

Intuitive versus analytical decision making modulates trust in e-commerce*

Paola Iannello - Michela Balconi - Alessandro Antonietti

Department of Psychology, Catholic University of the Sacred Heart, Milan, Italy

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paola.iannello@unicatt.it

ABSTRACT

The hypothesis that intuition and analytical processes affect differently trust in e-commerce was tested. Participants were offered products by a series of sellers via Internet. In the intuitive condition pictures of the sellers were followed by neutral descriptions and participants had less time to decide whether to trust the seller. In the analytical condition participants were given an informative description of the seller and had a longer time to decide. Interactions among condition, price and trust emerged in behavioral and psychophysiological responses. EMG signals increased during analytical processing, suggesting a cognitive effort, whereas higher cardiovascular measures mirrored the emotional involvement when faced to untrustworthy sellers. The study supported the fruitful application of the intuitive vs. analytical approach to e-commerce and of the combination of different sources of information about the buyers while they have to choose to trust the seller in a financial transaction over the Internet.

Keywords: E-commerce; Trust; Intuition; Decision making; Psychophysiological responses; Emotion; Biofeedback

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1. INTRODUCTION

1.1. Trust in e-commerce

Trust is a vital component in commerce transactions. Increased interest in this topic has arisen in the last two decades, specifically in the field of e-commerce, where people buy products from unfamiliar persons. In the wide field of e-commerce we particularly focus on the Consumer-to-Consumer (C2C) electronic commerce. Located on the Internet, C2C encompasses transactions among traders matched by a third part intermediary. Common examples are online auctions, where people all around the globe can meet and engage in exchange-related behaviors (Zappalà & Gray, 2006).

The common denominator of the several definitions of trust proposed in the field (for a review, see Mayer, Davis & Schoorman, 1995) is the notion of reliance on a trustee in exchange of an action important to the trustor, irrespective of the control over the trust. In other words, trust is the motivation to rely on transaction partner in whom the individual has assurance (Moorman, Zaltman & Deshpande, 1992). The concept embraces two complementary dimensions: the belief that the current exchange partner is trustworthy and the behavioural intention to rely on them. As far as the first dimension is concerned, trust is seen as an expectation about the partner's trustworthiness and it originates from the partner's expertise, reliability, and intentionality. In terms of behavioral intention, trust is thought as actions that reflect confidence on the partner and involves uncertainty (i.e. lack of control over partner's behaviors) and vulnerability (i.e. risk of losing resources put under partner's control) on the part of the trustor (Riva, Monti, Iannello & Antonietti, 2012; Riva et al., 2014).

Much research has dealt with the role of trust in e-commerce in the attempt to identify aspects of the seller and the intermediary that would increase it (Anderson & Weitz, 1989; McKnight, Choudhury & Kacmar, 2002; Morgan & Hunt, 1994; Cho, 2006). For example, McKnight and colleagues (2002) found that website appearance is a determinant of the perceived trustworthiness of the intermediary; Morgan and Hunt (1994) showed that a positive evaluation of the communication with the trustee (e.g., the ease with which the trustee can be contacted) increases the trustor's trust in the former. At last, the ways in which products are represented influences the trustor as well: detailed, explicit, and accurate product information is likely to make buyers infer that sellers are professional, dedicated, and responsible, and thus trustworthy (Belanger, Hiller & Smith, 2002; Pravettoni, Leotta, Lucchiari & Misuraca, 2007).

1.2. Theory of Mind, intuition and analytical processing

The development and maintenance of trust in an e-commerce interaction require partners to be able to view the situation from the other person's perspectives in order to understand if the partner is sincere or intends to deceive. It has been proposed that this ability to make attributions about others' mental states (desires, beliefs, intentions), referred to as "Theory of Mind", can be either an immediate and holistic process or a slower and analytical one (Iannello & Antonietti, 2008). In other words, mindreading processes can develop alternatively through rapid and synthetic heuristics (i.e. intuition) or through a detailed and systematic examination (i.e. analysis) of the person and the situation at hand. In the first case the process resembles the formation of impression, whereas in the second case the process involves a more logical assessment. In this respect, intuition and analysis are not only conceived as different strategies employed in picturing others, but also as different decision-making approaches (Stanovich & West, 2000).

It has been shown that people tend to rely on intuition not only in various life-or-death situations (e.g., fire-fighters, Klein, 1998; military commanders, Kaempf, Klein, Thordsen & Wolf, 1996; emergency room surgeons, Abernathy & Hamm, 1995), but also in everyday-life choices (see for example, Andersen 2000; Baldi, Iannello, Riva & Antonietti, 2013), wherein the rapid pace of change and the overwhelming amount of information cause people to prefer intuition over rational analysis (Sadler-Smith, 2008). However, rational analysis, which can be described as a rule-based thinking mode implying formal, abstract, and logical connections based on symbols (Verschuere, Schaeken & d'Ydewalle, 2005), has been considered the best way to make effective decisions.

Adopting one thinking style over the other depends on individual differences (Epstein, Pacini, DenesRaj & Heier, 1996), the ability to flexibly adapt them to the situation at hand, and various contexts characteristics, such as the way information are presented (Burke & Miller, 1999; Hogarth, 2001). For instance, Hogarth (2001) proposed that tasks promoting visual processing induce more intuitive reasoning, suggesting that this thinking style tend to be activated more when information is limited. On the contrary, when more time is available people can opt for the analytical thinking mode, which requires conscious control, more effort and cognitive resources (Epstein et al., 1996).

Hence, intuition and analysis can be considered as two different strategies that can be alternatively activated during social interactions on various sorts, among which economic exchanges. An example comes from economic decision-making experiments. As expected, in an Ultimatum Game scenario participants tended to offer more money to partners who showed higher acceptance threshold (i.e. these partners showed to reject medium and low

offers) and less money to partners that showed lower acceptance threshold. The interesting finding was that such differentiation was sharpened when participants were primed to rely on intuitive mindreading as opposed to the analytical one (Iannello & Antonietti, 2008).

1.3. The current study

By acknowledging the fundamental role played by intuition and analysis in financial decision-making, we realized that some aspects have not been investigated yet such as the psychophysiological correlates of intuition and analysis (Iannello, Colombo & Antonietti, 2014). Due to their automatic and mainly unconscious features, they could contribute to explain the role that emotional and rational components play when intuition and analysis are implemented in e-commerce decisions.

We designed an experiment in order to test the hypothesis that intuition and analytical thinking have different effects on trust decisions in e-commerce. The present study examined both trust behaviour and neuro-vegetative responses occurring when people employ either intuition or analysis.

Participants were told that they had to decide whether to trust or not individuals who were selling a series of products over an Internet simulated transaction. The products were divided in two groups (cheap vs. expensive). Participants were presented with verbal descriptions and photos of potential sellers which were arranged in different ways. Finally, different instructions were given to facilitate one kind of processing (analytical vs. intuitive) over the other. We measured how many times the respondents reported to trust the sellers.

We hypothesized that analytical thinking compared to intuition would increase trust response. When buyers think of others in cautious way by examining thoroughly relevant information, they tend more to trust others, whereas when people has to rely on intuition, they feel that they would need more information and time to trust others. As regards to the psychophysiological data we hypothesised that analytical processing, expensive products and not-trust responses determine higher levels of activation. This prediction comes from the claim that attention should be higher when people think carefully since they have to pay more attention to each aspect of the seller descriptions. Furthermore, people who deal with expensive products know that they are risking much money, so they should concentrate more in order to be sure to do the right investment. Finally, we also expected higher levels of activation and emotional behaviour when people fail to trust rather than when they do so. This should be due to the fact that trust responses, which express a reliance on a partner, always involve vulnerability and uncertainty, which are more

likely to be associated with higher levels of arousal if the untrustworthy partner elicits such feelings. In other words, more arousing conditions may induce an autonomic response related to the increased attentional focus produced by the analytical processing, from one hand, and to the inability to manage uncertain situations in case of untrusting conditions, from the other hand.

2. METHOD

2.1. Materials

We simulated a commercial transaction on the Internet where participants were asked whether they trust each person within a list of thirty-two sellers. The sequence of sellers, whose verbal description and picture were presented, included two sub-sequences in order to involve the participants in both analytical and intuitive processing. In each sub-sequence the participants dealt with both cheap and expensive products offered by sellers.

We first selected thirty-two pictures of individuals from a lab database: neutral facial expressions of both genders (16 men and 16 women) were included. Such pictures were meant as photos of potential sellers. The descriptions associated to each seller varied according to the processing condition. Detailed descriptions about the seller's job, social status and personal life were provided for those sellers who were meant to be judged in the analytical way. Through a pre-test – where 40 undergraduate students, coming from the same university where the experiment was carried out, were asked to rate on a 7-level Likert scale the degree of trustworthiness inspired by each seller – we were able to keep verbal descriptions corresponding to an average perceived trustworthiness (mean scores ranged from 3.15 to 3.87). In the intuitive condition we attached short irrelevant descriptions – concerning the physical features and the home address of the sellers – to the pictures. The level of trustworthiness inspired by such descriptions was checked by asking the same sample of undergraduates mentioned before to give a score of trustworthiness (on a 7-level Likert scale) to each description. Mean scores (as well as the ranges of the scores) of the descriptions were approximately the same and tended to correspond to the central value of the scale (ranging from 3.27 to 3.77).

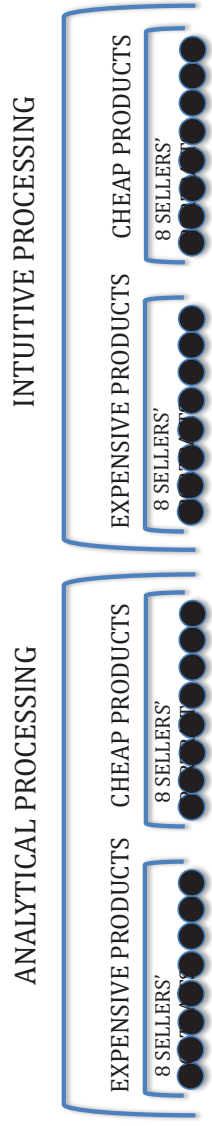
The task presented specific aspects that are typical of the two modes of thinking. According to literature, characteristics of the instructions affect the activation of intuitive rather than analytical processing. In addition, the visualization hypothesis (Hogarth, 2001) states that tasks promoting visual

evaluation induce more intuitive thinking. Moreover, evidence suggested that individuals are likely to rely on intuitive thought processes when they face time pressure (De Dreu, 2003; Suri & Monroe, 2003). Thus, in order to induce these two kinds of thinking processes we devised for each sequence two sub-sequences that were different in terms of:

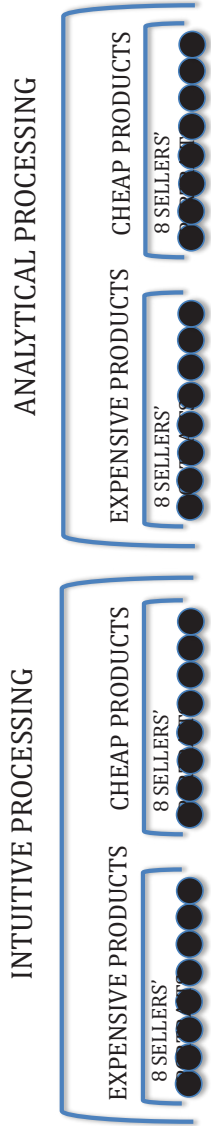
- Type of instructions: in the intuitive condition the instructions invited the participants to entrust their first impression in carrying out the task, whereas in the analytical condition they were asked to engage in a deeper analysis of the characteristics.
- Characteristics of the stimuli relevant to perform the task: intuitive sub-sequences required focusing on information conveyed by stimuli presented mostly in a visual form (participants were initially given a picture of a seller and then, together with the picture again, a series of irrelevant data concerning that seller), whereas analytical sub-sequences required focusing mostly on verbal information (participants were initially given a detailed and informative description of the seller and then, together with the verbal description again, a related image of the same seller). Hence, in the analytical condition plentiful verbal information was presented twice unlike the visual information, which was presented twice only in the intuitive condition.
- Time constraints: in the intuitive sub-sequence participants were given a very short time to process information (6 sec), whereas in analytical task they had a longer time to process information (23 sec). Time windows were validated by 40 non-experimental participants tested before the experiment, which led us to identify the duration (6 sec) which was enough to make a fast inspection of all the presented materials and the duration (23 sec) which is needed in order to allow participant to read carefully all textual information, as well as to look at the picture.

A wallet and a Mp3 reader were chosen as cheap products (suggested price ranged from 30 € to 100 €) and a smartphone and a laptop as expensive products (suggested price ranged from 400 € to 1200 €). All selected products were close to the experienced world and the purchasing power of a common undergraduate student.

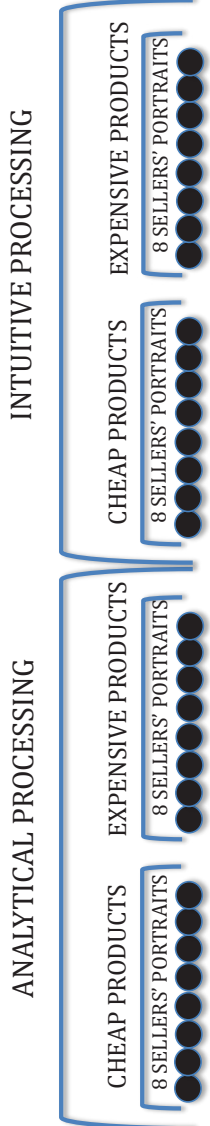
Each sequence of stimuli which was presented to the participant was made up by both an intuitive sub-sequence and an analytical sub-sequence. Eight cheap and eight expensive products were presented in each sub-sequence. The order of cheap and expensive products was randomly set within the corresponding section of the intuitive and analytical sub-sequences. We obtained four sequences by balancing the order of the types of processing (intuitive vs. analytical) and the order of the kinds of products (cheap vs. expensive) (Figure 1). The thirty-two portraits of the sellers were randomly associated to the products in each sequence.



SEQUENCE 1.



SEQUENCE 2.



SEQUENCE 3.



SEQUENCE 4.

Figure 1. Scheme of the four sequences.

2.2 Psychophysiological recording

A biofeedback software for recording of the physiological responses was then started and checked for correct functionality (Biofeedback 2000, version 7.01). Before the attaching electrodes, the skin was cleaned with alcohol and slightly abraded.

Skin conductance levels (SCL) were recorded from two electrodes placed on the medial phalanges of the second and third finger of the non-dominant hand. The sample rate was of 400 Hz. Trials with artefacts were excluded from analysis, whereas trials with no detectable response were scored as zero. We considered the level of conductance as average during a 10s period of time.

Electromyography (EMG) was recorded with bipolar electrode arrangement, consisting of two active and one inactive electrodes. The active electrodes were placed in a bipolar pattern along the axis of the muscle of the forehead. Before attaching electrodes the skin was cleansed with abrasive material. We considered the average of EMG changes in voltage in a 10s period of time.

A peripheral arterial tonometer was used to measure Pulse Volume Amplitude (PVA), BVP (Blood Volume Pulse), and PF (Pulse Frequency) in the fingertip of the index finger of the non-dominant hand. The peripheral arterial tonometer apparatus consists of a finger-mounted probe that surrounds the fingertip with an electronically controlled, inflatable, pressurized air cushion confined within a rigid external case. The pressure changes within the probe that accompany PVA and BVP changes in the fingertip are transmitted to a personal computer where the signal is band-pass filtered (0.3-30 Hz), amplified, displayed, and stored. Also in this case we considered the average of PVA fluctuations in a 10s period of time. Finally, PF allowed us to monitor the heart frequency modifications within a 10s time-interval.

2.3. Participants

Undergraduate students (N = 22) were randomly recruited from the departments of the Catholic University of the Sacred Heart in Milan, Italy. Their age ranged from 20 to 31 yrs. (M = 23.68; SD = 2.58). All students (10 men and 12 women) accepted to participate to the experiment voluntarily, without being paid or receiving course credits. Students had not attended courses concerning topics related to the experiment (decision making, intuition vs. analysis, trust, e-commerce, etc.).

2.4. Procedure

Participants were tested individually in a quiet room and were told that they had to buy some products they need through an e-commerce website and that the descriptions of persons who were selling the product that had to be bought will be displayed, in order to allow them to choose the seller from whom the product will be bought.

During the task participants were shown one of the four sequences of sellers on a computer monitor and were asked whether they trusted each of them. Before starting the task, participants were worn with biofeedback sensors while they were reading the instructions, which consisted in a brief explanation of the task including information about time constraints and types of request. When the sensors were attached, participants were asked to minimize movements of the hand in order to keep signal noise to a minimum.

Participants were instructed to express their judgments with accuracy, by interacting with the computer through a mouse. If the students, after each seller presentation, selected the left button it would be equal to express trust, unlike selecting the right button would be equal to express lack of trust.


Any questions undergraduates had were answered.

Each sequence of products/sellers included two sub-sequences in order to induce in the participant both analytical and intuitive processing. In the analytical condition participants were initially given a detailed and informative description of the seller (20 sec) and then a related image (3 sec) of the same seller (Figure 2a). In contrast, in the intuitive condition the picture (3 sec) was followed by a neutral description (3 sec), and so participants had less time to carry out the task (Figure 2b).

In both the analytical and intuitive sub-sequences participants were allowed 4 sec to give the response. After that time interval, the next stimulus was presented. In each sub-sequence, the first two sellers were treated as warm-up trials, and so they were not included in data analyses.

According to procedure for approval followed in the department where the experiment took place when it was carried out, the project of the study was presented to a panel of experts who examined it to identify possible critical ethical issues. Their approval was obtained.

(a) Analytical processing

<p>Mark is a police officer, who deals with the crash prevention and the road traffic control. He is often asked to hold road safety courses in secondary schools. He is single and lives alone. Over the years, he has been involved in many accidents. He has a car, which he often pays a visit to his brother, who owns a collection of racing cars. Mark enjoys driving such cars at high speed through isolated roads in the countryside.</p>	 <p>roads in the countryside.</p> <p>d through isolated</p>	<p>DO YOU TRUST HIM?</p> <p>LEFT KEY: YES</p> <p>RIGHT KEY: NO</p>
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(b) Intuitive processing



	 <p>Shoe size: 38 Weight: 61 kg Height: 162 cm Address: Bellini Street 32</p>	<p>DO YOU TRUST HER?</p> <p>LEFT KEY: YES</p> <p>RIGHT KEY: NO</p>
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Figure 2. Examples of stimuli in the two conditions concerning the type of processing.

3. RESULTS

As far as the behavioural data were concerned, it was carried out an analysis of variance with two repeated factors – price (2 levels: cheap vs. expensive) x type of processing (2 levels: intuitive vs. analytical) – assuming trust as the dependent variable. Trust scores were obtained by dividing the number of sellers the participant trusted by the total number of participants, which was made up by trust and mistrust responses. The test showed that differences due to the type of processing, with higher trust level in the case of analytical processing, were statistically significant ($F[1, 21] = 14.72, p < .05, \eta_p^2 = .41$), whereas the main effect of prize and the interaction effect were not significant (respectively, $F[1, 21] = 2.78$ and 2.11) (Figure 3).

As far as the psychophysiological measures were concerned, paired samples t-tests were computed in order to test whether the baseline and the task condition were statistically different. Hence, the average of the baseline was compared with the average of the task condition regardless of the type of sub-sequence. The test showed a statistical significance ($p < .01$) for all the psychophysiological indexes, thus supporting the notion that the task increased, as expected, the general level of activation of the participants.

We applied two types of analysis, specifically ANOVA to SCL and EMG and a multivariate analysis of variance (MANOVA) to the cardiovascular measures (PVA, BVP, PF). We first ran ANOVAs with three repeated factors-price (2 levels) X type of processing (2 levels) X trust (2 levels) applied to the first set of indexes. As far as the third independent variable (trust) is concerned, we distinguished cases in which the participants told to trust the seller from those where he/she reported not to trust the seller.

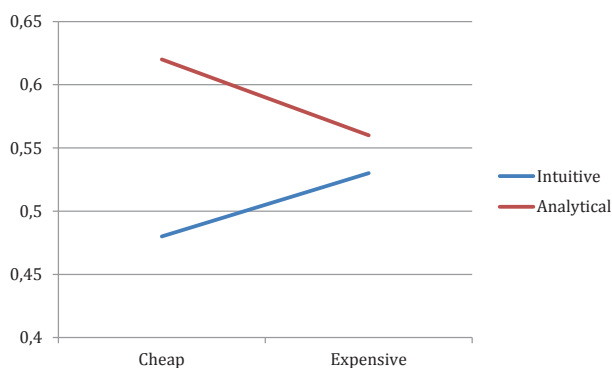


Figure 3. Effects of price and type of processing on trust.

Thus, the number of stimuli coded as “trust” and “mistrust” varied across participants (and, as a consequence, the number of cases considered to compute the corresponding mean value varied too).

We found a main effect of price on SCL ($F[1, 21] = 21.25, p < .01, \eta_p^2 = .50$), with higher activation in the case of expensive products ($M = 15.07, SD = 2.33$) as compared to the cheap ones ($M = 10.21, SD = 1.98$). For EMG we found the main effect of type of processing ($F[1, 21] = 5.68, p < .05, \eta_p^2 = .21$), with higher activation in the case of analytical processing. We also found an interaction effect of all three independent variables on EMG ($F[1, 21] = 4.83, p < .05, \eta_p^2 = .19$). Analysis of simple effects (paired samples t-tests) showed significant differences for analytical vs. intuitive processing in response to cheap and expensive products. Specifically, expensive products were more activating than the cheap one in the analytical condition, whereas the opposite was true in the intuitive condition, with people dealing with expensive products in the analytical condition showing a higher level of EMG activation compared to themselves dealing with expensive products in the intuitive condition ($t[21] = 2.14, p < .05$) (Figure 4). The analysis of the simple effects showed also a significant effect for analytical vs. intuitive processing in relation to trust and mistrust responses (respectively, $t[21] = 1.98$ and $2.03, p < .05$ in both cases). Specifically, both trust and mistrust responses differed in term of arousal in the two processing conditions, but the differences of the levels of EMG activation depending on the intuitive vs. analytical condition were higher in participants who failed to trust.

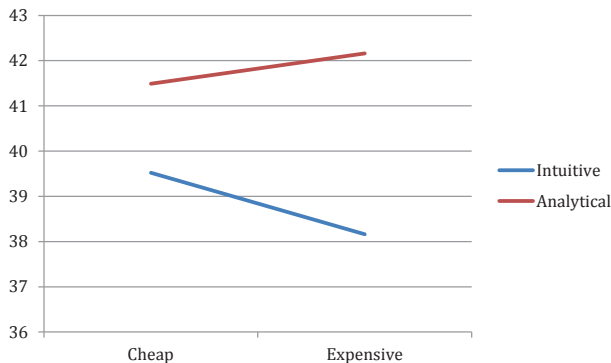


Figure 4. Effects of price and types of processing on EMG.

In order to compare more directly the effects of the independent variables on the dependent ones, we applied a MANOVA to BVP, PVA, PF, namely, to all the indexes which concern heart activity. MANOVAs indicated a significant main effect of price ($F[1, 21] = 15.12, p < .01$) and an interaction effect between type of processing and trust ($F[1, 20] = 4.92, p < .05$). Singular ANOVAs were applied to determine which dependent variable the main and interaction effects referred to. The results indicated that the main effect of price concerned PVA (cheap: $M = 14.63, SD = 1.45$; expensive: $M = 13.01, SD = 1.36, F[1, 21] = 32.46, p < .01, \eta_p^2 = .61$) and the interaction effects between type of processing and trust concerned BVP ($F[1, 20] = 8.38, p < .05, \eta_p^2 = .28$) (Figure 5) and PF ($F[1, 20] = 10.16, p < .05, \eta_p^2 = .33$) (Figure 6).

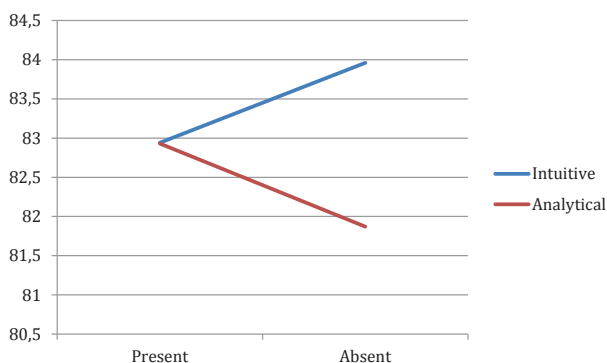


Figure 5. Effects of trust and types of processing on BVP.

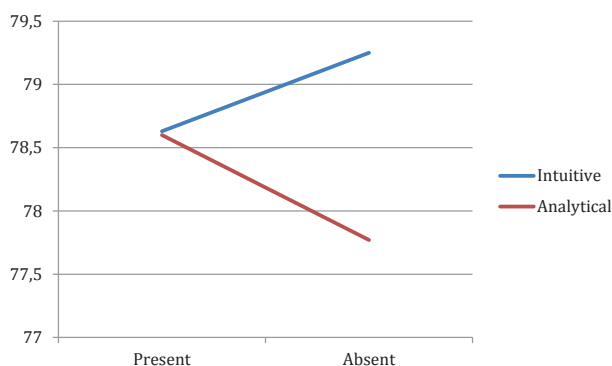


Figure 6. Effects of trust and types of processing on PF.

PVA values were higher when participants were faced with cheap than expensive products. BVP and PF values were higher in the intuitive condition as compared to the analytical one and the difference was larger when participants did not trust the seller.

4. DISCUSSION AND CONCLUSIONS

E-commerce is an increasingly widespread activity whose underlying psychological mechanisms are far from being adequately understood (Ward & Kalyanam, 2006). Since in such a context the buyer usually fails to have complete knowledge about the seller, the former has to trust on the latter. Hence, trust appears to be one of the pivotal psychological mechanisms supporting this kind of marketing. Trust is needed in many every-day situations, including economic transaction. In such situations people usually develop trust either on the basis of overall impressions elicited by the partners or by the thorough examination of the available information. Whereas the influence of the intuitive vs. analytical approaches in decision making has been studied previously in some financial settings (e.g., Hsee & Rottenstreich, 2004; Small, Loewenstein & Slovic, 2007), such an influence has been never investigated in e-commerce. The present research aimed at gaining some empirical evidence in this field.

The first finding was that participants hinted at assuming an analytical approach trusted more partners who proposed to sell them, through an Internet-based marketing system, some goods in comparison to when they were led to assume an intuitive approach. The possibility to have relevant information about the seller and the lack of time pressure affected participants' dispositions toward the sellers so that they became more confident in the partner of the economic transaction and, as a consequence, it is likely that they tended more to buy the products than when verbal information was irrelevant and only a short time was allowed to decide. Presumably the access to a portrait of the seller which provided customers some basic notions about his/her personal characteristics and the possibility to draw inferences from such notions in terms of the partner's honesty and reliability contributed to develop a sense of control over the decisional process which, in turn, produced a feeling of assurance towards their own choices. By contrast, the lack of notions about the partner which can be helpful to infer something about his/her personal features and the awareness that the time allowed to make the decision was too short led participants to be insecure, and thus presumably less inclined to take the risk to buy from an unfamiliar seller.

It is worth noting that the effects of the elicitation of the intuitive vs. analytical approach were generalised, occurring in the cases of both cheap and expensive goods to be bought. It may be that in e-commerce buyers develop a broad alerted attitude, which induces them to be suspicious toward any offers they receive from the unknown partners, irrespectively of the economic value of the goods in question. Hence, their attention is mainly focused on the trustworthiness of the seller rather than on the price levels of the product to be bought, which are equally influenced by the general disposition toward trust.

The psychophysiological measures allowed us to go beyond the picture described above, both by confirming some effects, which emerged in the participants' choices, and by revealing effects depending on price which failed to be manifested by behavioural data. Moreover, psychophysiological responses highlighted differences occurring in participants when they were assuming a trusting vs. non-trusting attitude toward the partner.

The level of activation of the participants, as measured by EMG, was higher in the analytic than in the intuitive condition. Thus, the alleged increased effort elicited by the analytical approach, requiring to consider the relevant available information and to activate reasoning processes during the relatively long time interval allowed to choose, is mirrored by the muscular tension registered in the participants. It is also likely that EMG mirrored the increased effort to control the level of arousal by the participants during the analytical process in comparison with the intuitive process. The long-lasting mechanisms implicated by the analytical evaluation, which involves the modulation and integration of an amount of information, may have introduced relevant variables to be monitored.

Whereas the proportions of the choices to buy or not to buy were similar for cheap and expensive products, the psychophysiological responses underlying the different type of goods were not the same. SCL was higher when participants were facing expensive products, whereas the opposite was true for PVA. The EMG index was higher with expensive, as compared to cheap, goods in the analytical condition and lower in the intuitive condition. These results appear to be symmetrical with the general EMG activation, which was higher in the analytical than in the intuitive conditions. Thus, a more consistent control should be performed during the long-lasting analytical process where the participants were required to choose more expensive (and economically more relevant) products. The modulation of the psychophysiological reactions can reflect this increased effort from an emotional point of view.

Psychophysiological responses revealed a series of interaction between the type of processing and the trusting/not-trusting attitude. EMG signals

were higher in the analytical than in the intuitive condition above all when participants choose not to trust in the sellers. When participants developed such a not-trusting disposition, BVP and PF indexes were higher in the intuitive condition as compared to the analytical one. In other words, the not-trusting effect could be considered a significant marker of the increased difficulty to express a behavioural choice, especially when an immediate decision is required. Higher BVP values could indicate this “decisional impasse” with a less proficient modulation of the general emotional level.

Overall, the findings of this study support the notion that the distinction between the intuitive and analytical way of judging and deciding is worthy to be applied also in e-commerce since the two approaches can lead to different behaviors in economical transactions carried out via the Internet. Such transactions can be motivated, beside by the common hope to buy goods at cheaper prices since many costs of traditional commerce are eliminated, by different, even opposite reasons. On one hand, someone might be interested in buying goods through the Internet to avoid the waste of time needed to come to the actual shops. In this case, we can assume that the buyer’s approach is to select quickly the options available and to finalise soon the transaction. On the other hand, someone might prefer e-commerce since it enables him/her to have access to a high number of opportunities, to compare thoroughly the various bargains and to reflect on their pros and cons. Thus, both an intuitive and analytical approaches are likely to be adopted in e-commerce. The results of our investigation highlighted that they can make the difference, since the attitude to trust the seller was modulated by the induction of one of the two approaches.

Psychophysiological data helped to understand better the effects produced by the intuitive vs. analytical approach. On the basis of the increased EMG signals in the analytical condition we can claim that the higher level of trust recorded in such a condition was not simply the result of the quality of information about the sellers buyers were provided with and/or of the longer time allowed them to decide. Indeed, a higher level of activation accompanied the effort to examine the bargains, which was a process highly demanding in terms of cognitive resources, above all when the buyer is suspicious about the reliability and honesty of the seller. Further, such an activation increased in front of the offers of expensive products, even though the rates of trust failed to stress possible differences depending on the prices of the goods.

By contrast, when applying an intuitive approach, the emotional activation, as revealed by cardiovascular measures, becomes relevant. In face of sellers who appear to be untrustworthy, alert reactions are higher if the buyer has to rely only on his/her appearance with little time to decide. It is well-known that two brain networks can be activated in decision-making: the

first one connects quickly the sensory organs to the thalamus and then to the amygdala causing an automatic response accompanied by psychophysiological activation; the other one involves the activation of cortical areas and, through a slower process, leads to awareness (LeDoux, 1996; Weiskrantz, 1997). In the intuitive condition of the present experiment cues conveying implicit connotations based on the physical features of the partner can be detected by the neural system specialised to process quickly this kind of emotionally charged information and to produce somatic markers signalling possible dangers (Damasio, 1994). Also this process was revealed by the joint recording of overt behaviours and psychophysiological indexes.

In conclusion, this study provided evidence in favour of the fruitful application of the intuitive vs. analytical approach to the field of e-commerce, which can motivate the decision to buy or not to buy a product by an unknown partner, as well as of the combination of different sources of information about what is occurring in the buyers while he/she had to choose to trust or not to trust the seller in a financial transaction carried out through the Internet.

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