

# Bachelor Thesis

## Privacy perception of online shopping behavior between millennials and non-millennials in Chinese digital marketing

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### ABSTRACT

The purpose of this study is to analysis relationship between privacy and security perception and online shopping behavior in two different age groups. In China, online shopping is becoming popular and online shopping market is increasingly developing. Especially Alibaba Company is a dominant and famous online shopping website currently. Risk and trust perceptions regarding Internet privacy and security perception are considered as an issue for different age group users when they are shopping online. This paper addressed two main category, trust and risk of privacy and security perception to measure the relationship with current consumers' online shopping behavior.

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### Keywords

Privacy perception, age group, online shopping behavior, trust, risk, digital marketing

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## 1. INTRODUCTION

Nowadays, as the increasing development of digital marketing world, it is obvious that we live in the digital area. The Internet and social media have become an indispensable and extensive part of human being's daily life. For a couple of years already there were various social activities appeared in digital environment which offers great opportunities for businesses to change company's competitive strategy about having closer interaction with consumers. Especially e-commerce increasingly becomes popular and convenient business way to sell products or communicate with online consumers in digital marketing. (Wen, Chen, & Hwang, 2001). Due to high popularity of Internet and rapid development of e-commerce, more consumers are willing to purchase products online. Shopping online becomes a trendy behavior in digital world now. Based on the newly survey from The Wall Street Journal, 70% of more than 3000 people who joined the online shopping survey cleared that they prefer online shipping compared to retailer shopping.(Morris, 2013). Especially in china, the penetration rate of online shopping from 2006 to 2015 is continually increasing. The rate has risen 35.5% from 24.5% to 60%. It means that in 2015, around 60 percent of Internet users had shopped online in china.(Silverman, 2016). Furthermore based on the collected data of annual sales, it stated that the transaction size of online shopping market in china from 2008 to 2015 is dramatically increasing from 128.18 billion to 3,817.3 billion Yuan (Chinese currency). Specifically in 2016, the online commerce transaction has reached approximately 4,982.8 billion Yuan. Followed by this trend, it was predicted that the number of online shoppers in china would purchase totally around 7,510.5 billion Yuan in 2018. (Mei-Pochtler, 2016). Generally in China, Business-to-consumer (B2C) online commerce plays a significant role in e-commerce market. And in the B2C relationship, consumers have more priority and are more independent when they are shopping online than they did in traditional way. It is clear to say that Chinese market of e-commerce is new and dramatically booming which possibly has rather difference with developed western countries, which their Internet development is fairly maturely. Therefore consumers in china who start to change in-store shopping way to online shopping are variable.

Therefore different individual has special views about online shopping such as competitive price and fun. Those views facilitate to generate different behavior among those people. (Im, Bayus, & Mason, 2003). Basically two of the most attractive aspects people care about for online shopping are privacy and security perspective. Apparently Internet environment is not totally safe as we expected. Thus the level of privacy and security reacts the performance to some extent when consumers are shopping online. ((Belanger, Hiller, & Smith, 2002). From another point of view, diverse characteristic of human beings directly influence how they shop online. Several identities such as gender and nationality has already been researched currently (Garbarino & Strahilevitz, 2004), but there is no relevant information showed that different age group has an effect on shopping behavior based on their privacy perspectives.

## 2. RESEARCH GOAL AND QUESTION

### 2.1 Research Question

How privacy and security perspectives influence consumers' online shopping behaviors between millennials (18-24) and non-millennials (35-50) in Chinese digital market?

### 2.2 Research Goal

According to the research question, the main idea is explained to analysis the difference of privacy perspective between two different age groups (18-24 group and 35-50) in China and how the privacy perspective influences behaviors when they are shopping online. In order to explore the relationship between age groups of 18-24 and 35-50, we analyzed firstly the primary factor, privacy perspectives, based on risk and trust dimensions. Secondly we analyzed the relationship between privacy perception and online shopping behavior. In the end we plan to find the relationship between privacy perception of online shopping behavior and two age groups (18-24, 35-50) in China digital market. Generally we assumed that in Chinese market perceived privacy perspectives positively leads to online shopping behavior in the age 18-24 and conversely we assumed that perceived privacy perception has a negative impact on online shopping behavior in the age 35-50.

## 3. LITERATURE REVIEWS

### 3.1 Millennials and Non-Millennials

One basic study about difference of generation states that individuals are born under same socio-cultural context that would experience the same activities or events. Living in the same and formative period provided people same level of environment of education and working. In other words, each generation of baby would grow with unique worldview. (Mannheim, 1952). In recent decades the popularity of dividing generation is following World War II, which is identified as "baby boom". Thus "Baby Boomers" generation group showed up, born from 1946 to 1964. Baby Boomers is the first generation after World War II and they are brought up with "created by" television characteristic. After Boomer period, the following generation is known as "Generation X", born from 1965 to 1980. Students of Generation X start to get to know and understand the computer technology after grade school. In other words, they are the first generation of computer literate workers. (Nicholas & Guzman, 2009). Accepting and learning new technology leads Gen Xers to have different view of world and to some extent change the way of communication. Compared to Boomers, individuals in generation X have an idea about "feel that making money is not as important as experiencing life", and "searching for work with flexible schedules". (Cordeniz, 2002). Those two generation groups are normally we called non-millennials.

The generation after Generation X is generation Y which is a new and young generation. It leads to the term of "Millennials" occurs. The first view of "Millennials" was proposed by Howe and Strauss (1991). They made a general agreement about the time difference of millennials and non-millennials based on the World Wall II. Apparently it represents the flow of social change. (Strauss & Howe, 1991). Shortly afterwards, A study by Susan Emeagwali (2011) identifies the different core traits of millennials group. According to the study, author in the beginning generally indicates that millennials actually born between 1982 and perhaps 2004. This young generation, millennials, is also known as the Net generation and generation Y. Generation Y is one typical type of generation that people like no other. The habits of human beings in millennials generation are normally in love with technology, innovation, and networking. Additionally the study figured out the characteristics and personality of millennials. It mentioned seven traits, which are special, sheltered, confident, team oriented, conventional, pressured, and achieving. Especially in millennials generation, their one attitude of "yes we can!" gives them sufficient confidence. (Emeagwali, 2011).

## 3.2 Privacy and Security Perception

In this information age, Social network services offers people a flexible and convenient way to communicate and real-time exchange of all types of information. (Kwon & Wen, 2010). The treats and problems about private space when individuals are using Internet have already emerged. Online information technology users currently are more concerning about Internet environment. Some basic problems such as spam, cookies, the clickstream and real-time person location are invading users' life and it has high chance to harm their online privacy and security. Many studies have looked into the privacy and security perception of Internet users. In order to investigate the agreement of online users about privacy and security concerns, firstly one study of Udo explained the basic meaning of privacy and security. He points that privacy is defined as the rights of individuals and companies to protect their private information against transmitting to others. Security refers to the protection of users' data so as to prevent accidentally or intentionally disclosing to unauthorized person or organization. (Udo, 2001). Another author, Shin, has similar views with Udo and he describes the issues of privacy and security. A privacy issue occurs when the third person gains unauthorized access to users' private. In this case everyone gets easy to watch others' online behaviors and gain their confidential information. A security issue involves hackers steal a protected coding or written language of a site. (Shin, 2010). In practice, individuals usually ignore or overlook the online privacy and security perception. (Dwyer, 2007). To sum up, it is obvious that perceived risk and perceived trust are the most influential factors of privacy perception. In other words, privacy perception is the balance between risk and trust.

### 3.2.1 Perceived risk

As a result, online consumers normally are sensitively concerning about at least some degree of risk or uncertainty in the context of an Internet purchasing. (Pavlou, Liang, & Xue, 2006). The study from Kim defines that 'perceived risk as a consumer's belief about the potential uncertain negative outcomes from the online transaction.' (Kim, Ferrin, & Rao, 2008). Conclusion from different studies, three types of perceived risks are essential to influence consumers' privacy perception when online shopping. (Lim, 2003)

Privacy risk is one type of risk which consumers are likely to suffer when they are shopping online. Especially it is possible that individual's data is collected to use inappropriate way by online sellers. (Nyshadham, 2000). From one side, several researchers believed that online consumers limited their purchasing or even refuse to buy online because of the high concerns of privacy and security of personal information. It is concluded that perceived privacy risk is negatively associated with online shopping behavior. (Drennan, Sullivan, & Previte, 2006). Nevertheless Forsythe and Shi had opposite argument that privacy concern is a frequently mentioned reason for not shopping online, but it has no significant impact on the frequency of online shopping and searching with intent to buy. (Forsythe & Shi, 2003). Another researcher did the experiment to support the statement that perceived privacy risk has no impact on impact on online shopping behavior.

Source risk refers to the low level of trustworthiness of vendors. When buying products online, consumers are probably entering the non-existing website or company. (McCorkle, 1990). In addition, the source risk also suffered when consumers are searching or doing evaluation of information because websites might provide wrong information. (Comegys, Hannula, & Väisänen, 2009).

Transaction security risk is possibly suffered during money transaction process. It refers to the level of security of transactional environment and reliability of vendors. (Lim, 2003). Perceived transactional risk is a significant predictor for general online shopping behavior regarding the possibility of losing money due to credit card misuse, such as frequency of online shopping, average money spend on online shopping. Forsythe indicated that there were negative relationships between perceived transaction risk and online shopping behavior. In other words, consumers perceived more financial risk during transaction would feel increased uncertainty about the purchasing outcomes. Especially heavy online shoppers are likely to decrease the amount of spending online if they perceived financial risk. (Forsythe & Shi, 2003)

### 3.2.2 Perceived trust

Perceived risk is not the only major factor influencing the willing of many consumers about e-commerce. Researchers have argued that in the Business to Consumer (B-to-C) internet commerce, generally whether trusting a seller is also a main reason for internet users to make a decision about purchasing online. (Gefen, 2002). Products are invisible and untouchable in the internet, thus in this uncertain situation, trust plays as a solution to different specific risk problems when users want to take actions. (Luhmann, 2000). As a result trust is a crucial strategy to deal with unpredictable future. Online transaction is a sensitive topic for online buyers who often concern about transactional obligations of sellers. Since trust plays a significant role in online purchasing, the key for e-sellers to success in e-business is providing a safe and trusted transactional online environment to buyers. (Grabosky, 2001). Based on the study of Kim, Ferrin and Rao, they summarized four types of perceived trust that can help online sellers to understand internet consumers' insights and select suitable tools to build consumer trust. (Kim et al., 2008). Since primarily our purpose of trust in our paper is finding relationships between consumers' perceived trust and online shopping behavior that mainly based on purchase intentions, we would only focus on cognition-based and affect-based trust as our measurable antecedents. The aspects of experienced-based and personality-oriented trust have no influence on privacy perception, and then these would be explained shortly. First type is Cognition (observation)-based trust: McAllister defines that "Cognition-based trust are associated with consumers' observations and perceptions regarding the features and characteristics of the trustee entity." (McAllister, 1995). Specifically Researcher measures cognition-based based on three factors. They are perceived information quality, privacy and security protection. (Kim et al., 2008). The definition of perceived information quality is the accuracy and completeness of information of products and transactions on websites from consumers' perception. Information in the internet has various degree of quality. Sometimes checking the validity of information or frequency of information updating is hard to measure. (Hesse et al., 2005). The criteria of relevance, accessibility, validity, interpretability and integrity are relevant with information quality, which helps to analysis quality in different side. (Bovee, 2004). Thus shopping online behavior of consumers such as making purchasing decision largely depends on the quality of information on a website, because high quality and detailed information about products and transaction would increase consumers' trust about sellers and it promotes buyers to make buying decision. (Miranda & Saunders, 2003). To some extent that consumers recognize that one website offers high quality of information, they are more likely to have confidence to believe that online sellers are reliable and buying environment is safe and finally are more easily to make a decision to purchase.

Secondly, the definition of perceived privacy protection is that during the electronic transactions, consumers are more likely to perceive their confidential data and personal information are protected by internet vendors from disclosure or unauthorized use. (Kim et al., 2008) However nowadays online consumers have a big concern about online sellers' guarantee about transactional information protection. It is difficult to measure how safe of the transaction process when sellers are collecting different kinds of data from buyers such as names, addresses, and card number. Furthermore recently, 92% respondents in a survey indicate that even if companies promise to protect private information, online users still feel hard to trust them. (Boyd, 2003) Therefore in order to decrease consumers' concerns, online sellers to adopt better measurements to complete information privacy protection systems. Additionally, "Perceived Security Protection refers to a consumer's perception that the Internet vendor will fulfill security requirements such as authentication, integrity, encryption and non-repudiation." (Friedman, Khan Jr, & Howe, 2000). The way to make online consumers realize sellers' intention of security protection during online transaction is to locate security features easily to find and recode the security policy understandably. Consequently, online sellers would earn trust from buyers and help to decrease consumers' perceived risk. (Chellappa & Pavlou, 2002). Second type of trust is affect-based trust. The affect-based trust has indirect interaction with trustee. (McAllister, 1995). According to Kim, he divides two types of antecedents to examine affect-based trust, since these two factors are most directly related to online selling parties. They are trusted third-party seal factor and reputation factor. (Kim et al., 2008). Experience-based trust generally describes Internet users' personal experience with online shopping and vendor. Generally experience-based trust basically indicates the familiarity with online selling party that depends on the understanding level of consumers about selling entity. (Kim et al., 2008). Personality-oriented trust are quite stable compared to other three factors. Trust of consumers is related to previous shopping habit and their different dispositional characteristics which is difficult to be managed by vendors. The definition of consumer disposition trust is that consumers have certain different expectation about trustworthiness that based on the specific individual traits of consumers. (Gefen, 2000). Generally, from the analysis of researcher, he argued that all factors of cognition-based and affect-based trust have positive effects on consumer perceived trust, however except third-party seals (TPS). Especially consumers' perceived privacy protection and security protection both positively affects the consumers' trust. In addition, he suggested that third-party seals even show no influence on perceived trust, while in his research third-party seals still play an essential role in online commerce. The reason he emphasized TPS decreased the consumers' perception of risk and therefore it indirectly helps to increase perspective of privacy. (Kim et al., 2008). Other researchers have same argument with Kim. They indicated that the presence of third-party seals has no significant effect on consumer's trust and online shopping intention. (McKnight, Kacmar, & Choudhury, 2004) At the same time, there are other scholars with distinctive arguments, and they stated that the presence of assurance seals do has a significant influence on perceived trust. (Hu, Lin, & Zhang, 2002)

### 3.3 Online Shopping Behavior

#### 3.3.1 General behavior

By most classifications, there are three main crucial categories general behavior about online shopping. First one is associated with demographics which basically conclude age, gender, nationality, education level, and current occupation. According

to study of Lian and Yen, they showed that females had a relatively more online shopping experience than male individuals in gender group based on young age group (20-35) and older age group (36-75). (Lian & Yen, 2014). They concluded that young age group and older age group have same difference about gender difference regarding online shopping behavior. Secondly in age group, generally, in china older consumers are likely to purchase products regarding price more over quality but younger consumers would like to pay premiums for higher-end products nowadays. According to Chinese culture, the researcher Nelson on the website represented that increased wealth may be a vital factor in influencing buying preference such as food preference, however objective living conditions and basic earnings are the dominant factors to define Chinese consumers' basic shopping habits. One basic Chinese situation is that current consumer populations are divided into several social levels. Generally they are the rich, the normal citizens and the rural residents. Based on the different types of individuals, consumers in age group of 30-50 are different based on the wealth level and those are separated into frugal 40-50, wealthy 40-50 and 30-50 consumers. Frankly wealthy 40-50 age-group citizens have similar shopping behavior with general 30-50 citizens. Nelson explained that even though wealthy 40-50 citizens shared same background with frugal 40-50 people which grew up during the early stage of the reform era (between tradition and new trends situation), the job style and income of two groups have largely distinction. Frugal 40-50 consumers have big responsibility to look after children and parents with limited earnings. They prefer to buy products with low price and large volume to quality. One the other hand, wealthy 40-50 and 30-40 citizens have similar shopping behavior even though their social behavior and purpose are not same. Wealthy 40-50 consumers are working in companies with high salary and they have extra money to pay premiums for good-quality products and spend on entertainment or travel though they still need to raise children and take care of parents. 30-40 consumers grew up in a more open and educated environment, and they save less compared to previous decade. Thus they spend much on entertainment and online shopping. The last age group is around 20 to 30 that are the first generation of the one-child policy. In this case, their family spent more money on them such as education investment and pocket money for them to use freely. Therefore consumers in this generation spent more on entertainment and trendy products that may be high quality and convenient. Buying online is becoming most popular behavior in that time. (Nelson, 2011). From the research of Nelson, age generally has a negative correlation with possibility and frequency of online shopping. Although there are still some researchers who believe that the relationship between online shopping behavior and age could be positive (Zhao, 2015) or even irrelevant correlation (Rohm & Swaminathan, 2004). Zhao did the research about online shopping experience for youth and older people and he proved that age factor is able to affect consumers' online shipping behavior because the rate of online shopping experience is higher for young age people.

Second general behavior category is about online shopping behavior which are frequency of internet using and online shopping, online or offline preference, online shopping experience, product category, money spending, payment methods, and motivation factors.

#### 3.3.2 Privacy behavior

In a digital market, online shopping behavior is diverse. There are many factors influencing consumers' behavior when shopping online. Personal characters and culture diversity have a direct relationship with shopping behavior. In this case,

however classifying specific dimensions for online shopping behavior associated with privacy perception has rarely researched resources. Therefore we plan to conduct a survey based on consumers' general behavior and privacy behavior to ask respondents and classify several dimensions according to their answers. Privacy behavior is the general online behavior driven primary by the level of concerns over privacy. (Li, 2007). Privacy concerns is an important factor to influence privacy behavior. In one survey, Acquisti argued that consumers with high privacy concerns still rarely read private and security policies about promised roles and items before online shopping. (Acquisti & Grossklags, 2005). Another concerns about security level is tested in the Media Literacy Matters, it argued that 16-24 age consumers account for 15% of security level of websites while 35-54 occupied 52% of security concern level. It is said that younger users have more confidence than older people to shop online. (Media Literacy Matters, 2010).

#### 4. METHODOLOGY

The research question will be answered by a survey of the two chosen age groups (18-24 and 36-50) in the Chinese digital market. In the plan we choose at least 100 respondents from group 18-24 and 100 respondents from group 36-50 in China. The quantitative and qualitative data retrieved will be analyzed in order to compare the groups among each other. Since the nature of the questionnaire requires reaching a large population in China, internet-mediated questionnaire is used as the main approach.

#### 5. METHODS&DATA

The purpose of this study is analyzing difference about privacy perception between two age groups, 18-24 and 35-50 when they are shopping online. In order to get results, the goal has been followed by examining the factors of privacy perception which are perceived risks and perceived trust, and how those specific factors affecting general and privacy online shopping behavior of consumers in China.

We conducted a survey to test our basic correlation draft among those factors based on literature review. The survey is made by questionnaire style in Qualtrics website. This questionnaire was adopted and combined from several similar researchers and we collected required opinions and summarized into our basic concepts in order to support our measurement of factors. In our questionnaire, we covered all variables of conceptual model through 51 questions. We divided all questions in our survey based on our conceptual framework into 5 sections: demographics, online shopping behavior, privacy behavior, risk, and trust.

Independent variables in our study are as follows:

- Perceived risk:
  - Privacy risk
  - Source risk
  - Transaction security risk
- Perceived trust:
  - Cognition-based trust
  - Affect-based trust

Dependent variables are:

- Online shopping behavior:
  - General behavior
  - Privacy behavior

#### 5.1 Sampling and Measurement

In our research, we dispersed our final questionnaire to three different markets, German, the Netherlands, and China. I primarily focus on Chinese market. Therefore the questionnaire

was spread among different Chinese social website, one company and one university in china, randomly. We chose different types question styles to make our survey more comprehensive, such as open questions, multiple choices. Especially we used two seven-point Likert scales from "entirely disagree" (1) to "entirely agree" (7) and "never" (1) to "always" (7) to rate our measurable statement. We tested reliability of all questions by Cronbach's Alpha and the result showed in two parts. The first one shows the reliability statistics of questions about trust-mean and the Cronbach's Alpha result is .273 that is higher than .05. The second one shows the reliability of risk-mean questions that the result is .599 and it still above .05. Thus we found out that our questionnaire that was conducted by investigating previous research paper and supervisor suggestion provides the good reliability.

#### 5.2 Data Collection

In total 446 electronic questionnaires were sent randomly among three places in china by email. 239 are total number of my Chinese social media group, and 142 are sent to a known big Chinese Company, and 65 are randomly sent to students in Xihua University in China. There are two main age groups I focus on: age from 18-24 and 35-50. In the end, 150 questionnaires were collected through emails. 113 respondents are usable to analysis in my research. Those respondents were 71 from age group 18-24, and 42 from 35-50. Also our data collection was done from 5<sup>th</sup> May 2016 to 23<sup>rd</sup> May 2016. (See Table below).

*Age1824a3550*

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	71	62.8	62.8	62.8
2.00	42	37.2	37.2	100.0
Total	113	100.0	100.0	

*What is your nationality?*

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Chinese	113	100.0	100.0	100.0

#### 6. ANALYSIS

In our survey, in order to analysis results for us easily, we made codes for all questions and beforehand we already labeled answers of questions in some specific categories. Except that we created reversed statements to test the reliability of answers for several previous statements which we planned to measure. The last question of the survey, we applied open question to ask additional comments about participants' previous online shopping experience to test if there is a specific reason which would control the whole results.

For the analysis, the SPSS program is used to our results and easily to create tables to arrange the number of data and easily compare those data to get clear difference or relationship. The measurement of testing the correlation of the factors in our research, ANOVA, Regression and Univariate analysis were used. The reason is that ANOVA is able to compare means and Univariate analysis helps to explore each variable in a data set. In addition, Regression applied to identify significance of correlations between predictors (independent variables) and the dependent variables, because in our data set, we have Likert-scale questions, and those data is on ordinal level with two or more independent groups.

The next section presents the findings and results of all data collected through the survey. I believe that those data are representative to describe a grounded theory about the impact of

age group on privacy perception when consumers are shopping online.

## 7. RESULTS

Presented in the previous part of research, we made a conceptual framework of correlation of factors we plan to measure. Now based on the correlation we guessed, below we would measure whether those factors have certain correlations among each other from data collected.

In the conceptual framework, privacy and security perception is analyzed by perceived risk and perceived trust. Therefore firstly I focused to measure difference of risk perception based on two age groups, 18-24 and 35-50. Secondly I put efforts on the difference of trust perception based on those two age groups. Furthermore the next step analyzed how privacy perception influences the online shopping behavior through different primary questions with controllable factor, age groups.

### 7.1 Impact On Demography

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Gender	Between Groups	.118	1	.118	.502	.480
	Within Groups	26.006	111	.234		
	Total	26.124	112			
Current Occupation	Between Groups	10.091	1	10.091	15.065	.000
	Within Groups	74.351	111	.670		
	Total	84.442	112			
Highest Education	Between Groups	4.923	1	4.923	3.557	.062
	Within Groups	153.643	111	1.384		
	Total	158.566	112			

From this table, it is obviously to show that gender has no significant difference between two age groups (18-24 and 35-50), because the significant value is 0.48 that is much larger than 0.05. At the same time, the level of education has a little significant difference between those two age groups. By contrast, due to the result of significant value, 0.000 that is smaller than .05, thus it indicates current occupation has significant difference between younger group (18-24) and older group (35-50).

### 7.2 Impact On Risk and Trust Perception

In order to measure privacy perception between two age groups (18-24 and 35-50), we defined two variable factors: perceived risk and perceived trust. We created certain amount of questions in our survey to test perceived risk and perceived trust of online consumers separately. All questions about risk and trust are in seven-point Likert scales style (from entirely disagree to entirely agree). In this case, we recoded answers from all statements in the same direction that is easier for us to conduct the mean of risk and trust. In other words, an answer is entirely agreed about one statement of risk means consumer has high perceived risk when shopping online. Meanwhile, entirely agree is answered about a trust statement by individual states that consumers would perceive high trust about online shopping. Clearly new variable risk-mean and trust-mean are valid to use to represent all trust and risk answers.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
RiskMean	Between Groups	.022	1	.022	.046	.830
	Within Groups	52.789	111	.476		
	Total	52.811	112			
TrustMean	Between Groups	.020	1	.020	.062	.804
	Within Groups	36.324	111	.327		
	Total	36.344	112			

From this table and Table 1, we analyzed the risk mean and trust mean in the control of two age groups, 18-24 and 35-50. ANOVA is useful to analysis of variance, which examine if there is significant difference about the mean scores on the dependent variable inside of each age group and between two groups. Firstly under risk perception, in this case, we can see that F is 0.046 and statistic significance value is 0.830. It indicates that the variance within each group is not significant different with each other. The Std. Deviation of two age group described that 35-50 group has around 0.61 and 18-24 group 0.73. We can say that there is no significant difference between 18-24 and 35-50 age groups about risk perception. (P= .830 > .05). Furthermore another thing we tested was mean. In the same category, risk mean, age group of 35-50 is 4.1310 while 18-24 is 4.1021. From the data the mean of 35-50 is higher than 18-24 with 0.03. Still there is only little bit mean difference between two age groups.

Secondly, from the trust mean category, we can see that F is 0.062 and statistic significance value is 0.804, which is much larger than .05. It represents that between two age groups, there is no significant difference. Additionally we checked in detail that in the trust mean category, the mean of age group from 18 through 24 is 4.0516 and in the mean time 35 to 50 age group has similar mean number with younger group that is 4.0794. Older group has higher mean score compared to younger age group with only little difference, 0.0278. From Std. Deviation point, older group (0.604) still is higher than younger age group (0.552) with little difference 0.05. Compared to risk mean category, in trust mean 35-50 is higher than 18-24 both on mean and Std. Deviation, however the difference is too little to make it sense.

To sum up, combined risk and trust perception, we found out that online consumers between age group 18-24 and 35-50 has no significant difference about privacy perception when they are shopping online, because both statistic significance are much larger than .05.

### 7.3 Impact On Online Shopping Behavior

We can see from (Table 2,3,4) that the mean about the variable: how often do you use the Internet of two age groups (18-24 and 35-50) are both between 4 and 6. The mean of 18-24 is 4.86 and the mean of 35-50 is 5.4. In this case, 4 means several times a day and 6 means once a week. Therefore we can indicate that younger group use Internet more than older group. Compared to the table about variable of how often did you shop online in the past year, the mean of younger group is 3.7 which shows that young people only shop online perhaps 11 times a year, however the mean of older group is 4.1 that is a little bit higher than 4. It shows that older adults are more likely to shop online than young people, around probably twice a month. According to those two tables, we can say that 18-24 age group people use internet more often than 35-50 group people but older people use internet to shop online is more than younger age group. From the third table, it described that the average money spent

on online shopping. Age group from 18 to 24 only spent around 50 euro per month (1.72) while 35-50 group people like to spend above 100 euro on online shopping. Generally even 35-50 people don't use Internet often but they like to shop online and are likely to purchase many or expensive products.

*Tests of Between-Subjects Effects*

Dependent Variable: How much money do you spend on average p

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.017 <sup>a</sup>	5	1.603	1.678	.146
Intercept	7.515	1	7.515	7.864	.006
Age1824a 3550	.017	1	.017	.018	.894
RiskMean	2.149	1	2.149	2.249	.137
TrustMean	.001	1	.001	.001	.978
Age1824a 3550 * RiskMean	.001	1	.001	.001	.976
Age1824a 3550 * TrustMean	.224	1	.224	.235	.629
Error	102.248	107	.956		
Total	508.000	113			
Corrected Total	110.265	112			

a. R Squared = .073 (Adjusted R Squared = .029)

We applied for Regression Table to measure the effect of the risks and trusts on the average money online consumers spent. Based on the significant value, we can see that there is no significant relationship of two age groups (18-24 and 35-50) on dependent variable: How much money do you spent on average per month for online shopping in Euros. The significant value is .894 that is larger than 0.05. We can see that the p-value of risks (.137) and trusts (.978) are both bigger than 0.05, therefore there is no effect of risks on the variable: average money spent online. Additionally, there is no interaction effect for age and risk (.976), and age and trust (.629). Both values are much larger than .05, thus there is no difference for the age groups.

According to the tables (Table 5,6,7), risk and trust perceptions were tested the correlations with different online shopping behavior which are places to buy and frequency of online shopping. All significant value of age on these specific online behavior, and risk and trust on behaviors, and even the correlations between (risk or trust) and age on behaviors are above .05. It indicates that there is no significant difference between two age groups among those online shopping behavior.

Nevertheless, there is one shopping behavior about consumers' perception of most safe payment methods that is a little different with other behaviors. From Table 8, we can notice that the significant value of Risk-mean is below .05 (0.023), even other P-values are still large. Still we can say that there is a significant difference between 18-24 and 35-50 on consumers' risk perception and payment methods. Specifically Chinese consumers on the age of 18-24 and 35-50 believed that Alipay is most safe payment methods when shopping online.

### 7.4 Impact On Privacy Behavior

According to Table 9,10,11, it represents that there is no significant relationship between two age groups (18-24 and 35-50) on variables of email accounts, passwords and privacy policies behaviors. (p > .000).

*Tests of Between-Subjects Effects*

Dependent Variable: Would you refuse to give information to an online shop,

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.897 <sup>a</sup>	5	11.379	2.922	.016
Intercept	5.139	1	5.139	1.320	.253
Age1824a 3550	2.842	1	2.842	.730	.395
RiskMean	18.092	1	18.092	4.646	.033
TrustMean	1.986	1	1.986	.510	.477
Age1824a 3550 * RiskMean	.048	1	.048	.012	.911
Age1824a 3550 * TrustMean	8.518	1	8.518	2.188	.142
Error	416.661	107	3.894		
Total	2521.000	113			
Corrected Total	473.558	112			

a. R Squared = .120 (Adjusted R Squared = .079)

At the same time, we can see that the significant value of Riskmean is .033 which means there is a significant relationship between Riskmean and this online shopping behavior: Would you refuse to give information to an online shop, if you think it is too personal or not necessary for the transaction? However there is no significant difference about this variable between two age groups. One interesting thing is that younger age group is more likely to refuse to give information when they feel information is too personal than older age group. In other words, we can say that from this point, 18-24 people perceived more risk than 35-50 when they are shopping online.

## 8. CONCLUSION&DISCUSSION

This study demonstrates two critical characteristics of privacy and security perception related to combination of statement analysis in the literature. A survey has been conducted to evaluate the real relationship between age groups (18-24, 35-50). However the results showed on tables indicates that generally there is no significant relationship difference between younger group and older group. It means when both age groups people shop online have almost same privacy and security perception because their perceived trust and risk separately have no significant relationship with online shopping behavior. Specifically in my research those two age groups have no significant difference about trust perception in online shopping, but compared to literature review, researcher believes that younger online users aged from 16-34 are more likely to trust the privacy and security of websites than older users who have less confidence to shop online. Refers to the privacy behavior, from the data it can be showed that difference of age has no correlations with privacy perception of privacy behavior, compared to previous study, it states that younger people would act less privacy behavior than older.

## 9. LIMITATIONS

While from my research most of the results are presented that there is no significant relationship between two age groups which are 18-24 and 35-50 about their privacy perception of online shopping behavior, the results showed here are still helpful in understanding Chinese consumers risk and trust concerns regarding online shopping. Therefore there are several limitations which possibly influence the results and needed to be resolved for future research. At first, this research might be dealt with low validity, because the research questions only focus on different age groups (18-24 and 36-50). The result cannot be representative for all millennials and non-millennials. For example compared 25-35 and 51+ age groups will probably show different results. Secondly, generalizability of the descriptive findings is likely to be limited in the sample size dispersion. In this case, all primary data are collected from

Chinese human market which are limited in one company, one university and my personal friends group. Specifically one company may be represented similar shopping level that means staff has similar basic salary with similar social level and meanwhile they shared same company culture. It means one employee or employer is possibly to effect other colleagues' shopping behavior. Thus those limited data may be not represented as whole Chinese online consumers or international samples. Various cultures are essentially influenced on online behavior. Especially Chinese culture is more likely to influence Chinese online shopping behavior significantly then we expect compared to other country, such as only-one children and different social level. Another important reason is that the measurement of risk or trust perception is too much general for explaining the relationship between various dimensions of privacy perception and online shopping behavior based on two age groups. For example, various risk perception may have different level influence on purchase category regarding online purchase. We only use risk-mean and trust-mean to compare. Furthermore, currently in china, online shopping is not a new and difficult operated behavior. Especially there are few online websites such as Taobao, JD, and Vipshop are extremely popular and simple to shop online. Even those websites provide several policies to guarantee consumers' online safety. Online consumers are possibly to compare prices and comments about same product but in different shops in Taobao. Therefore two age groups in my research paper may be have no difference about privacy perception regarding shopping online in reliability.

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## 11. APPENDIX

11.1 Table 1

*Descriptives*

		95% Confidence Interval for Mean							
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
RiskMean	18 thru 24	71	4.1021	.73293	.08698	3.9286	4.2756	2.50	6.00
	35 thru 50	42	4.1310	.60860	.09391	3.9413	4.3206	3.00	5.50
	Total	113	4.1128	.68668	.06460	3.9848	4.2408	2.50	6.00
TrustMean	18 thru 24	71	4.0516	.55248	.06557	3.9209	4.1824	2.83	5.33
	35 thru 50	42	4.0794	.60400	.09320	3.8911	4.2676	2.50	5.83
	Total	113	4.0619	.56965	.05359	3.9558	4.1681	2.50	5.83

11.2 Table 2

*Descriptive Statistics*

Dependent Variable: How often do you use the Internet?

Age1824a 3550	Mean	Std. Deviation	N
18 thru 24	4.86	1.846	71
35 thru 50	5.40	2.142	42
Total	5.06	1.970	113

11.3 Table 3

*Descriptive Statistics*

Dependent Variable: How often did you shop online in the past year?

Age1824a 3550	Mean	Std. Deviation	N
18 thru 24	3.70	1.212	71
35 thru 50	4.10	1.246	42
Total	3.85	1.234	113

11.4 Table 4

*Descriptive Statistics*

Dependent Variable: How much money do you spend on average per month for online shopping in Euros?

Age1824a 3550	Mean	Std. Deviation	N
18 thru 24	1.72	.974	71
35 thru 50	2.14	.977	42
Total	1.88	.992	113

### 11.5 Table 5

*Tests of Between-Subjects Effects*

Dependent Variable: How often did you shop online in the past year?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.504 <sup>a</sup>	5	1.301	.849	.518
Intercept	19.957	1	19.957	13.026	.000
Age1824a 3550	.009	1	.009	.006	.939
RiskMean	1.549	1	1.549	1.011	.317
TrustMean	.001	1	.001	.000	.985
Age1824a 3550 *	.346	1	.346	.226	.636
RiskMean Age1824a 3550 *	.461	1	.461	.301	.584
TrustMean					
Error	163.939	107	1.532		
Total	1845.000	113			
Corrected Total	170.442	112			

a. R Squared = .038 (Adjusted R Squared = -.007)

### 11.6 Table 6

*Tests of Between-Subjects Effects*

Dependent Variable: I use the Internet to search for a product, but actually buy the product in a retail store-Never:Always

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.747 <sup>a</sup>	5	1.749	.773	.571
Intercept	1.414	1	1.414	.625	.431
Age1824a 3550	5.653	1	5.653	2.498	.117
RiskMean	5.147	1	5.147	2.274	.134
TrustMean	.003	1	.003	.001	.972
Age1824a 3550 *	5.696	1	5.696	2.517	.116
RiskMean Age1824a 3550 *	1.640	1	1.640	.725	.396
TrustMean					
Error	242.156	107	2.263		
Total	1129.000	113			
Corrected Total	250.903	112			

a. R Squared = .035 (Adjusted R Squared = -.010)

### 11.7 Table 7

*Tests of Between-Subjects Effects*

Dependent Variable: I search for product information on the Internet and buy the product in an online shop-Never:Always

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14.508 <sup>a</sup>	5	2.902	.987	.430
Intercept	35.392	1	35.392	12.033	.001
Age1824a3550	.274	1	.274	.093	.761
RiskMean	1.111	1	1.111	.378	.540
TrustMean	1.682	1	1.682	.572	.451
Age1824a3550 *	2.525	1	2.525	.858	.356
RiskMean					
Age1824a3550 *	5.838	1	5.838	1.985	.162
TrustMean					
Error	314.713	107	2.941		
Total	2787.000	113			
Corrected Total	329.221	112			

a. R Squared = .044 (Adjusted R Squared = -.001)

### 11.8 Table 8

*Tests of Between-Subjects Effects*

Dependent Variable: What is the payment method you feel most safe with?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	103.122 <sup>a</sup>	5	20.624	1.564	.176
Intercept	8.255	1	8.255	.626	.431
Age1824a3550	.236	1	.236	.018	.894
RiskMean	70.550	1	70.550	5.351	.023
TrustMean	8.533	1	8.533	.647	.423
Age1824a3550 *	.578	1	.578	.044	.835
RiskMean					
Age1824a3550 *	.012	1	.012	.001	.976
TrustMean					
Error	1410.754	107	13.185		
Total	6204.000	113			
Corrected Total	1513.876	112			

a. R Squared = .068 (Adjusted R Squared = .025)

**11.9 Table 9**

*Tests of Between-Subjects Effects*

Dependent Variable: Do you use different E-Mail accounts for different purposes?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.729 <sup>a</sup>	5	.146	.702	.623
Intercept	.896	1	.896	4.318	.040
Age1824a 3550	.058	1	.058	.282	.597
RiskMean	.431	1	.431	2.077	.152
TrustMean	.180	1	.180	.865	.354
Age1824a 3550 *	.016	1	.016	.079	.779
RiskMean					
Age1824a 3550 *	.085	1	.085	.411	.523
TrustMean					
Error	22.209	107	.208		
Total	356.000	113			
Corrected Total	22.938	112			

a. R Squared = .032 (Adjusted R Squared = -.013)

**11.10 Table 10**

*Tests of Between-Subjects Effects*

Dependent Variable: Do you use different passwords for different websites?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.027 <sup>a</sup>	5	.405	.484	.787
Intercept	3.243	1	3.243	3.873	.052
Age1824a 3550	.005	1	.005	.006	.940
RiskMean	.181	1	.181	.216	.643
TrustMean	.277	1	.277	.331	.566
Age1824a 3550 *	.204	1	.204	.244	.623
RiskMean					
Age1824a 3550 *	.029	1	.029	.034	.853
TrustMean					
Error	89.584	107	.837		
Total	841.000	113			
Corrected Total	91.611	112			

a. R Squared = .022 (Adjusted R Squared = -.024)

### 11.11 Table 11

#### *Tests of Between-Subjects Effects*

Dependent Variable: Do you read privacy policies on online shopping websites?-Never:Always

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	19.866 <sup>a</sup>	5	3.973	1.438	.217
Intercept	13.188	1	13.188	4.772	.031
Age1824a 3550	2.988	1	2.988	1.081	.301
RiskMean	1.834	1	1.834	.664	.417
TrustMean	8.075	1	8.075	2.922	.090
Age1824a 3550 *	.089	1	.089	.032	.858
RiskMean Age1824a 3550 *	4.763	1	4.763	1.724	.192
TrustMean					
Error	295.691	107	2.763		
Total	1166.000	113			
Corrected Total	315.558	112			

a. R Squared = .063 (Adjusted R Squared = .019)

### 11.12 Questionnaire: How do you shop online?

#### *Demographics*

1. How old are you?
2. What is your gender? (Male/Female)
3. What is your nationality?
  - Germany
  - Netherlands
  - Belgium
  - Chinese
  - Others
4. What is your current occupation?
  - Employed
  - Self-employed
  - Unemployed
  - Retired
  - Stay-at-home
  - Unable to work
  - Student
5. What is your highest education?
  - Below High school
  - High school graduate
  - College graduate
  - Trade/technical/vocational training Associate degree
  - Bachelor degree
  - Master degree
  - Doctorate degree

- Professional degree

### *Online Shopping Behavior*

#### General behavior

6. How often do you use the Internet?

- Several times a day
- Once a day
- Several times a week
- Once a week
- Seldom

7. I use the Internet to search for a product, but actually buy the product in a retail store.

(7-point Likert scale: never - always)

8. I look for product information in a retail store, but buy the product in an online shop.

(7-point Likert scale: never - always)

9. I search for product information on the Internet and buy the product in an online shop.

(7-point Likert scale: never - always)

10. How often did you use the Internet for online shopping in the past year?

- Never
- 1-5 times a year
- 6-10 times a year
- Once in a month
- Several times a month

11. For how long have you been shopping online?

- Less than 1 year
- 1-3 years
- 4 years or more

12. What types of products do you usually buy online?

- Fashion
- Electronics & software
- Books, music, films, etc.
- Mobile Phone Apps
- Health care/Pharmaceutical products
- Travel
- Home and Garden
- Sports
- Motors (cars, equipment, etc.)
- Groceries
- Cosmetic products
- Other

13. How much money do you spend on average per month for online shopping in Euros?

- 0-50
- 50-100
- 100-200
- 200-500
- 500+

14. Which online payment methods do you know and use?

- Credit card

- Paypal
- iDeal
- Klarna
- Cash on delivery
- Direct debit
- In-app purchases
- Digital wallet
- Bitcoin
- Alipay
- Wechat
- Other

15. What is the payment method you feel most safe with?

- Credit card
- Paypal
- iDeal
- Klarna
- Cash on delivery
- Direct debit
- In-app purchases
- Digital wallet
- Bitcoin
- Alipay
- Wechat
- Other

16. What are the main motivating factors for you to shop online?

- Better prices
- Convenience
- Variety of products/brands
- Discreteness of shopping
- Flexibility (24/7 open)
- Availability of recommendations and reviews
- Discreteness of shopping
- Price comparisons
- Others

17. What are main factors preventing you from buying online?

- Online Payment Methods
- Added tax/ customs duty
- High delivery costs
- Too slow delivery
- Refund policies
- Warranty and Claims
- No physical product
- Others

Privacy behavior

18. Do you have different E-Mail accounts for different purposes?

- Yes, different ones for different purposes
- No, I have only one E-mail account

19. Do you use different passwords for different websites?

- Yes, a different one for each website
- Yes, only a few websites with the same password
- Yes, but several websites with the same password
- No, the same password for each website



20. Which safety feature logos for online shops do you know?



Other (name the logo)

21. Do you read privacy policies on online shopping websites?

(7-point Likert scale: never - always)

22. Would you refuse to give information to an online shop, if you think it is too personal or not necessary for the transaction?

(7-point Likert scale: never - always)

23. Do you read terms and conditions on online shopping websites before you agree to them?

(7-point Likert scale: Never - always)

24. Would you refuse an online purchase because of terms and conditions?

(7-point Likert scale: Never - always)

25. Would you refuse an online purchase because of privacy policies?

(7-point Likert scale: never - always)

*Privacy Perception*

Perceived Risk

Privacy Risk

26. I believe that my personal privacy is protected during online shopping.

(7-point Likert scale disagree - agree)

27. I am aware that my private data can be given to 3rd parties by online shopping websites.

(7-point Likert scale: disagree - agree)

28. I am aware that advertisement is based on my prior search and shopping behavior.

(7-point Likert scale: disagree - agree)

29. I receive newsletters/mails from online shops I did not register for.

(7-point Likert: never - always)

#### Source Risk

30. The possibility that online shops are fake is high.

(7-point Likert scale: disagree - agree)

31. The possibility that my online purchase will not be delivered is high.

(7-point Likert scale: disagree - agree)

32. I buy from online shops without a physical store.

(7-point Likert scale: disagree - agree)

#### Transaction Security Risk

33. I am afraid to use my credit card online.

(7-point Likert scale: disagree - agree)

34. The possibility that my credit card information is sold to third parties is high.

(7-point Likert scale: disagree - agree)

35. The possibility that hackers will steal my credit card information is low.

(7-point Likert scale: disagree - agree)

36. In general I trust mainstream online payment methods.

(7-point Likert scale: disagree - agree)

#### Perceived Trust

##### Cognition-based

37. The product information I get in online shops is complete and understandable.

(7-point Likert scale: disagree - agree)

38. Privacy policies in online shops are easily accessible and understandable.

(7-point Likert scale: disagree - agree)

39. I expect mainstream online shops to fulfill basic digital security protection

(7-point Likert scale: disagree - agree)

##### Affect-based

40. I check for safety logos and certification in online shops before I purchase  
(7-point Likert scale: disagree - agree)

41. I ask friends and family for recommendations of an online shop before I purchase  
(7-point Likert scale: disagree - agree)

42. I read reviews of an online shop before I purchase.  
(7-point Likert scale: disagree - agree)