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**Understanding Online Consumers' Purchase Intentions: A Contribution from Social Network Theory**

**Ezgi Akar<sup>1</sup>**

Bogazici University, Department of Management Information Systems, Istanbul, Turkey

[ezgi.akar@boun.edu.tr](mailto:ezgi.akar@boun.edu.tr)

**Tevfik Dalgic**

The University of Texas at Dallas, Naveen Jindal School of Management, Dallas, TX, USA

[tdalgic@utdallas.edu](mailto:tdalgic@utdallas.edu)

**Abstract**

There is a dynamic and interconnected international setting shaped by the power of the Internet and social media. To gain more consumers, understand their behaviours and needs, and maintain closest relationships with them, businesses should understand how consumers behave in social media and how they vary in their purchase intentions. In the scope of the study, we integrate the social network theory and the theory of planned behaviour to analyse online consumers' purchase intentions and to investigate their structural positions by analysing their friendships in social networks. We target Twitter users to conduct analysis due to Twitter's popularity in use, market penetration, and opportunity to work with an open-source data. This study contributes to a better theoretical understanding of online consumers' purchase intentions by integrating multiple theoretical perspectives. It expands the literature by considering both online consumers' friendship network in Twitter and their individual online purchasing intentions. The study also guides e-marketers to design proper strategies for potential and current consumers and target the right sets of people in the social networks.

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<sup>1</sup> Corresponding Author: Boğaziçi Üniversitesi Yönetim Bilişim Sistemleri Bölümü Hisar Kampüs B Blok 34342- Bebek İstanbul, Turkey, [ezgi.akar@boun.edu.tr](mailto:ezgi.akar@boun.edu.tr), +12144784120

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## 1.Introduction

Technological advancements have led to the Internet proliferation and have increased the Internet adoption and social media use by societies on the global scale. The total population of the world is 7.4 billion, the number of the Internet users are 3.4 billion, and 67% of the Internet users are active social media users (Kemp 2016). These statistics indicate that social media and the Internet have become essential mediums for businesses to communicate with their audiences as well as to enhance their revenues (Wilson and Abel 2002).

These advancements have put the customers in force and have shaped their purchasing habits. Online users have started to form social relationships with brands, and they have become active in the design and production of the products and services (Wave 6 2011; Wave 8 2014). In this sense, businesses must understand these types of consumers' needs, characteristics, and relationships to gain a competitive advantage in the global environment and to increase their worldwide audiences.

In this study, we aim to analyse online consumers' individualistic purchase intentions across the theory of planned behavior and to scrutinize their social network relationships across the social network theory. In other words, this study is not only based on a survey but also it depends on the online consumers' relationships, their structural positions, in the social network. Additionally, we strive to understand online consumers' behaviours to propose e-marketing strategies for businesses across managerial setting. The goals of the study can be broken down into the following research questions:

- Which factors have significant effects on online consumers' purchase intentions?
- What are the characteristics of the online consumers' network?
- Who are the opinion leaders or key influencers in the online consumers' network?
- Are there any relationships among consumers' structural positions and factors having effects on online consumers' purchase intentions?
- Which strategies can be drawn up for e-marketers based on the study findings?

In parallel with these aims, we have chosen Twitter Turkey to target online consumers and their friendships. 82.3 % of Turkish population uses social media for creating profiles, messaging, and sharing content (Digital Turkey 2016). 33% of Turkish users discover brands in social media, and 48% of them search for brands in social media. Statistics also indicate that 80% of Turkish users have a Twitter account and 33% of them engages in and contributes to Twitter. Twitter's market penetration is also 72%, and Twitter is a more popular platform than Facebook in Turkey (Chaffey 2017; Rechargeasia n.d.). Additionally, it is stated that "digital print technology and consumables marketers to the Turkish market should understand the dynamics of the nation's dedication to its preferred social media platforms to maximize their efficacy in this expansive yet unique national market" (Rechargeasia n.d.).

In the literature, there are many studies focusing on online consumers' purchasing behaviours from different perspectives (Akar and Nasir 2015). However, unlike previous studies (Dakduk et al. 2017; Huang 2012; Hutter et al. 2013; Richard and Gupy 2014) this study does not only analyse consumers' individualistic purchasing behaviours, but it also investigates consumers' structural positions and so, it focuses on consumers' friendships in a social network. In this sense, the study combines the theory of planned behaviour and the social network theory for a deeper understanding of online consumers' behaviours (Omran and Etten 2007). From the practical standpoint, the results are beneficial for e-marketers to identify appropriate e-marketing strategies for online consumers. Our findings also complement other studies on the topic of online consumers and purchase intentions by providing combined methods and theories that can lead to further research.

In this paper, we introduce related works in the literature, describe the research model and hypotheses. After that, we present study results, we discuss them by giving the theoretical and managerial implications, and we conclude the study and introduce study limitations.

## **2. Literature Review**

This part of the study introduces the recent related studies focusing on consumers' purchasing behaviours in social networks and concerning social network theory across marketing perspective.

### **2.1. Consumers' Online Purchase Intentions**

Recently, the growth of social networking sites has revealed that the social relationships have become more complex and so, it has affected the marketing research activities (Wang, Zhao,

and Wang 2015). This development has also led marketing researchers to analyse and understand consumers and their behaviours in social networks. Wang, Zhao, and Wang (2015) state that researchers mainly focus on social networks to study relationships, diffusion, influence, enterprise management, and customer analysis including customer value, customer loyalty, customer satisfaction, and customer behaviour, etc. Additionally, Roy, Datta, and Basu (2017) highlight that word of mouth, user-generated content, and social networks are new online marketing research topics.

In parallel to these developments, recent studies are concentrating on consumers' online purchase intentions in the context of social networks. For example; Toor, Husnain, and Husnain (2017) focus on social network marketing and investigate its effect on the consumer purchase intention. They reveal that social network marketing is significantly related to consumers' purchase intention and consumer engagement plays a partial mediator role in the effect of social network marketing on consumers' purchase intentions. Additionally, Luna-Nevarez and Torres (2015) and Martínez-Navarro and Bigné (2017) also analyse online purchase intention considering the factor of advertising in social networks. Luna-Nevarez and Torres (2015) investigate consumers' attitude toward social media advertising and find its positive impact on consumers' online purchase intention. Moreover, Martínez-Navarro and Bigné (2017) consider advertising value in marketer-generated content in social networks and reveal its positive impacts on electronic word-of-mouth and website visit intention which leads to positive online purchase intention.

In addition to these studies, Huang (2012) examine online consumers' purchase intentions in the social networks. They try to investigate the effects of interactive and social characteristics on consumers' online shopping experiences based on stimulus-organism-response model, and they state that environmental features play a significant role to enhance consumers' online shopping experiences. Moreover, Hutter et al. (2013) also investigate social media activities of a Facebook page of a manufacturer and user interactions with this page. They find that fan page engagement positively impacts users' online purchase intentions. Richard and Gupy (2014) also focus on Facebook, and they try to analyse the impact of Facebook applications and activities on consumers' purchase intentions. They reveal that Facebook's like button, location-based check-in services and the share button applications except posting comments have a positive impact on consumers' purchase intentions.

There are also other studies focusing on several factors affecting consumers' purchase intentions in the context of social networks or social media. Trust is one of these factors, and it is considered in many recent studies. For example; El Mansoury (2016) analyses the consumers' trust to online social networks and determine the characteristics of online car buyers to help marketers to develop better online marketing strategies, and they find that trust encourages people to shop online. In another study, Sethna, Hazari, and Bergiel (2017) examine gender differences in trust to user-generated contents including comments and reviews in social networks which in turn positively affects purchase intention. They figure out that men and women trust comments and reviews belonging to their friends, family members, or other purchasers and it encourages them to do online shopping. Hajli et al. (2017) also analyse the indirect effect of trust, they find its positive impact on purchase intention through information seeking, familiarity with the features of the platform, and social presence. Moreover, Leeraphong and Mardjo (2013) investigate the influence of trust in social networks by conducting a focus group study of Facebook and find the positive impact of trust on consumers' purchase intentions. See-To and Ho (2014) also focus on the effect of trust additional to value co-creation and electronic word of mouth on purchase intention in social network sites by conducting a theoretical analysis, and they reveal the significant impacts of these factors on online shopping.

In addition to See-To and Ho (2014), Erkan and Evans (2016) also consider the electronic word of mouth as a factor influencing consumers' purchase intentions. However, they compare the impact of friends' recommendations on social media with anonymous reviews on shopping website based on information adoption model. They indicate that anonymous reviews have more effect on consumers' online purchase intentions than friends' recommendations on social media.

Shang, Wu, and Sie (2017) investigate online consumers' purchase intentions regarding different factors. They examine the influence of content gratification (utilitarian and hedonic values), social-relation gratification (tie strength, homophily, trust, normative influence, information influence), and self-gratification (self-presentation) on consumer resonance, so on purchase intention based on uses and gratification theory. The study results figure out that utilitarian value, tie strength, normative influence, information influence, and self-presentation have significant impacts on consumer resonance which in turn affects consumers' purchase intention. In contrast to this study, Sharifi Fard et al. (2016) figure out that hedonic values are

one of the main factors affecting consumers' purchase intentions through social networking sites based on the unified theory of acceptance and use of technology 2.

Cultural differences are also studied in recent research. Kamal, Chu, and Pedram (2013) conduct a study comparing behaviours of American and Arab young social media users and find that both American and Arab users show positive relationships between materialism and purchase intention regarding luxury fashion goods. Additionally, Pookulangara and Koesler (2011) develop a research model including the influence of culture based on Hofstede's cultural dimensions and technology acceptance model 3. Ng (2013) also find the moderating effect of culture on online purchase intention by considering Hofstede's cultural dimensions.

Furthermore, there are some recent studies analysing consumers' online purchase intentions from multiple perspectives. For example; Mäntymäki and Salo (2013) try to identify the impacts of motivation, social influence, perceived network size, user interface, and facilitating conditions on the intention to engage in purchasing in online social worlds based on the unified theory of acceptance and use of technology. They indicate that perceived usefulness, perceived enjoyment, perceived network size, perceived ease of use, and availability of the computer and Internet impact teenagers' online purchase intentions in virtual social worlds. In another study, Dakduk et al. (2017) analyse the key factors having an impact on online purchase intentions among Internet users in Colombia by combining the theory of planned behaviour, the technology acceptance model, and the theory of reasoned action. Their study results state that perceived usefulness, perceived ease of use, and subjective norms affect users' online shopping. In their study, Gunawan and Huarng (2015) focus on the identification of possible social network media viral impact on consumers' purchase intention by combining the theory of reasoned action and information adaption model. Their integrated research model analysis explains that source credibility and social influence impact attitude and subjective norms which in turn leads to increase in online purchase intention. Additionally, Lee and Hong (2016) consider emotional appeal, informativeness, and creativity from the perspectives of the theory of reasoned action, the social influence theory, and persuasion theory. They analyse user behaviours in social networks to predict user responses to social media advertising which in turn affects purchase intentions, and they find that informativeness and ad creativity significantly impact favourable behavioural responses to a social networking site advertisement which leads to positive online purchase intention.



## **2.2. Social Network Theory**

Online consumers' behaviours and profiles in the social networks have begun to be a source of a huge volume of data and marketers have started to mine these data to understand consumers' behaviours and relationships due to its importance for e-marketing (Çetinkaya and Özdemir 2014; Webster and Morrison 2004). E-marketing allows marketers to open a new window to listen to consumers' needs and desires, to analyse sub-consumer groups and to detect influencers and opinion leaders (Neti 2011).

Thereby, understanding online consumers' relationships help businesses to understand and target their current users well, to reach to potential customers and to improve communication with them at the right time and the right place, to increase their sales volumes, and to gain a competitive advantage in the international e-marketing field, to control the flow of information in consumer networks, and to make innovation to differentiate themselves from the competitors (Bayer and Servan-Schreiber 2011; Bruley 2013).

In this sense, social network analysis helps researchers to focus on relationships among individuals. Muldoon (2013) emphasizes that thinking only about people is sometimes not good enough because social norms are influenced by individuals' choices and actions. Feicheng and Yating (2014) define social network analysis as a "quantitative method of analysis developed by sociologists, based on mathematical models and graph theory" (232).

Although some researchers argue that social network analysis lacks a theoretical understanding, it provides researchers to characterize both individuals' and population's social structure (Krause, Croft, and James 2007; Borgatti et al. 2009) and it allows researchers to form and illustrate behavioural models (Lewis, Kaufman, and Christakis 2008; Takhteyev, Gruz, and Wellman 2012). For example, it enables us to form a consumer network and find consumers playing a crucial role in the network. For this purpose, social network analysis allows us to calculate centrality of consumers in the network.

Most frequently used centralities are degree, closeness, and eigenvector (Valente et al. 2008). Degree centrality shows how the links are distributed among the nodes (Mislove 2009). On the other hand, closeness centrality finds "how close an actor is to all the other actors in the network" (Catanese et al. 2012, 21). The critical point is that information flows in a particular direction from one actor to another actor, and so the flow can be directed or undirected (Haythornthwaite 1996). In our case, consumer A can follow consumer B in Twitter but it is

not necessary that consumer B should also follow consumer A in Twitter, so there is a directed link between consumer A and consumer B. In such a case, degree centrality and closeness centrality must be calculated as in-degree and out-degree centralities, and in-closeness and out-closeness centralities. Whereas in-degree includes incoming friendships to the given actors, out-degree contains outgoing friendships from the given actor (Mislove 2009). In other words, an online consumer's followers indicate this consumer's incoming friendships and his or her followings represent this consumer's outgoing friendships. Additionally, in-closeness and out-closeness centralities are calculated separately based on incoming and outgoing relationships of consumers, respectively. Another type of centrality is the betweenness. It explores how important an actor is at bridging the gap between other actors in the network (Wasserman and Faust 1994). Lastly, eigenvector centrality states that the centrality of an actor does not only depend on the number of its adjacent actors but also it depends on the values of the centrality of these adjacent actors (Abbasi et al. 2011).

In the literature, there are studies utilizing from the social network theory in the field of marketing. Brown, Broderick, and Lee (2007) focus on electronic word of mouth by concerning tie strength, homophily, and source credibility and by conducting a set of in-depth qualitative interviews followed by social network analysis of a single online community to provide reliable evidence. There are also other studies concerning electronic word of mouth by conducting social network analysis. Lee et al. (2013) examine the social aspects of electronic word of mouth network and collect data for 40 cellular phone; Prendergast, Ko, and Yuen (2010) combine social network analysis with other theories to test electronic word of mouth in Hong Kong, and Arenas-Márquez et al. (2014) focus on a well known electronic word of mouth community to find influencers.

In another study, Rosenblatt (2013) also considers the role ties and tie strength among a sample of franchise operations located throughout the United States. Additionally, Akdevelioglu and Venkatesh (2016) analyse the structural patterns of consumers in social media to explain consumers' tie strength. Park, Shin, and Ju (2014) analyse consumers' network involvement by concerning the characteristics of online social network structure which are tie strength, network density, network centrality, and homophily. Furthermore, Xevelonakis and Som (2012) adopt social network analysis to find how to increase customer loyalty, and so to increase profits in telecommunication industry by providing a "social network-based segmentation" (98). In this sense, they discover strongly connected customers that have a strong influence in the network.



Additionally, Okazaki et al. (2014) collect Tweets about IKEA and benefit from social network analysis to find relationships among the Tweets and influential users by conducting PageRank algorithm. In another study, Kaiser and Bodendorf (2012) combine text mining and social network analysis to analyse consumer dialogs in online forums, to find influential users and trends.

There are also other recent studies related to marketing and social network analysis. Some of them concentrate on investigating how structural characteristics of online brand communities help to build brands (Lee et al. 2011), considering how social structure affects the group decision making among consumers (Ward and Reingen 1990), analysing consumer web search traffic information to investigate product and brand relationships to improve the visibility of consumer brand positioning (Jun and Park 2017), finding interest group in online communities (Wang, Ting, and Wu 2013), discovering the key factors affecting users' purchasing behaviour in social media (Zhu et al. 2016), and analyzing consumers' interaction network to understand their purchasing behavior (Sun et al. 2017).

### **3. Research Model and Hypotheses**

In the literature, the theory of planned behaviour is one of the dominant theories in the studies of online consumer behaviour (Cheung, Chan, and Limayem 2005). In this sense, we find it appropriate to use the theory of planned behaviour to explain consumers' purchase intentions in the context of social networks. The theory of planned behaviour explains human actions, and it measures the one's decision on whether to perform a behavior or not (Omran and Etten 2007). This theory was improved in 1991 by Azjen. In general terms, this theory mainly indicates that behavioural beliefs, normative beliefs, and control beliefs have an impact on humans' social behaviours and these behaviours arise from some reasons, and they occur in a planned manner (Azjen 2002). Azjen (2002) states that behavioural beliefs "produce a favourable or unfavourable attitude toward the behaviour" (665). It means that the behavioural attitude explains people's positive or negative tendency to the actual behaviour based on their experiences and prior knowledge (Küçük 2012). Previous studies show that positive attitudes toward to the behaviour result in positive behavioural intention or it strengthens the intention to perform the related behaviour (Al-Nasser et al., 2014; Azjen 1991; Bianchi and Andrews 2012; Chih-Chung and Chang 2005; El-Ansary and Roushdy 2013; George 2004; Helander and Khalid 2000). On the contrary, it can be said that if the attitudes toward to the behaviour are negative, then the behavioural intention is lower. In this respect, we hypothesize that:

*H1: Behavioural attitude has a positive impact on online consumers' purchase intentions.*

Furthermore, normative beliefs “result in perceived social pressure or subjective norm” (Azjen 2002, 665). In other words, social norms explain that individuals, groups, or institutions exercise influence on other people and they expect from other people to behave by considering their norms. (Erten 2002). Additionally, these norms are shaped by individuals based on their social environment and beliefs (Küçük 2012). Previous studies have revealed that the opinions of social groups or those of other persons such as family members, friends have positive impacts on consumers' purchase intentions (Bonera 2011; Foucault and Scheufele 2002; Laohapensang 2009; Leerapong and Mardjo 2013; Limayem, Khalifa, and Frini 2000; Yu and Wu 2007; Koh et al. 2006). The studies indicate that if social expectations are that consumers should engage in the purchasing behaviour, then the consumer should be more likely to do online shopping. In this regard, we hypothesize that:

*H2: Social norms have a positive impact on online consumers' purchase intentions.*

Lastly, control beliefs “give rise to perceived behavioural control, the perceived ease or difficulty of performing the behaviour” (Azjen 2002, 665). It explains that an individual's actual behaviour depends on whether he or she believes that he or she has the control over the behaviour (Erten 2002). Chun and Chang (2005) state that an individual's behavioural intention increases, if the individual thinks that the behaviour is easily controllable, there are “fewer barriers and more assistance in this behaviour” (46). Additionally, George (2004) says that the individual having stronger beliefs about his or her abilities is more likely to engage in the actual behaviour. Laohapensang (2009) and Ming-Shen et al. (2007) find out the positive impacts of perceived behavioural control on consumers' purchase intentions. As a result, we hypothesize that:

*H3: Behavioural perceived control has a positive impact on online consumers' purchase intentions.*

*H4: Behavioural perceived control has a positive impact on online consumers' actual purchasing behaviour.*

Additionally, it is stated that a visualized intention in an individual's mind has the most impact on whether to perform a behaviour or not (Kumar 2012; Küçük 2012). The intention is an individual's intensity including his or her desire and effort to engage in a behaviour. In this manner, we also hypothesize that:

*H5: Online consumers' purchase intention has a positive impact on his actual purchasing behaviour.*

In addition to the theory of planned behaviour we also benefit from the social network theory to investigate online consumers' relationships, and so to analyse the characteristics of online consumers' network and to find vital consumers. Social network theory that is popularized by Mark Granovetter (1973) can be defined as "the study of how the social structure of relationships around a person, group, or organization affects beliefs or behaviours" (Rosenblatt 2013, 206). In a social network, people, groups, organizations, countries, journal articles, web pages are defined as actors or nodes, and their relationships are defined as links or edges, and they can be cognitive (e.g. knows, sees as happy), affective (e.g., likes, hates), kinship (e.g. mother of, sibling of), and another role (e.g. friend of, student of) (Borgatti and Li 2009; Marin and Wellman 2009; Wasserman and Faust 1994). In this study, online consumers using Twitter are the actors of the network, and if an online consumer follows or is followed by another online consumer, a friendship occurs between them.

From the social network theory perspective, we focus on most frequently used network centralities to find key influential consumers in the network (Valente et al. 2008). If we summarize these centralities across marketing perspective:

- An online consumer with high degree centrality means he or she is highly connected with other online consumers in the network. Therefore, he receives more information, knowledge, and resources (Li, Liao, and Yen 2013). Additionally, while in-degree centrality of a consumer indicates the popularity of the consumer and his or her accessibility to information, out-degree shows the control of a consumer over the network and the dependence of the network upon him or her (Loosemore 1998).
- An online consumer having high closeness centrality shows that he or she can reach all online consumers in the network faster than anyone else (Li, Liao, and Yen 2013). Also, whereas a consumer with high in-closeness centrality may listen to most consumers through indirect or direct connections in the network, a consumer having high out-closeness centrality send messages to most consumers in the network through indirect or direct connections (Baek and Kim 2015).
- An online consumer having high betweenness centrality indicates that he bridges the subgroups in the network and plays the role of gatekeeper (Baek and Kim 2015; Freeman 1979).

- An online consumer having high eigenvector centrality is connected to many other consumers that are also well-connected (Lu et al. 2010 as cited in Abbasi et al. 2011).

Although there are previous studies adopting the social network theory and using network structure characteristics to explain their impacts on individuals performances in organizational settings (Park, Shin, and Ju 2014), there is limited research employing individuals structural positions in the field of online consumer behaviour. In their study, Park, Shin, and Ju (2014) try to find the impact of network centrality on affective involvement and cognitive involvement, and so on purchase intention. In another study, Cao et al. (2009) use network centrality to find its effect on marketing effectiveness, and Lee et al. (2011) try to find the impact of network centralities on emotional attachment, and so on repurchase intention. In this respect, this exploratory study provides new insights in this important field by concerning consumers' structural positions (centralities) that may explain online consumers' purchase intentions. In this regard, we try to find whether there are any correlations between the network centralities and the factors of the theory of planned behaviour or not. We hypothesize that:

*H6: There are relationships between network centralities and behavioural attitude.*

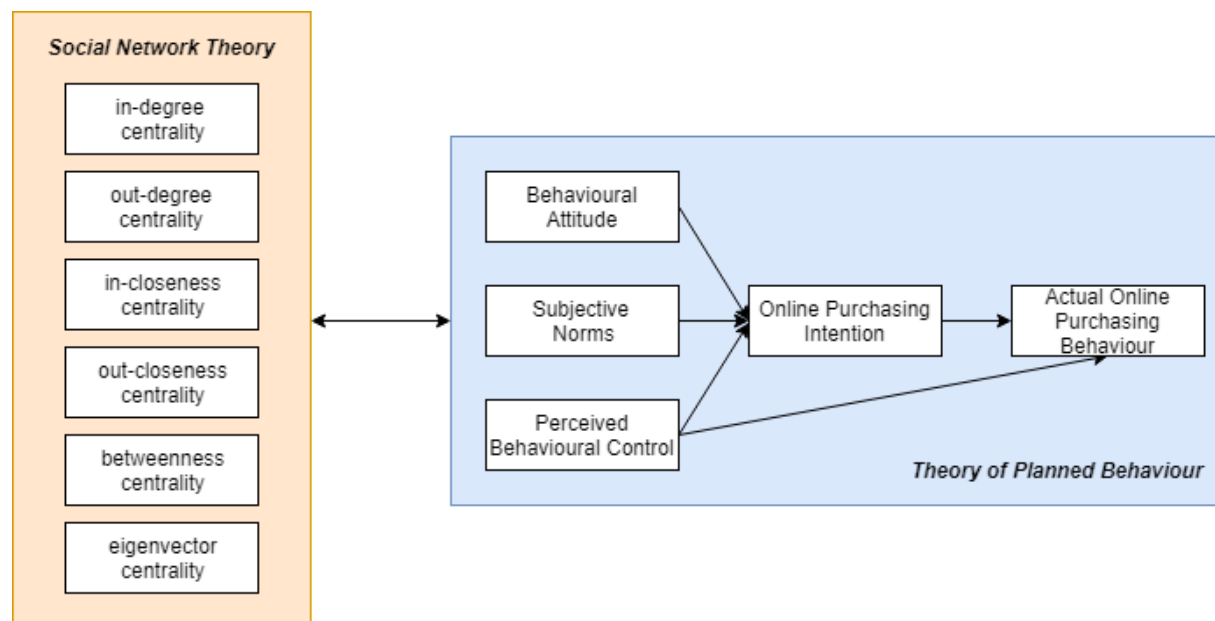
*H7: There are relationships between network centralities and social norms.*

*H8: There are relationships between network centralities and perceived behavioural control.*

*H9: There are relationships between network centralities and online consumers' purchase intention.*

*H10: There are relationships between network centralities and online consumers' actual purchasing behaviour.*

Figure 1 also shows proposed research model of the study.



**Figure 1.** Proposed Research Model

#### 4. Methodology

This study involves a two-step data collection and two-step data analysis to investigate the proposed research model and hypotheses. In the first step of the data collection process, we used an online questionnaire including 12 items to collect data about online consumers' purchase intentions. The questionnaire was adapted from George (2014) and Turan (2011) and presented in the Appendix. Each item was measured on a seven-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7). The questionnaire was shared on Twitter. In a one-month period, we received 679 responses, and after deletion of incorrect responses, we got 558 responses. In the second step of the data collection process, we collected respondents' followers and followings in Twitter by using NodeXL Pro. In the first instance, respondents were also asked to write their Twitter usernames in the questionnaire, and we used these names to collect their follower-following lists from Twitter. If a respondent follows or is followed by another respondent, a relationship between these two respondents is added. As a result, we collected 436 respondents' follower-following lists out of 558 respondents because some of the respondents' Twitter profiles were private. Twitter does not allow to collect any data related to private Twitter accounts. From the ethical perspective the consent is required or not depends on that data are private or public (Eysenbach and Till 2001; Frankel and Siang

1999 as in Pfeil et al. 2011). If users make their profiles as public, the content including follower-following lists of these users is publicly available, and any registered user can view these users' follower or following lists. Thus, data collection of Twitter users cannot require any consent (Garton, Haythornthwaite, and Wellman 1997 as in Pfeil et al. 2011). Additionally, respondents' anonymity is protected, so respondents' identities cannot be identified within the network.

After the data collection phase, we calculated in-degree, out-degree, in-closeness, out-closeness, betweenness, and eigenvector centralities of the respondents by using NodeXL Pro in the first step of the data analysis. In the second step of the data analysis, we tested casual and correlational hypotheses by applying partial least squares approach with WarpPLS 5.0. Partial least squares approach allows researchers to work with non-normal data, minimizes the effect of measurement error, tests and validates exploratory models (Goodhue, Thompson, and Lewis 2012; Moqbel 2012).

## 5. Results

Table 1 shows the descriptive statistics of the study. Table 1 describes that most of the respondents are 19-25 years old. The sample mainly involves males (84.6%) and university students (47.9%) and graduates (24.3%). The respondents primarily use the Internet greater than or equal to 7 years, and they make mostly yearly and monthly online shopping. Most respondents have 0-2000 Turkish Liras income, and they prefer to spend less than or equal to 200 Turkish Liras monthly.



**Table 1.** Descriptive Statistics

Characteristic		Frequency	Percentage
<b>Age</b>	<= 18	38	8.7 %
	19 - 25	249	57.1 %
	26 - 35	102	23.4 %
	>= 36	47	10.7 %
<b>Gender</b>	Female	67	15.4 %
	Male	369	84.6 %
<b>Education</b>	Primary school	7	1.6 %
	High school student	36	8.3 %
	High school graduate	20	4.6 %
	University student	209	47.9 %
	University graduate	106	24.3 %
	Master/Ph.D. student	42	9.6 %
	Master/Ph.D. graduate	16	3.7 %
<b>The Internet Usage Frequency</b>	>= 3 years	12	2.8 %
	4-6 years	63	14.4 %
	<= 7 years	361	82.8 %
<b>Online Purchasing Frequency</b>	Never	2	0.5 %
	Yearly	245	56.2 %
	Monthly	140	32.1 %
	Weekly	29	6.7 %
	Daily	20	4.6 %
<b>Monthly Purchasing</b>	>= 200 TL	342	78.5 %
	201-400 TL	64	14.7 %
	401-600 TL	13	3.0 %
	<600 TL	17	3.9 %
<b>Economic Level</b>	0 – 2000 TL	271	62.2 %
	2001 – 3000 TL	53	12.2 %
	3001 – 5000 TL	72	16.5 %
	>=5001 TL	40	9.1 %

*n*=436

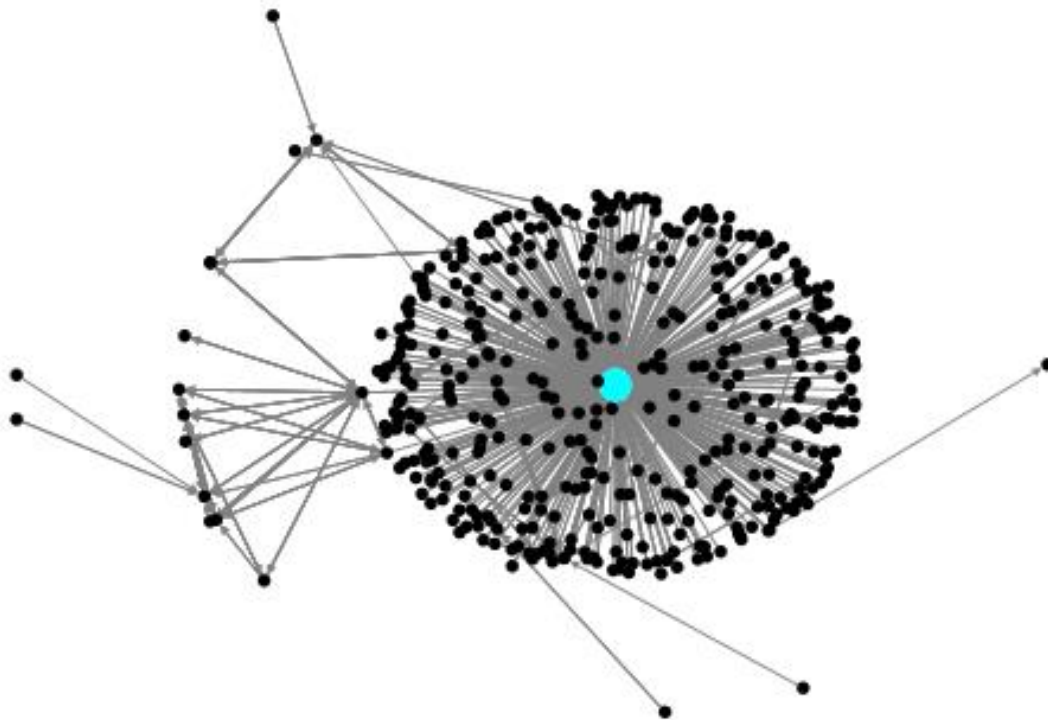
### 5.1. Social Network Analysis

Figure 2 shows the follower-following network of the online consumers in Twitter and Table 5 presents the first five consumers having the highest in-degree, out-degree, in-closeness, out-closeness, betweenness, and eigenvector centralities. It seems that there is an influencer in the network. He or she (consumer id=2) has been followed by 418 online consumers, and he has the highest betweenness (188447.733), eigenvector (0.01199), and in-closeness centralities (0.489314) in the network. It implies that this influencer is the most popular, the most valuable, and the key online consumer at bridging the gap between other online consumers in the network. The results also indicate that this online consumer obtains the information efficiently and sooner in the network (Freeman 1979). Additionally, Table 5 indicates that consumer having id number 341 can be also valuable for the communication of the network.

**Table 2.** Network Centrality Results

	Values				
<b>Consumer Id</b>	<b>2</b>	<b>341</b>	<b>338</b>	<b>334</b>	<b>25</b>
In-degree	418	11	7	7	7
<b>Consumer Id</b>	<b>341</b>	<b>339</b>	<b>336</b>	<b>337</b>	<b>338</b>
Out-degree	11	6	6	5	4
<b>Consumer Id</b>	<b>2</b>	<b>341</b>	<b>201</b>	<b>338</b>	<b>334</b>
In-Closeness	0.489314	0.002392	0.002392	0.002392	0.002392
<b>Consumer Id</b>	<b>344</b>	<b>333</b>	<b>377</b>	<b>376</b>	<b>335</b>
Out-Closeness	0.002375	0.002375	0.002375	0.002375	0.002375
<b>Consumer Id</b>	<b>2</b>	<b>341</b>	<b>336</b>	<b>334</b>	<b>200</b>
Betweenness	188447.733	6846.933	2517.000	1736.000	1390.800
<b>Consumer Id</b>	<b>2</b>	<b>25</b>	<b>341</b>	<b>336</b>	<b>198</b>
Eigenvector	0.01199	0.00257	0.00249	0.00244	0.00242

In Figure 2, the light blue and the biggest actor represents the key consumer in the network.



**Figure 2.** Twitter Network of the Consumers (436 actors and 836 relationships)

## 5.2. Analysis of the Measurement Model

The reliability and validity of the proposed model are analyzed in Table 3. The individual item reliability of measurement model is measured by Cronbach's alpha. Table 3 shows that Cronbach's alpha values of all constructs are ranging from 0.765 to 0.855. The Cronbach's

alpha coefficients should be equal to or greater than 0.7 (Fornell and Larcker 1987; Nunnally 1978; Nunnally and Bernstein 1994). In this respect, we can accept that all constructs are reliable. The internal consistency of the measurement model is also considered by composite reliability. Table 3 presents that composite reliabilities of each construct are at least 0.7, and it implies a high internal consistency of scales.

Construct validity of the model is measured by a factor loading analysis. As a rule of thumb, factor loadings should be at least 0.5 and ideally should be greater than 0.7 (Hair et al. 2010). Table 3 displays that all factor loadings for all constructs are at least 0.5 indicating the existence of construct validity. Also, average variance extracted values greater than 0.5 suggest that the measurement model has adequate convergent validity (Hair et al. 2010).

**Table 3. Measurement Model**

Construct	Item	Loading	Average Variance Extracted (AVE)	Item Reliability (Cronbach's $\alpha$ )	Composite Reliability
<b>Behavioural Attitude</b>	BA1	0.862	0.777	0.855	0.912
	BA2	0.975			
	BA3	0.802			
<b>Subjective Norms</b>	SN1	0.613	0.810	0.765	0.895
	SN2	1.186			
<b>Perceived Behavioural Control</b>	PBC1	0.471	0.825	0.787	0.904
	PBC2	1.345			
<b>Behavioural Intention</b>	BI1	0.508	0.749	0.831	0.899
	BI2	0.999			
	BI3	1.111			
<b>Actual Behaviour</b>	AB1	0.682	0.848	0.821	0.918
	AB2	1.160			

The square root of the average variance extracted should be higher than any of the correlations between each latent variable to assess discriminant validity (Fornell and Larcker 1987). In Table 4, values on the diagonal of the table show the square roots of the average variance extracted values for each latent variable and these values are higher than any of the values above or below them in the same column. It implies that the measurement model has discriminant validity. Lastly, it can be said that all constructs are derived from the literature that is indicating a high content validity (Cronbach 1971).

**Table 4.** Discriminant Validity

<b>Construct</b>	<b>BA</b>	<b>SN</b>	<b>PBC</b>	<b>BI</b>	<b>AB</b>
BA	<b>(0.882)</b>	0.357	0.538	0.589	0.612
SN	0.357	<b>(0.900)</b>	0.124	0.375	0.362
PBC	0.538	0.124	<b>(0.908)</b>	0.428	0.320
BI	0.589	0.375	0.428	<b>(0.865)</b>	0.725
AB	0.612	0.362	0.320	0.725	<b>(0.921)</b>

### 5.3. Analysis of the Structural Model

The structural model, the part of the theory of planned behaviour, is tested by using partial least squares approach and results are presented in Table 5. The structural model shows that all hypotheses in the proposed model are supported except H5. Furthermore, the results show that  $R^2$  of behavioural intention is 0.405 and  $R^2$  of actual use are 0.240.

**Table 5.** Structural Model Results

<b>Hypotheses</b>	<b><math>\beta</math></b>	<b>p-value</b>	<b>Result</b>
BA $\rightarrow$ BI	0.423	0.001	H1 supported
SN $\rightarrow$ BI	0.204	0.001	H2 supported
PBC $\rightarrow$ BI	0.180	0.001	H3 supported
BI $\rightarrow$ AB	0.719	0.001	H4 supported
PBC $\rightarrow$ AB	0.023	0.313	H5 not supported

Table 6 consists of the correlational results between network centralities of online consumers and the constructs of the structural model. Table 5 implies that there are only significant and also positive correlations between behavioural attitude and out-degree centrality, behavioural attitude and out-closeness centrality, and actual behaviour and out-closeness centrality. In this manner, it is concluded that only H6 and H10 are supported.

**Table 6.** Correlations

<b>Construct</b>	<b>BA</b>	<b>SN</b>	<b>PBC</b>	<b>BI</b>	<b>AB</b>
In-degree	0.053	0.074	0.030	0.055	0.065
Out-degree	0.102*	0.060	0.019	0.058	0.077
In-Closeness	0.049	0.072	0.028	0.054	0.063
Out-Closeness	0.117**	0.045	0.061	0.086	0.093*
Eigenvector	-0.039	-0.017	0.002	-0.036	-0.006
Betweenness	0.052	0.074	0.030	0.055	0.066

\*\*  $p < 0.1$  \*  $p < 0.5$

## 6. Discussion

### 6.1. Theoretical Implications

Consistent with prior studies, the findings of the study confirm that behavioral attitude, social norms, and perceived behavioral control have positive impacts on consumers' purchase intentions (Bonera 2011; Clemes, Gan and Zhang 2014; Foucault and Scheufele 2002; Koh et al. 2006; Laohapensang 2009; Kumar 2012; Küçük 2012; Leerapong and Mardjo 2013; Limayem, Khalifa, and Frini 2000; Ming-Shen et al. 2007; Yu and Wu 2007; Zhang, Prybutok, and Koh 2008). Moreover, the study findings highlight that behavioural intention also has a positive effect on consumers' actual online purchasing behaviour. Although the study results imply that there is not a significant direct effect of perceived behavioural control on consumers' actual online purchasing behaviour despite previous studies (Laohapensang 2009; Ming-Shen et al. 2007), it indirectly affects the actual purchasing behaviour.

In contrast to previous research (Dakduk et al. 2017; De Cannière et al. 2009; Pavlou and Fygenon 2006), this study provides a further empirical implication of the robustness and values of using the theory of planned behaviour to understand online consumers' purchase intentions. Additionally, this study uses the social network theory as supplemental to the theory of planned behavior by applying social network analysis. Although previous studies conduct social network analysis, this study considers different concepts and metrics and identifies degree, closeness, betweenness, and eigenvector centralities of online consumers in a social network (Akdevelioglu and Venkatesh 2016; Brown, Broderick, and Lee 2007; Bodendorf 2012; Okazaki et al. 2014; Park, Shin, and Ju 2014; Rosenblatt 2013). In this manner, this study does not only extend the theory of planned behaviour in the context of online consumers' purchasing intentions, but it also considers online consumers' structural positions in the social network. The study results point out that there are correlations between an individual's out-degree centrality and behavioural attitude, out-closeness centrality and behavioural attitude, and out-closeness centrality and actual online purchasing behaviour. These findings indicate that an online consumer having high out-degree centrality or out-closeness centrality has positive tendency to shop online. In other words, if an online consumer follows many users which mean he or she is highly connected with other consumers, that consumer receives more information, resources, knowledge, and he or she reach all other consumers in the network faster than anyone else, and so it can be expected that he or she is more likely to shop online (Lee et al. 2011; Lewis et al. 2008; Li, Liao, and Yen 2013; Freeman 1979). Additionally, the

results figure out that an online consumer who is closer to other consumers, he or she tends to engage in actual online purchasing behaviour. It can be inferred that an online consumer who is the nearest to other consumers obtains information efficiently from other consumers and so, it can be expected that he or she tends to perform actual online purchasing behaviour. When the previous related studies are investigated, Park et al. (2014) find out the positive indirect impacts of network centralities including degree, closeness, and betweenness on online purchase intention, and Cao et al. (2009) find only the indirect effect of betweenness centrality on online purchase intention. In this respect, this is the first study that analyses the direct impacts of network centralities and their correlations with related factors in the field of consumers' online purchasing intention.

## **6.2. Managerial Implications**

This study also has significant practical implications for e-marketers to understand online consumers' behaviours and so, to develop successful marketing strategies. E-marketers should increase their businesses' abilities to understand and speak with their consumers or customers in the digital platforms like Facebook and Twitter (Linton 2015). They can use these online environments as a medium to offer customized products, services and to spread their brands to enhance their images on the minds of their customers (Chaffey et al. 2009; Sheth and Sharma 2005). In this sense, businesses have learned to take advantage of the digital environments for marketing and growth (Hutchings 2012).

E-marketers should be aware of that consumers have the control of how information generated, created, organized, and shared (Okazaki and Taylor 2013). Recently, 70% of the consumers use social networking sites to get a product and brand information, and they also consider other people's recommendations about the brand and product online (Kirtiř and Karahan 2011). The success of international businesses depends on maintaining closest relationships with their current and potential customers in several spaces, understanding their needs, demographic and socio-cultural characteristics, and adapting technological trends into their strategies (Okazaki and Taylor 2013). E-marketers should remember that understanding of how consumers form relationships in social networks is very important for them to use social networks for marketing and communication purposes (Cummins et al. 2014).

In the view of these indicators, this study shows that online consumers in Twitter give importance to social norms, behavioral attitudes, and perceived behavioral control to make



online purchases. E-marketers can design proper strategies by considering these factors to take the attention of their customers. Additionally, e-marketers should scrutinize that there are key consumers in these digital platforms. These consumers play the role of gatekeepers, they can reach other consumers quickly, and they can control communication among other consumers. In this respect, if e-marketers reveal these key consumers then they can disseminate information about their existing and new products or services, they can change the misperceptions in the minds of their consumers about their businesses or brands, and they can increase their awareness. They can also create more effective and powerful viral campaigns by using these influential consumers in social networks (Cummins et al. 2014). As a result, they can gain more customers, and they can increase sales in the digital platforms.

## **7. Conclusion**

In summary, this study analyses online consumers' individual purchase intentions across the theory of planned behavior, and it embeds consumers' structural positions by investigating their centralities in the Twitter network across the social network theory. Despite the previous studies, this study does not only analyse consumers' opinions but also it investigates their relationships in a social network. The study shows the positive effects of behavioural attitude, social norms, perceived behaviour control on online consumers' purchase intentions. Additionally, although it finds out the impact of consumers' purchasing intentions on their actual online purchasing behaviours, the results do not imply a significant effect of perceived behavioural control on actual online purchasing behaviour. The study results also highlight the correlations of centralities and determinants of the theory of planned behaviour and the importance of centralities from both theoretical and managerial perspectives.

## **8. Limitations**

In this study, some limitations need to be addressed, although we have made our best efforts to minimize them. Firstly, this study only focuses on Turkish Twitter users as a case. Further studies can target different samples from different countries to reveal the cultural differences by testing the proposed model. Secondly, there are still numerous factors affecting online consumers' purchase intentions, and so, further studies can analyze the effects of other dimensions by expanding the proposed research model.

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## Appendix

Factors	Items	Questions	Reference
Behavioural Attitude	BA1	I think that buying things over the Internet is a good idea.	George (2004)
	BA2	I think that buying things over the Internet is a wise idea.	
	BA3	I think that using the Internet to buy things is pleasant.	
Social Norms	SN1	People who have influence on my behaviour encourage me to buy things over the Internet.	George (2004)
	SN2	People who are important to me encourage me to buy things over the Internet.	
Perceived Behavioural Control	PBC1	I have the knowledge and the ability to buy things over the Internet.	George (2004)
	PBC1	I have the entire control while buying things over the Internet.	
Behavioural Intention	BI1	I intend to buy things over the Internet soon.	Turan (2011)
	BI2	I am planning to buy things over the Internet over the next month.	
	BI3	I strongly recommend my friends/family members to buy things over the Internet.	
Actual Behaviour	AB1	I prefer to buy things over the Internet.	Turan (2011)
	AB2	I frequently buy things over the Internet.	