	0.343
Age category	2.848	-1.569	0.103	0.304
Gender	0.102	-0.121	0.752	0.060
Discussion time	2.034	1.358	0.165	-0.260
Negotiation	0.258	-0.460	0.616	0.096
Arguments	0.001	0.055	0.975	-0.006
Safe space	0.684	-0.754	0.415	0.154
Balance	0.841	0.931	0.367	-0.171

Table 24: Probability influence by the initial pair position tests' outcomes for situation 1

Dependent variable: Probability influence by the initial pair position Restricted to Situation 2 (Laptop: Non-experiential – Risky)				
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.701	-0.644	0.409	0.156
Family motivation	0.041	0.416	0.841	-0.038
Values and personality	0.007	0.151	0.936	0.015
Goals	0.608	-0.482	0.442	0.146
Knowledge and skills	0.000	0.205	0.991	0.002
Risk perception	0.859	1.177	0.362	-0.173
Likelihood before	0.008	0.470	0.930	-0.017
Confidence	0.002	0.078	0.961	0.009
Relation	0.921	1.163	0.345	-0.178
Integration	0.097	-0.164	0.758	0.059
Safe space perception	3.400	1.879	0.076	-0.329
Emotion: Valence	1.675	-0.827	0.206	0.238
Emotion: Arousal	2.910	1.485	0.099	0.307
Resources	0.048	0.487	0.828	-0.041
Similar values	0.574	0.920	0.455	-0.142
Added skills	0.221	0.728	0.642	-0.088
Nationality	0.075	0.282	0.786	0.052
Age	1.879	-1.035	0.181	0.251
Age category	2.245	-1.176	0.145	0.272
Gender	0.000	0.517	1.000	0.000
Discussion time	0.388	0.923	0.539	-0.117
Negotiation	0.495	0.846	0.488	-0.132
Arguments	0.209	-0.280	0.651	0.086
Safe space	1.611	-1.029	0.215	0.233
Balance	0.280	0.669	0.601	-0.100

Table 25: Probability influence by the initial pair position tests' outcomes for situation 2

Dependent variable: Probability influence by the initial pair position Restricted to Situation 3 (Movie ticket: Experiential – Non-risky)				
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.052	-0.597	0.821	0.043
Family motivation	0.073	-0.713	0.788	0.051
Values and personality	0.651	-1.214	0.426	0.151
Goals	1.885	-1.789	0.181	0.251
Knowledge and skills	4.553	-2.384	0.042	0.374
Risk perception	0.005	-0.823	0.943	0.014
Likelihood before	0.065	-0.799	0.801	0.048
Confidence	0.423	-0.864	0.521	0.122
Relation	0.001	-0.342	0.978	-0.005
Integration	0.988	0.808	0.329	-0.185
Safe space perception	0.111	-0.396	0.742	0.063
Emotion: Valence	0.408	0.319	0.528	-0.120
Emotion: Arousal	1.350	-1.428	0.255	0.214
Resources	0.776	-1.176	0.386	0.164
Similar values	5.670	0.024	0.024	0.410
Added skills	0.004	-0.515	0.953	0.011
Nationality	0.454	-0.500	0.506	-0.126
Age	0.063	-0.696	0.804	0.047
Age category	0.093	-0.779	0.763	0.057
Gender	0.577	-1.288	0.454	0.142
Discussion time	2.271	0.591	0.143	-0.274
Negotiation	0.039	-0.495	0.844	0.037
Arguments	1.466	0.740	0.236	-0.223
Safe space	2.323	1.327	0.139	-0.277
Balance	0.268	0.230	0.609	-0.097

Table 26: Probability influence by the initial pair position tests' outcomes for situation 3

Dependent variable: Probability influence by the initial pair position Restricted to situation 4 (Ballpoint pen: Non-experiential – Non-risky)				
Degrees of freedom:	29			
	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Situation	-	-	-	-
Risk	-	-	-	-
Experiential	-	-	-	-
Advertisement	0.116	-0.699	0.736	0.064
Family motivation	0.014	-0.641	0.906	0.023
Values and personality	2.646	1.110	0.115	-0.294
Goals	0.127	-0.876	0.724	0.067
Knowledge and skills	0.701	0.458	0.410	-0.156
Risk perception	0.004	-1.380	0.947	-0.013
Likelihood before	0.062	-0.288	0.805	-0.047
Confidence	0.001	-0.413	0.971	-0.007
Relation	0.054	-0.970	0.817	0.044
Integration	3.531	0.909	0.071	-0.335
Safe space perception	2.629	1.444	0.116	-0.293
Emotion: Valence	2.249	-0.087	0.145	-0.273
Emotion: Arousal	1.394	-2.432	0.248	-0.218
Resources	0.373	0.028	0.546	-0.115
Similar values	1.215	0.617	0.280	-0.204
Added skills	1.467	0.428	0.236	-0.223
Nationality	0.238	-1.846	0.629	0.092
Age	0.021	-1.077	0.887	0.027
Age category	0.337	-1.427	0.566	0.109
Gender	0.008	-1.177	0.928	0.017
Discussion time	2.634	-2.562	0.116	0.293
Negotiation	1.181	0.626	0.287	-0.201
Arguments	0.020	-0.309	0.887	-0.027
Safe space	1.680	0.882	0.206	-0.238
Balance	0.265	0.201	0.611	-0.097

Table 27: Probability influence by the initial pair position tests' outcomes for situation 4

Appendix 14 – Probability approximation tests

Dependent variable:		Probability approximation			
Degrees of freedom:	59	Z (ANOVA)	t (Regression coefficients)	p-value	β (Standard coefficients)
Dev advertisement	1.156	-0.784	0.287	0.140	
Dev Family Motivation	0.135	-0.313	0.715	0.048	
Dev Values Personality	0.009	-0.098	0.925	0.012	
Dev Goals	0.181	-0.348	0.672	0.056	
Dev Confidence	0.049	-0.174	0.825	0.029	
Pair Relation	0.546	0.653	0.463	-0.097	
Comp Nationality	0.739	-0.822	0.393	0.112	
Age Gap	4.106	-0.983	0.047	0.257	
Comp Age Category	2.726	1.459	0.104	-0.212	
Comp Gender	0.519	0.486	0.445	-0.100	
Situation	0.054	0.195	0.818	-0.030	
Time	0.865	0.760	0.356	-0.121	
Negotiation	4.361	2.024	0.041	-0.263	
Arguments	0.147	0.361	0.703	-0.050	
Safe_space	1.319	1.111	0.255	-0.149	
Balance	0.721	0.822	0.399	-0.111	

Table 28: Probability approximation tests' outcomes