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Brand Community: Expertise Heterogeneity and Behavioural Intentions

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Abstract

The purpose of this dissertation is to demonstrate how individual consumers are able to interact among themselves inside the collective virtual community of consumption in order to co-create value. By using the concepts of "resources" from the Service Dominant Logic of Marketing, "heterogeneity" from Organizational Behavior literature, and 'cultural lens' from Consumer Culture Theory, this dissertation considers both individual and collective interaction in order to demonstrate the relation between community of consumption and behavioral intentions generated within these specific brand names.

We consider an online community of consumption as a virtual working environment where consumers are free to collaborate and, therefore, generate value. In detail, when drawing upon consumer behavior and organizational theory literatures, we identify a model able to explain how these individual and social characteristics of a community of consumption influence the consumers' participation and their continuing intentions to remain members of the community. In addition we show how this model works differently through two kinds of brand community: firm-driver and consumers-driver.

An up to date review of literature provides a guide to theory and a path for research. This dissertation employed surveys, interview in-

depth and linear regression model to understand social and cultural aspects of consumption from four different online communities of consumption.

The findings show that consumers can contribute to co-create value among themselves through the role of heterogeneity expertise and how the value of co-creation process could be more efficient inside the community consumers-driver. This dissertation demonstrates that this last kind of brand community plays a role as a platform of value creation.

This dissertation extends the previous researches in value creation within brand community by demonstrating how different kind of consumer expertise can affect their capacity to interact and can harm their ability to collaborate and co-create value.

Key words

Value co-creation process, heterogeneity expertise, brand community

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CHAPTER ONE

-INTRODUCTION-

Until the end of 20th century, industrialization led to an anonymity of our daily living and working environment. The rapid growth of ITC leads to one of the major issues of our time: the transition from an economy based on the production of goods to another based primarily on the creation and exchange of ideas known as services.

Today, every man and woman at individual and social levels, can co-construct their own consumption through different life projects (i.e. anti-consumerism, consumer empowerment, consumer resistance, brand communities, consuming tribes, and so forth). It is considered a most basic desire of mankind to be part of a community.

By following the continuous development of the internet platforms, consumers, at different levels, are becoming more empowered. They can now surf the web, download and upload videos, music, documents, and chat with other users.

In concrete terms, consumers' share and exchange information, opinions, and ideas, while creating value (Kozinets, 1999; Schau et al.,

2009).

Due to the presence of these Internet platforms, consumers are now more active and creative that they can co-create value with companies and other consumers.

Both marketing academics and practitioners emphasize the issue about the co-creation of value process. It has assumed central importance in marketing theory. In addition, these active and creative movements have helped shed the light on the value creation process, which can pose opportunities and threats for companies.

Especially in online communities, consumers' can exchange information, ideas, opinions, and values. One particular form of online community is the online community of consumption, within which the brand communities gather specific brand lovers that are relevant in order to create value.

Consequently online consumer interaction, creating value, can influence the market and firms. The present environment in which firms operate is increasingly dynamic, complex and multiform. That is one of the major reasons of the birth of the philosophical current called "post-modernism".

Consumption becomes a synonym of experience, and it is studied as the overcoming of the traditional dichotomy between sociality level and individual level, emphasizing the new paradigm of the relations. The study

of these relations is showed above all in those temporary social groups that Maffesoli (1996) defines "tribes".

A focus on experiential consumption considers and recognizes the increasing relevance of online consumers' relations.

The value generated by these relations is therefore the manifestation of social resources.

We view a co-creation process as more of strategic value, through the combination of inside-out and outside-in strategies.

This dissertation hopes to shed some new light on the value co-creation process by showing why consumers are members of a brand community and how they interact in the collective process to co-create value through the factors of heterogeneity of the group.

In fact if the value born due to continues, interactive and iterative relationships among consumers themselves we have to analyze the antecedents of this aspect, using the Service-Dominant Logic of Marketing (hereafter; S-D logic) perspective, the cultural lens both of Consumer Culture Theory (hereafter; CCT) and organizational perspective.

In particular, we have to bring down the factors that affect the ability of the users to stay a member of a particular kind of community and their ability to participate on the topics. That interaction can greatly affect the consumption, the brand and the marketers.

While communities of consumption have strongly shifted the balance of power from firms to consumers, the current consumer behavior literature focuses on Service Dominant Logic perspective (Vargo e Lusch, 2004; Vargo et al., 2008).

From a managerial point of view the importance to adopt a co-creation strategy is identify, engage and maintain the right consumer group.

Kozinets (1999) asserts that a comprehensive understanding of these mechanisms inside this particular kind of online group can help the advancement of marketing theory and practices.

Previous studies have only focused on the similar factors (homogeneity) that characterizes the activities of the communities of consumption considering the consumption as which links all consumers to socialize in the same way with other objects e.g. computer (Muñiz and O'Guinn, 2001), food (Cova and Pace, 2007), motorcycles (Schouten and McAlexander, 1995), or festival (Kozinets, 2002).

Despite this, the central question that motivates this study is revealing and deepening the relation between expertise's structure and behavioral intentions.

Thus, this dissertation considers both the individual (intentions to stay members and intentions to participate) and social levels (heterogeneity expertise of the group) of value creation as units of analysis in order to

understand how consumers could co-create value among each other.

In this way, this study through individual level contributes to our understanding of the roles played by active consumers in the value co-creation systems and also contributes how the value creation process could increase among consumers through the collective level.

To address the research questions and thereby implement the dissertation, the study aims to:

- Understand which kind of collective factors influence the individual volunteer to participate and interact each others;
- Build a conceptual and interpretative framework on how the members' heterogeneity influences the probability to increase the amount of value co-created within communities of consumption both under firm and consumer control;
- Compare how the member' heterogeneity effect changes within communities under firm control and communities under consumers control.

CHAPTER TWO

-LITERATURE REVIEW-

2.1 Introduction

In this section of the work we review and analyze the main body of the literature in Marketing and Organizational Behavior.

About the first category of studies they are under the same umbrella: they use a post-modern perspective of the world.

Postmodernism was found on the concept of "identity". It refuses to believe in the existence of any absolute truth, that is, truth apart from specific communities and their traditions and rituals.

The changing in the view of the post-modern marketing embraces the integration of two separate but related schools of thought: Consumer Culture Theory, in short CCT (Arnould and Thompson, 2005) and Service Dominant Logic, in short S-D Logic (Vargo and Lusch, 2004).

CCT approach basically considers consumption and its involved behavioral choices and practices as social and cultural phenomena as opposed to purely economic phenomena.

Vargo and Lusch (2004) have brought together debates of S- D logic on resources and the roles of actors in marketplace by emphasizing value-

in-use, rather than value-in-transaction and also exchange process of firm perspective.

To develop the theoretical foundations we also need to adopt an organizational view of the value co-creation process inside a group. In detail we focus on the key aspects of this school of thought: the concept of "difference" and therefore of "heterogeneity".

At organizational level we got many studies about theories that try to predict differing effects of such heterogeneity: creativity, innovation, ideas (Williams and O'Reilly, 1998; Jhen, Northcraft and Neale, 1999; Harrison et al., 2002).

Service Dominant (S-D) Logic Of Marketing

2.2 Why S-D Logic is a new paradigm of marketing

Value is a core component in the social interaction of marketplace. However, it is problematic to construct a perfect definition of value for all entities because value may be judged by consumer's perception through an internal process.

The focus in marketing has shifted from the exchange of tangible value to one that increasingly includes intangible value. In response to this, Vargo and Lusch (2004) have proposed an emerging marketing paradigm: S-D logic.

The Good-Dominant logic of marketing with the affirmation of an increasing numbers and the reality of services, has shown its limits. The marketing service, which he founded his own identity on the distinction from product marketing, requires rethinking on its own paradigm, and is not based on the mere difference between goods and services.

That is what Kuhn (1962) defines "paradigm shift" as a changing set of rules, law, and theories upon which a research tradition bases itself[1].

With the evolution of society and markets, number of questions have arose where found answers in the passage to a logic of Service Dominant Logic, formulated in 2004 by Vargo and Lusch, whose central theme is the claim of a new perspective in the discipline marketing-centered service.

All this leads to a re-building the rules of market-exchanges and roles of actors to move towards a general theory of the interaction in a systemic view.

S-D logic is a unified vision of understanding of the purpose and nature of organizations, markets and society, which are fundamentally concerned with exchange of service, values, and the applications of competences (knowledge and skills) for the benefit of a party.

One of the foundational aspects of this perspective is that all firms are

[1] The Paradigm is also related to the Platonic and Aristotelian views of knowledge. Aristotle believed that knowledge could only be based upon what is already known, founding in this way the basis of the scientific method. Instead Platone believed that knowledge should be judged by what something could become, the end result, or final purpose.

service firms and all markets are centered on the exchange of service, and all economies and societies are service based. It marks on the switchover from modern marketing, and therefore goods-dominant (G-D) logic to postmodern marketing, and therefore S-D logic.

It embraces concepts of the value-in-use and co-creation of value rather than the value-in-exchange and embedded-value concepts of G-D logic. In this vision companies being informed to market to customers, they are instructed to market with customers, into a value co-creation processes (Lusch and Vargo, 2006).

In "Evolving to a New Dominant Logic for Marketing" (2004) Vargo and Lusch claim that one of the main principle to shift from a G-D logic to S-D logic is the focus on "operant" rather than "operand" resources.

The latter embraces all the tangible resources, like goods, and they act like transmitters of operant resources. It means that firms and consumers allocate their capabilities over them in order to increase their performances.

In fact in S-D logic the fundamental unit of exchange are specialized skills and knowledge, often intangible and invisible, and at firm level they include core competencies or dynamic capabilities (Arnould, Price and Malshe, 2006).

Thus, inside this work, topics as service, value co-creation, and theoretical foundations are mainly developed within the notion of S-D

logic (Vargo and Lusch, 2004).

Although not all scholars support Vargo's and Lusch's paradigm, their contributions to the debates on it in a wide variety of works, in particular in a crucial contribution to the debate has been made by Lusch and Vargo themselves in their 2006 book, The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions.

This paragraph demonstrates some reasons why marketing needs a new paradigm, and in our opinion the best way to explain S-D logic is outlining the drawbacks of G-D logic.

Specifically, G-D logic is no longer adequate for the purposes of the current marketing environment.

During the last years academics and practitioners require a new paradigm whose contributes to the marketing management by providing a framework and tools which create the best service or value to consumers and therefore profits to companies.

Marketing academics and practitioners working with G-D logic support the idea that goods are the focus of exchange while services are considered to be merely residual (Vargo and Morgan, 2005).

If we consider the actual role of services and the value-in-use this perspective doesn't work anymore (Vargo and Lusch, 2004).

Service is not something that pertains to goods or something that can be added to goods to increase their value (Vargo and Morgan, 2005), but

rather skills and knowledge, which employed create the best value for customers.

S-D logic is developed for all activities in the exchange process. It focuses on the process rather than on the output and the fundamental premises (Vargo and Lusch, 2004) are the following:

- Service is the fundamental basis of exchange;
- Indirect exchange masks the fundamental basis of exchange;
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- Indirect exchange masks the fundamental basis of exchange;
- All social and economic actors are resource integrators;
- Value is always, univocally and phenomenologically, determined by the beneficiary.

2.3 Service is the focus of exchange

In S-D perspective service is considered as 'applied resources', which each party employs to co-create value (Vargo and Lusch, 2008).

According to Vargo and Lusch (2004, 2006) "service" is "doing something for someone" process for all companies.

In particular service is a centre of the exchange process because

participants (companies and consumers) on the market exchange their services among them. But, what is exchanged?

Vargo and Morgan (2005), influenced by Adam Smith's (1776) concept of "the division of labour theory", assert that service can be considered as "the exercise of specialization".

Therefore, in this logic, service could be considered as the application of specialized core competences (or better, operant resources or dynamic resources) through processes and performances in order to get a benefit for another part or for the part itself.

Concepts like skills, knowledge and competences, and their applicability, are also represented by the "immaterial labour" notion (Cova and Dalli, 2009), in which consumers employ these resources to co-create value together.

We agree with the notion of service that is whatever each party in the process exchanges to represent the value added.

In S-D logic the value determination is hardly linked to the customers. The companies can make value propositions to potential customers, those who need the benefit of the firm's competences and their ability to co-create value with consumers.

Therefore, the "value-in-use"[2] can be determined by customers and therefore the "value-in-exchange" becomes irrelevant in order to understand the way in which the value co-creation process works.

[2] In Smith's (1976) idea value is seen as the "comparative appreciation of reciprocal services".

The role of value-in-exchange is limited to represent a "learning mechanism" trough financial feedback from the marketplace.

S-D logic is strongly correlated to a managerially orientation. It has implications not only for a better theory of the firm[3], but also for a general theory of the new marketplaces and society.

2.4 From operand resources to operant resources: toward a cultural theory of the customer

In order to establish the new dominant logic of marketing, Vargo and Lusch often refer to Resource-Advantage theory which explains how companies create competitive advantage again their competitors using and modifying their own resources (including also all the whole intangible and dynamic resources, like knowledge, skills, trust, etc).

S-D logic draws advantage by R-A theory because it considers resources differently in opposed to more traditional marketing theories that view them as finite, tangible, and visible. In addition these 'resources' as anything that creates value: e.g. labour, skills and knowledge, customers, etc.

Inside this general pattern Vargo and Lusch base their logic identifying two typologies of resources: operand resources and operant resources.

The first category includes all the physical resources (i.e goods, raw

[3] S-D Logic is heavily aligned with Resource Advantage Theory (Hunt, 2000) and Resource-based Theory of the firm (Penrose, 1959).

materials) applied for producing effects. In other words, it includes all tangible resources over which consumers and firms have allocate capabilities to act in order to obtain some kind of performances.

Operand resources include all factors of production that in the good-centered view are considered the core of the value in exchange.

On the other hand other kind of resources, often intangible, concur to get a particular benefit or group of benefits. They are called “operant resources” and differ comparing with the previous category of resources.

Imagine you hang out with your friends to have a dinner in a famous Italian restaurant. To prepare the food the chef needs operand resources as raw materials, pot, mixer, oven and so on. But the chef also needs to use his background, expertise, competences and experiences to use and mix operand resources and therefore to cook a better food.

Operant resources are linked to people, to relations, to staff, to information, and so on. Therefore these resources become the main factors in order to obtain the final result.

In other words, the exchange is not finalized to get goods (operand resources) but it is centered on the benefits come from specialized competences, services, therefore operant resources, growing emphasis on the prominence of service in the exchange process.

S-D logic support the idea that companies focus on operant resources which they can employ to create competitive advantages for themselves by

supplying through the value creation process.

Moreover, in this perspective consumers become considered operant resources which companies are able to involve in the value creation process because they can define and co-develop value through interaction. Therefore, the crucial task for companies is to select the appropriate entities (including consumers) to involve in the value co- creation process.

How operant resources customers and firms can co-create through pattern of experiences and meanings embedded in the cultural life-worlds of the consumers (Arnould, Price and Malshe, in "The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions", eds. Robert F. Lusch and Stephen L. Vargo).

Consumer Culture Theory (CCT)

2.4 A postmodern approach to study consumers and consumption

The Postmodernism focuses on the concept of "identity". This mind refuses to believe in the existence of any absolute truth that is, truth apart from specific communities and their traditions.

The principal foundations of the Consumer Culture Theory (CCT) can go back over in a famous scientific article written by Arnould and Thompson in 2005 called "*Consumer Culture Theory (CCT): Twenty*

Years of Research". In this work the author include all the studies and researches that follow a common particular kind of approach: a cultural lens.

CCT takes the postmodern insight and applies it to marketing world. It stresses the constraints of consumers in the marketplace and defines these constraints as conformism. In other words, pluralist societies consist not of one single market but rather many niche markets that serve specific "cultural groups".

CCT considers consumption and its involved behavioral choices and practices as social and cultural phenomena as opposed to purely economic phenomena related to the traditional marketing approach.

General speaking, this view refers to a group of theoretical perspectives that highlights the dynamic relationship between consumer actions, the marketplace, and cultural meanings (Arnould and Thompson, 2005).

CCT approach highlights the relations between cultures, social, symbolic and material resources, which are mediated through markets (Arnould et al., 2006) and the consumers are viewed as part of an interconnected system' products and images which they use to construct their identity and orient their relationships with other consumers and companies (Kozinets, 2002).

We support the idea that in other words CCT vision helps the researcher to understand what and how people trough their social practices

use goods and consume them.

Since the 1980's, CCT researches (qualitative, interpretivist, postmodernist, and poststructuralist) suggest the need for an alternative approach to study consumers and their active participation in a co-creation process (consumption practices, cultural meaning systems, marketplace structures, and their contextualizing socio-cultural and historical aspects).

CCT deepens the value co-creation's topic in S-D logic focusing on the interpretive process and consumers' cultural schema. In this vision the co-creation value is viewed in terms of a cultural framework that focuses on how consumers perceive, interpret, understand, and interact with the market offering (Holt, 2002).

2.5 Community of consumption and brand community

In general terms community refers to a group where individuals maintain their status of members based on both an obligation reason or in order to achieve a common purpose.

The concepts of brand community and virtual community overlap but are not synonyms (Piller et al., 2005; Ouwersloot & Oderkerkrn-Schroder, 2008).

Consumers are more active and collaborative inside a community where they can co-create social interactions in order to express their identities and symbolic meaning of consumption.

Therefore, consumers' experiences play an important role in the value co-creation process among them over time.

When the communities are based on consumption purpose they can be classified based on consumption patters: for example product communities, brand communities, or communities focus on special consumption interests (i.e. sport activities in a particular place).

In general online communities of consumption, combining consumer, firms and interest groups have become a topic of interest to marketing academics and practitioners alike.

Kozinets (1999) defines the virtual communities of consumption as an "affiliate groups whose online interactions are based upon a shared enthusiasm for, and knowledge of, a specific consumption activity".

In a not exclusive way Kozinets (1999) identified different physiognomies of online communities:

- boards (focus on products, activities or interests);
- independent web pages for consumers in order to exchange ideas or experiences;
- list-serv (email lists focus on specific topics of interest);
- computer games;
- chat rooms (simultaneously changing of topics).

Muniz and O'Guinn (2001) describe a brand community as a "specialized, non-geographically bound community that is based on a

structured set of social relations among admirers of a brand".

McAlexander et al. (2002), Muniz and O'Guinn (2001), Algesheimer et al. (2005) and Bagozzi & Dholakia (2006) represent communities highlighting the aggregation in terms of homogeneity of a common shared identity towards a brand, a product or an activity of consumption, therefore sharing opinions, interests, beliefs and so on. Other many related studies focus on this aspect of brand community.

In detail, Muniz & O'Guinn (2001) suggest brand communities "shared consciousness, rituals and traditions" and McAlexander et al. (2002) assert that "communities tend to be identified on the basis of commonality".

It is clear how these definitions focus on and highlight especially the factor of homogeneity among members.

Other authors (Muniz et al., 2005; Schouten & McAlexander, 1995; Muniz & O'Guinn, 2001; Mathwick, Wiertz and De Ruyter, 2008; Kozinets, 2002; Schau, Muniz and Arnould, 2009) focused on the members' abilities to create value through their well-established practices.

Different kind of community of consumption are today a theatre where multiple and heterogeneous actors interact together in order to perceive benefits through co-creation processes.

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Different kind of community of consumption are today a theatre where multiple and heterogeneous actors interact together in order to perceive benefits through value co-creation processes.

Arnould et al. (2006) in one part define the value of these groups as a form of consumer agency and contemporaneously as a source of information for the members.

Therefore, brand communities are operant resources that companies need to understand.

As mentioned through the idea of 'working consumers' (Cova and Dalli, 2009), consumers need to be analyzed as members of groups (Arnould et al., 2006) as well as individual consumers (e.g. brand communities, subcultures of consumption, consumer tribes, etc.).

2.6 The value co-creation process

Value is a core component in the social interaction inside communities of consumption. Don't exist a unique value definition.

The notion of value has discussed by many scholars: Holbrook (2006), Kalaignanam and Varadarajan (2006), Payne et al. (2007), Woodruff and Flint (2006), Lusch and Vargo (2006).

Vargo and Morgan (2005) individuate that, in the Smith's concept of the Division of Labour, there are two kinds of value: value as objects called "value-in- exchange" and value as utilities, defined as "value-in-use".

The first type of value is typical value concept applied in business, accounting or economics. Value-in-use, is the main issue of discourse within the value co-creation process. It is not only goods and services' functional utilities, but also its symbolic meaning.

Therefore, it is vital to note that the notion of 'value' in S-D logic corresponds to what that generally we call "customer value".

Holbrook (2006) defines the "customer value" as an experience[4] that includes multiple interaction between objects and subjects, and it is always determined by the beneficiaries.

Therefore, value can be only defined by consumers and typologies of value should be viewed as frameworks that help marketers to understand the value creation process in different contexts.

From a managerial point of view the main consequence is that the success of co-creation initiatives is strongly dependent on the extent to which consumers perceive the activity as challenging and entertaining.

The concepts of co-creation and value refer all to the processes by which both consumers and producers collaborate, and participate in

[4] This corresponds to the focus in CCT (Arnould and Thompson, 2005) on emotional and symbolic consumption.

creating value (Prahalad and Ramaswarmy, 2004).

Consumers create value-in-use and co-create value with companies in order to get consumption to demonstrate knowledge, distinction, and expertise (e.g., Alba and Hutchinson 1987).

Many studies have revealed how collective consumers co-create the symbolic meanings (Cova and Pace, 2006; Muñiz and O'Guinn, 2001; Muñiz and Schau, 2005).

In one of the main related studies Schau et al. (2009) explore the value creation through "common social practices of value" within several brand communities providing a comprehensive review of brand value creation processes.

These practices work together in a synergistic way generating effects, endow participants with cultural capital, produce a repertoire for insider sharing, generate consumption opportunities and create value.

CHAPTER FOUR

-RESEARCH METHODOLOGY-

4.1 Regression Linear Model

In this work we adopt a linear regression model since our model requires a quantitative methodology in order to verify our hypotheses.

Actually, regression analysis is probably the most widely used form of analysis of dependence, and it is used to explore the relationship between independent variable(s) X and a dependent variable Y.

More formally stated, the regression model can be written as:

$$yi = b_0 + b_1 x_{i1} + b_2 x_{i2} + \cdots + b_p x_{ip} + \varepsilon_i$$

The two main basic assumptions of the regression model is that the matrix of data [X] is fixed with full rank and the structural error term ε_i is independently and identically distributed with mean 0 and variance $\sigma 2$ (Lattin & Baker, 2003).

In order to understand the relationships in our model we adopt the OLS method. The ordinary least squares (OLS) is a method for estimating the unknown parameters in a linear regression model.

This method minimizes the sum of squared vertical distances between the observed responses in the dataset and the responses predicted by the linear approximation.

The OLS estimator is consistent when the regressors are exogenous

and there is no perfect multicollinearity, and optimal in the class of linear unbiased estimators when the errors are homoscedastic and serially uncorrelated.

Furthermore, to better understand if the model has a good fit, we have to look at R2 as a measure of explained variance. Of course, there are not absolute standards for what constitutes an acceptable fit but usually when dealing with social science data typical R2 values might range between 0.1 and 0.5 (Lattin & Baker, 2003).

We choose values for the model coefficients b to minimize the sum of the squared deviations between the actual values (y) and the model values (Xb) in the sample data. These parameter estimates are given by

$$b \quad \hat{} = (X'X) \quad ^{-1}X'y$$

4.2 Measures and Operationalization

For the purpose of this essay our focus is on variety variables as synonymous such as heterogeneity in terms of consumer expertise. That refers to differences in knowledge bases and perspectives and opinions that members bring to the community and it is related to informational heterogeneity (Jehn et al., 1999; Blau, 1977) including variety' members measures (Harrison and Klein, 2007), where the members differ from one another qualitatively on a generic attribute.

In these measures the minimum degree of heterogeneity occurs when all members belong to the same category of a generic attribute and the maximum heterogeneity is determined when the members are spread to different categories.

We distributed self-administered questionnaires to 438 participants. The questionnaires consisted of 12 items that are related to the 4 constructs described here.

Independent variable

Jacoby et al. (1986) assert that consumer knowledge contains two main components: familiarity (defined as the number of product-related experiences accumulated by the consumer) and expertise (defined as the consumer's ability to perform product-related tasks successfully).

These two concepts about consumer knowledge are related to each other because, generally speaking, increased product familiarity results in increased consumer expertise (Alba and Hutchinson, 1987).

Few years later, Mitchell and Dacin (1996) claim that since no formal system for identifying expert consumers exist, expertise is usually assessed by either self-report measures of knowledge or measures thought to be related to product –class expertise.

The self-report measure about knowledge has been used in the consumer behavior literature (Mitchell and Dacin, 1996; Srull, 1983; Park, 1976; Moore and Lehmann, 1980). This scale of measures included four

different measures and we adapt it for use on our cases.

Furthermore we use the same categories on the different content of knowledge related to motorcycles found by Mitchell and Dacin (1996) even if we reduce them, applying in our context, in the following categories:

- ✓ *Specific-product knowledge*: physical attributes (e.g. disk brakes, engine), performance (e.g. acceleration, compression), mechanic abilities (assembly and disassembly). It is measured in the following way:
  - I know a lot about physical and mechanics attributes of a motorcycle? (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree");
  - How would you rate your knowledge about physical and mechanics attributes of motorcycles relative to the rest of the community? (7-point Likert scales from 1= "one of the least knowledgeable members" to 7=" one of the most knowledgeable members").
- ✓ *Associated-product knowledge*: events, riders or people associated with motorcycles, places or objects associated with motorcycles. It is measured by the following items:
  - I know a lot about events, riders, places, objects and people associated with motorcycles (7-point Likert scales from 1=

"strongly disagree" to 7="strongly agree");

- How would you rate your knowledge about events, riders, places, objects and people associated with motorcycles, relative to the rest of the community? (7-point Likert scales from 1= "one of the least knowledgeable members" to 7=" one of the most knowledgeable members");
- I am very interested to events, riders, places, objects and people associated with motorcycles (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree").

✓ *Product-usage knowledge*: type of riding (e.g. dangerous, long rides, pleasure), procedures (e.g. leaning into a curve, acceleration/deceleration), maintenance (e.g. changing oil or brake fluid). It is measured in the following way:

- I know very well many various procedures that are undertaken during driving or maintaining a motorcycle (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree");
- I know very well the type of riding that can be done on a motorcycle (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree").

<u>Moderator variable</u>

The need to have a common code and consensus in order to be validated as members of the community is one of the main reasons of the

effects of "*normative community pressure*" on the actions (recruitment, initiation, interactions) of the members (McMillan and Chavis, 1986; Algesheimer et al., 2005). It embodies an implicit coercion to conform to the rules, rites and objectives of the community (Wellman et al., 1996).

It is measured in the following way:

- In order to be accepted, I feel like I must behave as other brand community members expect me to behave (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree");
- My actions are often influenced by how other brand community members want me to behave (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree").

Dependent variables

"*Membership continuance intentions*" defines the willingness to stay committed to the community and therefore to maintain membership and ties to the community in the future (Algesheimer et al., 2005).

The related items to measure this variable are:

- It would be very difficult for me to leave this brand community (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree").
- I intend to stay on as a brand community member (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree").

In regard to "*community participation intentions*" it represents intentions to be cooperative and collaborative in order to develop and increase the value generated inside the community. In this case we have just the following one item (Algesheimer et al., 2005):

- I intend to actively participate in the community's activities (7-point Likert scales from 1= "strongly disagree" to 7="strongly agree").

Furthermore, we have asked to members to answer to other questions in order to measure as controller variable:

- ✓ the general level of expertise (Mitchell and Dacin, 1996);
- ✓ if they had held experience about the specific product or activity of consumption, in another related community, virtual or face-to-face community. This was treated as dichotomous variable (0=no, 1=yes) (Jackson et al., 1991);
- ✓ the level of education attained was assessed as no more than an high school degree (0), bachelor degree (1), doctoral degree or master (2) (Jackson et al., 1991);
- ✓ General personal information (age, job, and so on).

In order to achieve our research goals we need to understand the composition of differences in kind, source or category of relevant knowledge or experiences among unit community members; the

distribution of heterogeneity is uniform with spread of members across all the three categories of motorcycles and it is not a continuum but categorical scale of measure (Harrison and Klain, 2007).

In addition, we adapt these scales of measure, not only on motorcycles, but also on barbecue activities and cars[5].

We use the Blau Index (Blau, 1977), the commonly measure of diversity as variety (Bunderson and Sutcliffe, 2002; Harrison and Klain, 2007) for each category.

The formula is $1 - \sum_{i=0}^{n} pk^2$, where p is the proportion of unit members in k_{th} category. Index range starts from 0 (minimum grade of heterogeneity) to (K-1)/K (maximum level of heterogeneity). The latter occurs when community members are spread equally in the different categories.

We normalize the formula so that the index range starts from 0 (minimum grade of heterogeneity) to 1 (maximum level of heterogeneity).

4.3 Context of study and data analysis

In order to verify the research issues identified, we examine consumer'

5 In the case of cars, the sub categories of knowledge are identical to the original scale on motorcycles. Instead, in the case of the world of barbecue the scale has been adapted in the following way:

- ✓ Specific-product knowledge: physical attributes (e.g. materials, equipment), performance (e.g. cooking speed), mechanic abilities (e.g. assembly and disassembly components);
- ✓ Associated-product knowledge: events, places, objects or people associated with the world of the barbecue;
- ✓ Product-usage knowledge: type of barbecue (e.g. coal burning, gas fired), procedures (e.g. cooking red meat, white meat, cooking point), maintenance (e.g. cleaning procedures, cleaning products).

The other variables are identical to the previous cases.

intentions and test our hypotheses by estimating a OLS regression model in an empirical context, with survey data from a sample of both Italian and international online communities of consumption (both firm-driver and consumer-driver).

Our sampling frame consists of an array of four brand communities across three traditional product/service category classification: MotoGuzziWorldClub and AnimaGuzzista (motorcycle), Golf Volkswagen (car) and Carnealfuoco (meats and barbecue).

Two of these are firm-driver: motoguzziworldclub.it and carnealfuoco.it.

The first community is an international brand community of Motoguzzi, an important Italian motorcycle brand well knows in the world.

Carnealfuoco.it is an Italian brand community created by AIA (famous Italian company that produces fresh meat) for all fans of barbecue (and related activities).

The other two communities are Animaguzzista and Golfmania, and both them are consumers-driver.

The first brand community is symmetrical to motoguzziworldclub.it; they share the same brand, same products and activities but differ for the firm presence or not.

The second community is a community where members share the same

passion for the brand Volkswagen, a well know German car brand in the world, and they love particularly the Golf model.

Communities firm-driver have a clear and not temporarily links with the brand involved, and in the fact it is the administrator/organizer of the community (Ouwersloot & Oderkerken-Schroder, 2006).

On the other hand, in communities consumers-driver the brand is not explicitly involved (Ouwersloot & Oderkerken-Schroder, 2006) or if it is involved, consumers are administrators/organizers of the community.

The brand communities we studied are focused on different kinds of products and around a particular corporate brand. We chose this kind because in all four members have a high level of emotion and involvement (Brown et al. 2003; Algesheimer et al. 2005).

In addition, within these social organizations members can meet face-to-face, for example for Motoguzzi or Volkswagen at rallies, or for Carnealfuoco at barbecue meetings.

The data represent gender diversity: MotoGuzziWorldClub, Animaguzzista and Golf Volkswagen are communities primarily male, and respectively 86%, 88% and 93%. Carnealfuoco is fairly balanced with respectively 42% female and 58% male.

Participants recruitment for each community was conducted along the following steps:

- We registered as member and we wrote our post of

presentation, specifying our purposes of the research;

- We looked at the statistical information of the community where it was public otherwise we contacted the administrators and asked them information about: the number of total members, the number of active members (more than 3 posts written on different topics) with at least six months of membership status in order to use the same criteria for all communities and choose the characteristics of the participants;
- We invited active members to participate in our survey putting online in a dedicated page for this research;
- At the end we published a part of our results in each community and we have collected their impressions and idea in order to be sure that the data was interpreted in a correct way.

We obtained respectively:

- 94 answers on 187 active members contacted from Carnealfuoco community (response rate of 50,2 percent);
- 146 answers on 440 active members contacted from MotoGuzziWorldClub community (response rate of 33,2 percent);
- 89 answers on 230 active members contacted from Golfmania community (response rate of 39 percent);
- 109 answers on 465 active members contacted from

Animaguzzista (response rate of 24 percent).

The Italian-speaking part of each community received carefully translated Italian version of the questionnaire.

We counted a total of 438 answers (240 answers from communities firm-driver and 198 from communities consumer-driver) completed in the survey phase that it will be our sample.

Respondents could choose to participate and complete the questionnaire and send back it via regular mail or go to a web link[6] noted in the post of invitation inside each community.

In the figure n.3 we describe in detail the features, statistics and criteria adopted for each community.

[6] We insert the survey on the Srvey Monkey website in which is possible creating and designing surveys and collecting responses.

COMMUNITIES	DESCRIPTION	STATISTICS AND CRITERIA	SURVEY
carnealfuoco	Carnealfuoco.it is an online brand community of the Italian brand AIA which include admirers of the brand and fans of barbecue activities. Carnealfuoco.it was the first Italian brand community about barbecue. AIA Carnealfuoco is a brand that includes all kind of fresh Italian meats. This brand started thanks to events organized by support of the members of the community. The company stimulates the members' community to co-create recipes, talking about their experiences, locations to meet face-to-face the admirers of the barbecue, meats typology, and kind of cooking.	37,000 users, about 180 active members with at least 6 months of membership.	**94 answers obtained**
motoguzziworldclub	Motoguzziworldclub.it is the official community of MotoGuzzi. The firm declare that this community has just a information purpose and not commercial. Mainly goals of the community through members interactions are: animating the interest toward the brand, popularizing the knowledge about the brand and his history in Italy and in the rest of the world, creating and developing relationship between owners and admirators, organizing events in the world (meetings, conferences, competitions, rally, and so on), developing relationship between members and firm in order to cooperate on different topics about motorcycles.	59,000 users, about 440 active members with at least 6 months of membership.	**146 answers obtained**
Golfmania	Golf is the name of a series of cars branded Volkswagen. This community was born about 10 years ago by a little group of golf admirers in order to facilitate the exchange of information e knowledge, suggestions and so on among golf owners. Is a community independent from the official website of Volkswagen. The mainly topics treated are about components and procedure, location for rally, maintenance, bureaucratic procedure, and so on.	13,000 users, about 230 active members with at least 6 months of membership.	**89 answers obtained**
Animaguzzista	Animaguzzista was born in order to create a little group of admirers independent from the company MotoGuzzi and especially independent from an official MotoGuzzi community. The main purpose is to facilitate the exchange of opinions between members come from different part of Italy and the world. It could be considered a "young" community but in few time it becomes wider and its members have a very extremist vision about MotoGuzzi respect the Motoguzziworldclub members.	17,000 users, about 465 active members with at least 6 months of membership.	**109 answers obtained**

Figure 3 – Summary description of sample, Own elaboration.

In the first step of our analysis we conducted a preliminary test in order

to verify if the items used in a survey were adequate to measure the selected variables of knowledge categories, normative community pressure, membership and participation intentions.

Therefore we used a factor analysis that is applied as a data reduction method, verifying as the responses to different items are highly correlated with each other, measuring the same factor.

There are many different methods that can be used to conduct a factor analysis (such as principal axis factor, maximum likelihood, and so on), but for our purposes we applied the principal components analysis.

We determined the number of factors (in total six) we wanted to extract and after that we used Promax rotation and the software we have conducted the analysis is SPSS.

The second step planned to build the Expertise Heterogeneity Index trough the Blau Index[7] (1977) in order to obtain the distribution of the members on the different categories of knowledge.

It is a quantitative measure that reflects how many different types (such as categories of knowledge) there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types.

For this purpose we proceed in the following way:

- From our database we calculated an average score for each

[7] The Blau Index is also well knowledged as Herfindahl Index or Hirschman Index.

component of consumer expertise;

- In the matrix of data we reduced the scale from 1-7 to 0-6 in order to be able to calculate mathematically the principal probability of category in which each member belong.
- In the last phase we obtained the probably subdivision of the participants in each of three categories of expertise (Specific-product knowledge, SPK - Associated-product knowledge, APK - Product-usage knowledge, PUK)[8].

Finally we linked the variables using OLS regression method to verify our hypotheses and discuss the findings obtained.

[8] In order to better explain these steps we go into more depth process in the paragraph about the heterogeneity index construction.

CHAPTER FIVE

-FINDINGS-

5.1 Factor Analysis: Results

How we wrote in the previous paragraph we start our analysis with a factor analysis or specifically with a PCA, Principal Components Analysis.

This is an operation of dimension reduction is a way of devising one or more variables to summarize the information contained in a whole lot of items. Therefore we can confirm the reliability of the scales used in a survey.

In detail we obtain the results in SPSS with the operation of dimension reduction and promax rotation of six components extracted.

We found absolute correspondence between items and variables or categories.

Items are coded in the following way:

- NOR_1 (*In order to be accepted, I feel like I must behave as other brand community members expect me to behave*) and NOR_2 (*My actions are often influenced by how other brand community members want me to behave)* are the two items related to "normative community pressure";
- MEM_1 (*It would be very difficult for me to leave this brand*

community) and MEM_2 (*I intend to stay on as a brand community member*) refer to "membership continuance intentions";

- PART (*I intend to actively participate in community's activities*) is the only item that measures the level of "participation";
- SPK_1 (*I know a lot about physical and mechanics attributes of a motorcycle*) and SPK_2 (*How would you rate your knowledge about physical and mechanics attributes of motorcycles relative to the rest of the community?*) refer to the category of knowledge "specific-product knowledge"
- APK_1 (*I know a lot about events, riders, places, objects and people associated with motorcycles*), APK_2 (*How would you rate your knowledge about events, riders, places, objects and people associated with motorcycles, relative to the rest of the community?*) and APK_3 (*I am very interested to events, riders, places, objects and people associated with motorcycles*) are the items related to the category of knowledge called "associated-product knowledge";
- PUK_1 (*I know very well many various procedures that are undertaken during driving a motorcycle or maintenance it*) and PUK_2 (*I know very well the type of riding that can be done on a motorcycle it*) measure the category "product-usage knowledge".

Factor analysis works on data file of 438 rows and the statistics are

based on cases with no missing values for any variable used.

We determined six factors we wanted to extract and factors converged with 100 iterations using a promax rotation based on correlation method.

The figures n. 4 and n. 5 show in details the results of the correlation analysis between all the items used.

Correlation Matrix

		NOR1	NOR2	MEM1	MEM2	PART	SPK1
Correlation	NOR1	1,000	,869	-,794	-,765	-,646	-,197
	NOR2	,869	1,000	-,772	-,740	-,624	-,208
	MEM1	-,794	-,772	1,000	,829	,613	,249
	MEM2	-,765	-,740	,829	1,000	,587	,170
	PART	-,646	-,624	,613	,587	1,000	,118
	SPK1	-,197	-,208	,249	,170	,118	1,000
	SPK2	-,202	-,214	,261	,181	,121	,833
	APK1	,129	,123	-,167	-,072	-,054	-,481
	APK2	,150	,142	-,190	-,110	-,046	-,438
	APK3	,115	,099	-,177	-,083	-,037	-,503
	PUK1	,211	,144	-,023	-,074	-,022	,112
	PUK2	,133	,075	,028	-,004	,028	,075
Sig. (1-tailed)	NOR1		,000	,000	,000	,000	,000
	NOR2	,000		,000	,000	,000	,000
	MEM1	,000	,000		,000	,000	,000
	MEM2	,000	,000	,000		,000	,000
	PART	,000	,000	,000	,000		,007
	SPK1	,000	,000	,000	,000	,007	
	SPK2	,000	,000	,000	,000	,006	,000
	APK1	,004	,005	,000	,067	,131	,000
	APK2	,001	,001	,000	,010	,167	,000
	APK3	,008	,019	,000	,041	,220	,000
	PUK1	,000	,001	,312	,062	,322	,009
	PUK2	,003	,059	,282	,470	,279	,058

Figure 4 - Correlation Matrix, Own elaboration.

Correlation Matrix

		SPK2	APK1	APK2	APK3	PUK1	PUK2
Correlation	NOR1	-,202	,129	,150	,115	,211	,133
	NOR2	-,214	,123	,142	,099	,144	,075
	MEM1	,261	-,167	-,190	-,177	-,023	,028
	MEM2	,181	-,072	-,110	-,083	-,074	-,004
	PART	,121	-,054	-,046	-,037	-,022	,028
	SPK1	,833	-,481	-,438	-,503	,112	,075
	SPK2	1,000	-,473	-,421	-,497	,103	,087
	APK1	-,473	1,000	,782	,865	-,143	-,029
	APK2	-,421	,782	1,000	,788	-,098	-,002
	APK3	-,497	,865	,788	1,000	-,177	-,052
	PUK1	,103	-,143	-,098	-,177	1,000	,800
	PUK2	,087	-,029	-,002	-,052	,800	1,000
Sig. (1-tailed)	NOR1	,000	,004	,001	,008	,000	,003
	NOR2	,000	,005	,001	,019	,001	,059
	MEM1	,000	,000	,000	,000	,312	,282
	MEM2	,000	,067	,010	,041	,062	,470
	PART	,006	,131	,167	,220	,322	,279
	SPK1	,000	,000	,000	,000	,009	,058
	SPK2		,000	,000	,000	,016	,034
	APK1	,000		,000	,000	,001	,275
	APK2	,000	,000		,000	,020	,480
	APK3	,000	,000	,000		,000	,141
	PUK1	,016	,001	,020	,000		,000
	PUK2	,034	,275	,480	,141	,000	

Figure 5 - Correlation Matrix, Own elaboration.

KMO index suggest the sample is adequate with a score of .801 and it is confirmed also by the score of the Chi-Square 4183,32 of Bartlett's test of sphericity at level of significance .000.

Figure n.6 shows the results of principal components analysis rotated with the Promax method.

KMO and Bartlett's Test

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,801
Bartlett's Test of Sphericity	Approx. Chi-Square	4183,329
	df	66
	Sig.	,000

Structure Matrix

	Component					
	1	2	3	4	5	6
NOR1	-,913	,135	,188	-,204	-,579	**0,51**
NOR2	-,895	,124	,117	-,216	-,550	**0,57**
MEM1	**0,93**	-,188	,007	,266	,536	,039
MEM2	**0,92**	-,088	-,040	,181	,500	,161
PART	,665	-,046	,001	,124	**0,99**	-,174
SPK1	,220	-,504	,100	**0,96**	,105	-,037
SPK2	,232	-,491	,102	**0,93**	,105	-,022
APK1	-,123	**0,94**	-,091	-,494	-,060	,051
APK2	-,162	**0,92**	-,050	-,434	-,022	,021
APK3	-,125	**0,95**	-,123	-,521	-,038	-,038
PUK1	-,113	-,157	**0,95**	,113	-,002	,244
PUK2	-,036	-,024	**0,95**	,089	,030	,174

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.

Figure 6 - Matrix of PCA rotated with Promax, Own elaboration.

In the first column we observe how MEM_1 and MEM_2 have obtained a score respectively of 0.93 and 0.92 and it means that both are correlated and measure the same variable, hence "membership continuance intentions".

The second column gathers together APK_1, APK_2 and APK_3 with a range of score between 0,92 and 0.95. PUK_1 and PUK_2 have obtained the same result, 0.95.

The fourth column shows the items measure the category specific-product knowledge with scores respectively of 0.96 for SPK_1 and 0.93 for SPK_2.

Related to participation (PART) in the last column we can observe how NOR_1 and NOR_2 reached respectively a score of 0.51 and 0.57.

The results confirm the reliability of the items used in a survey (Mitchell and Dacin, 1996; Algesheimer et al., 2005) for the designated variables in the model. The KMO measure of sampling adequacy demonstrates that the sample has a good fit.

5.2 Expertise Heterogeneity Index

In this paragraph we show the main operation we made in order to obtain a unique value to measure how members are subdivided within the three categories of expertise we selected before.

The distribution of heterogeneity is uniform with spread of members across all the three categories of expertise related to motorcycles, cars and barbecue' activities, it is not a continuum but a categorical scale of measure (Harrison and Klain, 2007).

We report here the different steps on just one of the four communities selected (for example in an extracted by motoguzziworldclub's data) and finally we show you the results of the other three communities.

- ✓ **Step 1)** Results of the factor analysis confirm the adequacy to measure the three categories of knowled: SPK, APK and PUK. From the matrix of origin data we calculate an average score for each category considering the answers we obtained in a survey in motoguzziworldclub community.

ID	SPK1	SPK2	APK1	APK2	APK3	PUK1	PUK2
1	3	2	6	6	6	2	3
2	4	5	2	3	2	7	4
3	3	2	5	5	3	2	2
4	5	6	2	2	1	4	3
5	4	7	2	1	2	4	4
6	5	5	3	4	3	6	6
7	2	3	5	7	5	3	6
8	5	5	5	6	5	6	6
9	4	4	7	7	6	7	4
10	2	3	4	4	7	3	4
11	5	5	2	1	1	4	7
…	…	…	…	…	…	…	…

Figure 7 – Extracted data for step 1 from Motoguzziworldclub, Own elaboration

The average score is obtained for example for the fist line (ID 1) in this way:

- SPKμ= (3+2)/2;
- APKμ= (6+6+6)/3;
- PUKμ= (2+3)/2

We repeated this operation for each member's answers and from the results in the new matrix of data we subtract -1 in order to get values range between 0 and 6 so that we can find the probability that each member is inside of the category in which he is more knowledgeable than in other categories.

Therefore we obtain the following table:

ID	□SPK	□APK	□PUK
1	1,50	5,00	1,50
2	3,50	1,33	4,50
3	1,50	3,33	1,00
4	4,50	0,67	2,50
5	4,50	0,67	3,00
6	4,00	2,33	5,00
7	1,50	4,67	3,50
8	4,00	4,33	5,00
9	3,00	5,67	4,50
10	1,50	4,00	2,50
11	4,00	0,33	4,50
12	6,00	…	…

Figure 8 - Matrix of avergage for each expertise category less 1, Own elaboration.

- ✓ **Step 2)** For each subject we calculate the probability of affinity in each category, and the probability score is obtained in this way:
  - pSPK= SPKμ/ SPKμ+ APKμ+ PUKμ
  - pAPK= APKμ/ SPKμ+ APKμ+ PUKμ
  - pPUK= PUKμ/ SPKμ+ APKμ+ PUKμ

So that we obtain the probability of affinity' matrix showed in the next figure[9].

ID	pSPK	pAPK	pPUK
1	18,75%	62,50%	18,75%
2	37,50%	14,29%	48,21%
3	25,71%	57,14%	17,14%
4	58,70%	8,70%	32,61%
5	55,10%	8,16%	36,73%
6	35,29%	20,59%	44,12%
7	15,52%	48,28%	36,21%
8	30,00%	32,50%	37,50%
9	22,78%	43,04%	34,18%
10	18,75%	50,00%	31,25%
11	45,28%	3,77%	50,94%
12	50,00%	16,67%	33,33%

Figure 9 – Probability's affinity Matrix, Own elaboration.

- ✓ Step 3) By probability of affinity' matrix we calculate the sum for each column. From ∑pSPK/n, ∑pAPK/n and ∑pPUK/n we get the number of members in each category. Finally we apply

[9] Obviously, talking about probability the total for each line is always =1.

the normalized Blau Index formula (Blau, 1977)

$$1 - \sum_{i=0}^{n} pk^2 / (\frac{k}{k-1})$$

to find an index that represents the distribution of all the members inside the categories.

We apply these three steps for each community and we obtained the following Expertise index of heterogeneity:

Community	SPKmembers	APKmembers	PUKmembers	Total	EHindex
motoguzziworldclub	56	31	59	146	0,967
animaguzzista	39	36	34	109	0,999
golfmania	46	22	21	89	0,925
carnealfuoco	22	48	24	94	0,93
Total				438	

Figure 10 - Members' distribution between the 3 categories and relative heterogeneity index, Own elaboration.

5.3 Regression Model Findings

In this paragraph we show the results obtained with OLS using STATA software.

The table 11 shows the main statistics of the sample.

Variable	Obs	Mean	Std. Dev.	Min	Max
id	438	219.5	126.584	1	438
Nor1	438	3.833333	2.096545	1	7
Nor2	438	3.874429	2.099413	1	7
Mem1	438	4.39726	1.730648	1	7
Mem2	438	3.993151	1.646701	1	7
Part	438	2.810502	1.540656	1	7
Hindx	438	.9578219	.029025	.924	.998
Community	438	1.621005	1.18446	0	3
Consumer	438	.4520548	.4982651	0	1

Figure 11 - Descriptive statistics of the sample, STATA own elaboration.

Statistics are applied on 438 users and variable as $NOR_{1,2}$, $MEM_{1,2}$ and PART range between 1 to 7 (7-points Likert). Heterogeneity index ranges between from .924 to .998 and it means that in all four communities the heterogeneity is very high.

The dummy variable is obtained with 0 for community firm-controlled and 1 for community consumer-controlled.

In the table 12 we observe the values of correlation among our variables and, even if we use STATA, they confirm the previous statistics obtained using SPSS.

```
. corr
(obs=438)

             |       id     Nor1     Nor2     Mem1     Mem2     Part    Hindx Commun~y Consumer
-------------+------------------------------------------------------------------------------
          id |   1.0000
        Nor1 |   0.4179   1.0000
        Nor2 |   0.4117   0.8687   1.0000
        Mem1 |  -0.2642  -0.7940  -0.7716   1.0000
        Mem2 |  -0.3711  -0.7646  -0.7396   0.8288   1.0000
        Part |  -0.3213  -0.6460  -0.6243   0.6128   0.5867   1.0000
       Hindx |  -0.2740  -0.1760  -0.1896   0.3538   0.2524   0.3342   1.0000
   Community |   0.9630   0.4426   0.4161  -0.2736  -0.4038  -0.3354  -0.3135   1.0000
    Consumer |  -0.5585  -0.7930  -0.7813   0.6537   0.6676   0.4725   0.2167  -0.5543   1.0000
```

Figure 12 - Matrix' correlations, STATA own elaboration.

In order to build our moderator variable we had generate NO_{1h} obtained multiplying NOR_1 and Hindx and NO_{2h} obtained multiplying NOR_2 and Hindx.

Table n. 13 shows in detail the first positive regression between Hindx and PART with the influence of the moderator variable normative community pressure.

```
Regress Part Hindx no1h  Consumer

      Source |       SS       df       MS              Number of obs =     438
-------------+------------------------------           F(  3,   434) =  132.92
       Model |  496.696379     3   165.56546           Prob > F      =  0.0000
    Residual |  540.575311   434  1.24556523           R-squared     =  0.4788
-------------+------------------------------           Adj R-squared =  0.4752
       Total |  1037.27169   437  2.37361943           Root MSE      =   1.116

------------------------------------------------------------------------------
        Part |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Hindx |   14.30852   1.887245     7.58   0.000     10.59924    18.01779
        no1h |  -.5608572   .0435504   -12.88   0.000    -.6464531   -.4752613
    Consumer |  -.4873733    .176829    -2.76   0.006     -.834921   -.1398256
       _cons |  -8.620909   1.799249    -4.79   0.000    -12.15723   -5.084585
------------------------------------------------------------------------------

Estimates store OLS_part_1
test _b[no1h] = 0
( 1)  no1h = 0
F(  1,   434) =  165.85
Prob > F =    0.0000
Ho: coef >= 0  p-value = " 1-ttail(r(df_r),`sign_no1h'*sqrt(r(F)))
Ho: coef >= 0  p-value = 0
```

Figure 13 - Regression PART, Hindx and NO1h, STATA own elaboration

Instead the table n.14 show the positive correlation between participation and heterogeneity index and the negative influence of the moderator variable.

```
Regress Part Hindx no2h  Consumer

      Source |       SS       df       MS              Number of obs =     438
-------------+------------------------------           F(  3,   434) =  115.11
       Model |  459.627983     3  153.209328           Prob > F      =  0.0000
    Residual |  577.643706   434  1.33097628           R-squared     =  0.4431
-------------+------------------------------           Adj R-squared =  0.4393
       Total |  1037.27169   437  2.37361943           Root MSE      =  1.1537

------------------------------------------------------------------------------
        Part |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Hindx |   13.59903   1.948608     6.98   0.000     9.769149    17.42891
        no2h |   -.496109   .0439606   -11.29   0.000     -.582511   -.4097069
    Consumer |  -.2519017   .1781497    -1.41   0.158    -.6020452    .0982418
       _cons |  -8.265726   1.863341    -4.44   0.000    -11.92802   -4.603431
------------------------------------------------------------------------------

Estimates store OLS_part_2
test _b[no2h] = 0
( 1)  no2h = 0
F(  1,   434) =  127.36
Prob > F =    0.0000
Ho: coef >= 0  p-value = " 1-ttail(r(df_r),`sign_no2h'*sqrt(r(F)))
Ho: coef >= 0  p-value = 0
```

Figure 14 - Regression PART, Hindx and NO2h, STATA own elaboration.

Tables n.15, 16, 17 and 18 show the results of the regression between $MEM_{1,2}$, Hindx and $NO_{1,2h}$.

```
Regress Mem1 Hindx no1h  Consumer

      Source |       SS       df       MS              Number of obs =     438
-------------+------------------------------           F(  3,   434) =  295.44
       Model |  878.633433     3  292.877811            Prob > F      =  0.0000
    Residual |   430.24328   434  .991343962           R-squared     =  0.6713
-------------+------------------------------           Adj R-squared =  0.6690
       Total |  1308.87671   437  2.99514122           Root MSE      =  .99566

------------------------------------------------------------------------------
        Mem1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Hindx |   14.83128   1.683671     8.81   0.000     11.52212    18.14045
        no1h |  -.6261562   .0388527   -16.12   0.000     -.702519   -.5497934
    Consumer |   .1096672   .1577547     0.70   0.487    -.2003911    .4197255
       _cons |  -7.565707   1.605167    -4.71   0.000    -10.72057    -4.41084
------------------------------------------------------------------------------

Estimates store OLS_mem1_1
test _b[no1h] = 0
( 1)  no1h = 0
F(  1,   434) =  259.73
Prob > F =    0.0000
Ho: coef >= 0  p-value = " 1-ttail(r(df_r),`sign_no1h'*sqrt(r(F)))
Ho: coef >= 0  p-value = 0
```

Figure 15 - Regression MEM1, Hindx and NO1h, STATA own elaboration.

```
Regress Mem1 Hindx no2h  Consumer

      Source |       SS       df       MS              Number of obs =     438
-------------+------------------------------           F(  3,   434) =  255.18
       Model |  835.314362     3  278.438121            Prob > F      =  0.0000
    Residual |   473.56235   434  1.09115749           R-squared     =  0.6382
-------------+------------------------------           Adj R-squared =  0.6357
       Total |  1308.87671   437  2.99514122           Root MSE      =  1.0446

------------------------------------------------------------------------------
        Mem1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Hindx |   14.04441   1.764343     7.96   0.000     10.57669    17.51213
        no2h |  -.557636   .0398036   -14.01   0.000    -.6358677   -.4794043
    Consumer |   .3607859   .1613035     2.24   0.026     .0437528    .6778191
       _cons |  -7.154909   1.687139    -4.24   0.000    -10.47089   -3.838929
------------------------------------------------------------------------------

Estimates store OLS_mem1_2
test _b[no2h] = 0
( 1)  no2h = 0
F(  1,   434) =  196.27
Prob > F =    0.0000
Ho: coef >= 0  p-value = " 1-ttail(r(df_r),`sign_no2h'*sqrt(r(F)))
Ho: coef >= 0  p-value = 0
```

Figure 16 - Regression MEM1, Hindx and NO2h, STATA own elaboration.

```
Regress Mem2 Hindx no1h  Consumer

      Source |       SS       df       MS              Number of obs =     438
-------------+------------------------------           F(  3,   434) =  222.35
       Model |  717.895127     3  239.298376            Prob > F      =  0.0000
    Residual |  467.084325   434  1.07623116            R-squared     =  0.6058
-------------+------------------------------           Adj R-squared =  0.6031
       Total |  1184.97945   437  2.71162346           Root MSE      =  1.0374

------------------------------------------------------------------------------
       Mem2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------+-----------------------------------------------------------------
      Hindx |   7.703611   1.754276     4.39   0.000     4.255679    11.15154
       no1h |  -.5167739    .040482   -12.77   0.000     -.596339   -.4372089
   Consumer |   .4800177   .1643702     2.92   0.004     .1569572    .8030783
      _cons |  -1.710638   1.672479    -1.02   0.307    -4.997805    1.576528
------------------------------------------------------------------------------

Estimates store OLS_mem2_1
test _b[no1h] = 0
( 1)  no1h = 0
F(  1,   434) =  162.96
Prob > F =    0.0000
Ho: coef >= 0  p-value = " 1-ttail(r(df_r),`sign_no1h'*sqrt(r(F)))
Ho: coef >= 0  p-value = 0
```

Figure 17 - Regression MEM2, Hindx and NO1h, STATA own elaboration

```
Regress Mem2 Hindx no2h  Consumer

      Source |       SS       df       MS              Number of obs =     438
-------------+------------------------------           F(  3,   434) =  197.46
       Model |  683.909196     3  227.969732            Prob > F      =  0.0000
    Residual |  501.070256   434  1.15453976            R-squared     =  0.5771
-------------+------------------------------           Adj R-squared =  0.5742
       Total |  1184.97945   437  2.71162346           Root MSE      =  1.0745

------------------------------------------------------------------------------
       Mem2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------+-----------------------------------------------------------------
      Hindx |   7.044336   1.814862     3.88   0.000     3.477324    10.61135
       no2h |  -.4531019   .0409433   -11.07   0.000    -.5335737   -.3726302
   Consumer |   .7095194   .1659222     4.28   0.000     .3834085     1.03563
      _cons |  -1.398566   1.735448    -0.81   0.421    -4.809495    2.012362
------------------------------------------------------------------------------

Estimates store OLS_mem2_2
test _b[no2h] = 0
( 1)  no2h = 0
F(  1,   434) =  122.47
Prob > F =    0.0000
Ho: coef >= 0  p-value = " 1-ttail(r(df_r),`sign_no2h'*sqrt(r(F)))
Ho: coef >= 0  p-value = 0
```

Figure 18 - Regression MEM2, Hindx and NO2h, STATA own elaboration.

The last table (n.19) summarizes the estimations of our regression model and it allows us to reject or not our hypotheses.

Estimates table OLS part_1;part_2;mem1_1;mem1_2;mem2_1;mem2_2;star(.01 .05 .10) stats(N)

Variable	OLS_part_1	OLS_part_2	OLS_mem1_1	OLS_mem1_2	OLS_mem2_1	OLS_mem2_2
Hindx	14.308517***	13.599031***	14.831285***	14.044407***	7.7036113***	7.0443364***
no1h	-.56085721***		-.62615618***		-.51677394***	
Consumer	-.48737328***	-.25190169	.1096672	.36078594**	.48001773***	.70951943***
no2h		-.49610897***		-.55763599***		-.45310194***
_cons	-8.6209094***	-8.2657256***	-7.565707***	-7.1549089***	-1.7106385	-1.3985664
N	438	438	438	438	438	438

legend: * p<.1; ** p<.05; *** p<.01

Figure 19 - Summary of estimation of the regression, STATA own elaboration

We discuss these results in the next chapter concluding with implications both for the theory and manager, reporting limits and further directions of research.

CHAPTER SIX

-CONCLUSIONS AND IMPLICATIONS-

6.1 Discussion

In this paragraph we discuss the principal key points of our results.

Heterogeneity and participation

Consumers take an active role becoming producers of content through their participation and interactions inside online communities (Bowman and Willis, 2003). Most of the time consumers don't receive direct profits for their participation. In this case we consider the participation as intention of behavior.

There are different reasons users interact among them in online communities of consumption: communicative intent, desire for personal growth, create social links, etc. (Schau & Gilly, 2003; Kozinets, 2001).

Despite that, previous researches (Algesheimer et al., 2005; Bhattacharya & Sen, 2003) focus on the internal motivations lead consumers to participate without consider variables of the social structure of an online community of consumption.

Our findings show how the level of heterogeneity affects in a positive way the level of community participation intentions.

The coefficient of a regression model between Hindx and $PART_1$ (including the effect of a moderator variable NO_{1h}) is 14.30 and the same coefficient between Hindx and $PART_2$ (including the effect of a moderator variable NO_{2h}) is 13.59, hence positive in both cases at 95% of confidence interval and the p-value in t-test ($p<.01$) indicates the statistical significance of the coefficients.

Therefore H1 is confirmed and we are able to support the idea that expertise heterogeneity and level of participation are positively correlated.

Looking at these values we can assert that when in a community different and heterogeneous perspectives and expertise exist the member is probably more interested to interact with the other members.

Combining their different knowledge, expertise and experiences members become a collective's force of social and cultural capital that stimulate the interaction in order to achieve individual and common goals.

If we consider that participation as interior intention we could find a sort of "tidy" in some member who read different posts, research different information without interaction.

On the other hand other members can be stimulated to interact by heterogeneous knowledge through proactive behavior (starting with a new argument) or reactive behavior (answering to an existent argument with disagree or agree).

The amount of contributions and their quality can be increased

because people are inspired by other's ideas and interaction allows further development of that.

The role of interaction between users on a web platform is broadly acknowledged also in literature because the exchange of tentative partial solutions between users and firms can impact completeness, precision and confidence; since a solver uses a result produced by users to refine their own solution, precision and quality are increased (Durfee, 1999; Eisenhardt & Zbaracki, 1992).

In a hypothesis where all members have the same expertise and knowledge probably the number of the post will be reduced and members will have less participation intentions because they are not stimulate to interact always on the same arguments or they are not interested to absorb the same level of knowledge that they got yet.

Heterogeneity and membership

Membership is the main factor in order to have in a consequential step the probability of participation. It can be considered a necessary condition but not the only one enough to have participation.

Membership represents the members' intentions to maintain ties to the community in the future and stay committed with it (Algesheimer et al., 2005).

Actually, members inside a community can be considered as a stock of

operant resources but studies on the different typologies of resources owned and on the way through which they interact and integrate their own resources to co-create value, are still scant (Vargo&Lusch, 2004; 2008).

The coefficient of a regression model between Hindx and MEM_{1_1} (including the effect of a moderator variable NO1h) is 14.83, the same considerations are valid in the regression between Hindx and MEM_{1_2} with 14.04, Hindx and MEM_{2_1} with 7.70 and Hindx and MEM_{2_2} with 7.04, hence positive in all cases at 95% of confidence interval and the p-value in t-test ($p<.01$) indicates a good validity of the model. Therefore, we can assert that H2 is confirmed.

Membership continuance intentions is more linked to the level of expertise heterogeneity rather than participation. We can explain this little difference since the consumer is more satisfied to stay in a community if inside it he can find different kind of information and perspective whereof he needs.

Our results confirm also the Vargo and Lusch's contribute (2004, 2008) affirming that value is always co-created through interactions among actors, integrating their resources and competences.

If for example we are fan-members of a particular online brand community and we want buy a new product of this brand probably we try to find different information about this product.

If we hypothesize that inside the community, independent from the

number of the members registered, exist just one perspective or the same kind of information, probably we are influenced negatively because we and we try to find different information or consumers' experiences on another online community or outside the web.

In addition when membership continuance intentions is low affects negatively the brand loyalty intentions and therefore it affects negatively the related brand-related purchase behavior (Algesheimer et al., 2005).

When in a community exist different kind of information it is more able to satisfy the needs of each member about information, perspectives and exchange of opinions.

The negative effects of the normative community pressure

Normative community pressure measures the implicit coercion to conform to the community's norms, rituals, and objectives (Wellman et al., 1996; McMillan and Chavis, 1986).

In our model the interaction effect of the normative pressure and the heterogeneity is captured by the variables NOR_{1h} and NOR_{2h}, with regards to the different measures of heterogeneity.

In all model the interaction between the two variables has a negative and significant sign. Since the value of the coefficient of the moderator variables NOR_{1h} and NOR_{2h} are negatively on the positive relations between Hindx and PART and Hindx and MEM, we can conclude that H3

and H4 are confirmed.

How we can see the value of the coefficient of the moderator variables NOR_{1h} and NOR_{2h} are negatively on the positive relations between Hindx and PART and Hindx and MEM, respectly -.496, -.557 and so on, hence positive in all cases at 95% of confidence interval and the p-value in t-test indicates a good validity of the model. Therefore, the results (-.496, -.557) are both negative and significant ($p<.01$).

Algesheimer, Dholakia, and Herrman (2005) notes that community engagement can also result in an unwelcome feeling of reference group pressure to conform to community norms for participation and brand use.

Algesheimer et al. (2005) found that community identification and normative pressure was lower for large brand communities and consequently, small brand communities drive more by emotional factors and large networks by cognitive aspects.

Despite that, we assert that normative community pressure is seen as high in community firm-controlled and low in community consumer-controlled.

It is important to highlight that in these regressions we don't look at the composition of the normative community pressure, therefore the result is independent in this step of analysis from the community's government (firm or consumers).

Community consumers-driver Vs. Community firm-driver

Online community culture, independent if it is managed by the firm or by consumers, is built on norms of collaboration, cooperation, sharing, and behaviors (Rheingold, 1993; Mathwick et al., 2007).

If we look at the answers of the survey for items related to normative pressure (NOR_1 and NOR_2) we see that in a community firm-driver members percept a high level of coercion to conform to the community's norms.

We further examine the differences between the two types of groups (consumer and firm) by using a dummy variable.

We find that communities consumer-driver have a lower level participation (in all the two regressions), while we find a positive effect on MEM (in three of four specifications).

Looking at our results, we can assert that H5 is confirmed whereas H6 is not confirmed and it needs to be deepened.

Therefore, the variable community consumer-driver instead has negative effects on the participation, as we can see in the following equation

$$PART_{1,1}=\alpha 0+\alpha 1Hindx+\alpha 2NOR1h+\alpha 3CONSUMER$$

Note this effect is depurated of the heterogeneity and the normative pressure, thus the overall effect could be positive or negative and we can find that consumer based community have higher MEM and PART in average.

If we imagine an hypothetical context where we have the same level of Hindx and normative community pressure in both community firm-driver and community consumer-driver we obtain respectively: in the first case a low degree of membership intentions and an high level of participation and on the other hand, in community consumer-driver an high level of membership continuance intentions but a low level of participation intentions.

These findings could be explained as follows.

In a community consumer-driver there is a lack of stimulus from the firm in which consequently affects negatively the user participation. On the other hand a community based environment increases the sense of belonging of users, which in return affects positively the intention of remaining member of the community.

Actually our data surveys show that, inside community consumer-driver, in average of normative community pressure perceived of 2.04 (in a scale from 1 to 7) and an average inside community firm-driver of 5.35 (in a scale from 1=low to 7=high).

We can explicate this last factor asserting that in a paradoxal hypothesis in which there is the absence of both normative pressure and expertise level members prefer to participate in a community firm-driver since they can find some information given by the company rather than stay or participate in a community consumer-driver where they can find no

information.

When the company decides about arguments to discuss or in general when it manages the directions about perspectives, themes and argument if in one hand this behavior permits to obtain a selected amount of information and hence of value co-created, on the other hand it reduces the freedom of the members to interact on different arguments they would have them.

In community firm-driver the normative community pressure is percept higher than in community consumer-driver. For this reason we can assert that a strong presence of the firm with different power against consumers (in hierarchical terms) can generate a negative effects on the antecedents of the value co-creation process.

6.2 Theoretical Contributions and Managerial Implications

The fast growth of communities of consumption on the web has offered consumers significant power toward firms and it became a persistent theme in community of consumption research.

The study contributes to a better understanding of community of consumption phenomenon and of its impact on processes of value co-creation and human resources integration.

During the last ten years many researchers have tried to define which are the collective consumption practices that create value within

communities market-oriented (Muniz & O'Guinn 2001; Muniz & Schau 2005; McAlexander et al., 2002; Cova & Pace, 2007; Schau et al., 2009; Shouten et al., 2007; Bagozzi & Dholakia 2006; Kozinets 2002; Kozinets & Handelman 2004).

Vargo and Lusch (2004) said that " the customer is always a co-creator of value: there is no value until an offering is used-experience and perception are essential to value determination". Therefore, firms and consumers have the opportunity to create value together.

Our conceptual frameworks have both theoretical and managerial implications since the study offers some insights for those practitioners wish to accrue brand benefits through an online community and opens toward crowd sourcing.

This research has investigated how the expertise structure in a community affects the ability of the consumers to stay in an online community and participate actively in order to increase the probability to co-create value.

In detail, the implications for the theory are the following:

Many researches (Muniz & O'Guinn, 2001; McAlexander et al., 2002; Algesheimer et al., 2005; Bagozzi & Dholakia, 2006) focus on the structure of the community's population but they tend always to suggest some degree of homogeneity.

Despite this presence of homogeneity, in order to better understand the

characteristics of community's population, we study it from a heterogeneous perspective.

In according with Ouwersloot & Oderkerken-Schroder (2008) "a heterogeneous point of view recognizes that person within a community are unique".

Using the customer-centric perspective (McAlexander et al., 2002) about consumer-to-consumer relationship we introduce the definition of "expertise heterogeneity" within online communities of consumption contributing in this way to broaden the body of knowledge of value co-creation theory in consumer behavior discipline.

Furthermore, through understanding the social features of the members we provided a more dynamic understanding of the structure of an online community of consumption, not only in terms of individual or social factors that affect membership and participation, but also including the expertise of the members as structural factor.

Kozinets' (1999) has created an appropriate model for identifying the basic four types of members present in online consumption communities (devotee, tourist, insider, mingler) based on two factors: the relationship that consumer has with the consumption activity and the level of intensity of the social relationship with other members in the community.

In this way we propose a new model of heterogeneity, based on consumer-to-consumer relations, and not just highlighting members roles

and value.

Our findings, in accordance with Ouwersloot & Oderkerken-Schroder (2008), show that communities can serve multiple goals simultaneously for different users and, contemporarily, they seek multiple objectives and information.

In order to achieve a good co-creation process, managers have to support the consumer's point of view, identifying customers' needs (Vargo and Lusch, 2004).

Building and maintain a strong online community has become a crucial marketing activity for many companies (Algesheimer et al., 2005).

For practitioners is important to successfully integrate this developing knowledge and understanding of online consumers structure and their relations. Therefore, firms have to develop different and customized strategies to communicate with consumer.

First, our model can help managers to identify different levels of social structure so that they can develop strategies based on different context and members.

Companies must recognize the presence of subgroups based on different levels of expertise and not consider them as a unique and standardized group of members. We analyzed this phenomenon with the idea that heterogeneity inside communities might exist and our findings support this vision.

Theoretically, we don't refuse the idea that communities can be analyzed using a homogeneity perspective (Muniz & O'Guinn, 2001; McAlexander, 2002), e.g. community members share a strong commitment.

We integrate that the heterogeneity concept should be considered and acknowledge that a main part of the community's value.

Companies should recognize consumers heterogeneity to better understand their various social capital sources and use their to contribute to co-create different experiences outside the community.

The knowledge on intentions mechanism, at different level of expertise, helps managers to engage and motivate consumers who tend towards value generated.

Managers in this way, for example, are able to encourage members to attract new members or to share information. Therefore, managers can't treat community just as single and homogeneous group.

Stimulating members with different expertise and knowledge they can helps the community to create and maintain a high quality level of operant resources, because different opinion and perspectives can born from these interaction and exchange of idea.

The dynamic change of the social structure of an online community suggests that firms should adopt a long-term view of consumers' relations.

These relationships must be based on differentiated communications.

Another important result of our study shows that a high level of normative community pressure within community firm-driver can influences negatively on ability of the members to participate and therefore increase the amount of value co-created.

One of the other main theoretical implications of the work concern the concept of normative community pressure in relation to community firm-driver and consumer-driver.

In previous research the normative pressure was either other brand community members (normative community pressure in Algesheimer et al., 2005), or important others (subjective norms in Bagozzi & Dholakia, 2002 & 2006).

Algesheimer et al. (2005) build a model where define as moderators variables brand community size and brand knowledge and as mediators variables normative community pressure, community engagement and reactance. In our model we show how normative community pressure, in spite of it is considered a mediators on performance as behavioral intentions, has also a role of moderator.

In summary, on the table 20, we show how our study can be add to a list of currently researches about on line communities of consumption and brand communities.

Authors	Methodology	Theoretical Framework	Results	Industries
Muniz&O'Guinn (2001)	in-depth interviews, netnography	Community theory	shared consciouness, rituals and traditions, sense of duty	cars, computers

Bagozzi & Dholakia (2002)	survey	Theory of Planned Behaviour & Social Identity Theory	positive anticipated emotions, social identity and we-intentions	general interest in chatrooms
McAlexander et al. (2002)	survey, etnography	Consumers Relationships	brand community integration	cars, motorcycles
Dholakia et al. (2004)	survey	Theory of Planned Behaviour & Social Identity Theory	we intentions and participation behavior	general interest
Algesheimer et al. (2005)	survey	brand community size, brand knowledge	Social identity theory, brand relationship quality, participation and bramd behavior	cars
Bagozzi & Dholakia (2006)	survey	Theory of Planned Behaviour, Social Identity Theory and Brand identification	intentions, participation behavior and brand behavior	motorcycles
Brow et al.2007	in-depth interviews, netnography	Social ties	brand knowledge and information value	Television
Schau et al. (2009)	in-depth interviews, netnography	Community theory	12 value-creating practices	internet, music, TV, cameras..
Our study	**Survey, in depth-interviews**	**Community theory, S-D logic perspective,organizational perspective**	**heterogeneity, normative community pressure and behavioral intentions**	**Cars, motorcycles, barbecue**

Figure 20 – Comparations between previous studies in communities of consumption

6.3 Limitations and Future Research

The concept of heterogeneity related to brand community environment has in recent years obtained considerable attention from both the scientific and practical world.

We assert that it is a natural consequence of the rapidly increasing number of findings in the scientific literature about the rules' concept and social capital.

There are a number of research areas in which further research may be led in order to explore new related social and marketing phenomena and, therefore, expanding the findings from this study.

This thesis has evident limits.

First of all, our study is an exploratory work applied on only four

brand communities. The findings need to be generalized in other community settings, such as replication in different product categories, brands, activities of consumption, or different countries.

Therefore, our study offers a little scope for generalization but the findings require further research on more types of community before drawing general conclusions.

We find presence of heterogeneity between community members' expertise but this study has been partly successful because the findings cannot be easily clear and unequivocal in terms of structure of expertise in a group. Further studies might explore other sources of heterogeneity.

Authors like McAlexander et. al (2002), Muniz & O'Guinn (2001) highlight the need to fill a broad gap in literature developing quantity scale to test different aspects of brand communities.

We agree with this adding the need to link structural social aspects of members and their ability to co-produce value.

Another important limit is that we don't include in our analysis the "time" variable. Considering the same heterogeneity's variables we adopted in this dissertation we suggest a longitudinal study for further researches in order to observe how the dynamics between heterogeneity and intentions can be change during the time and in the virtual space.

How members' heterogeneity can affect the consumer intentions, in term of participation and membership continuance, in different stages of

the grow up's evolution of a community? If it may be different that means companies should adopt different strategies basing on the community "age".

Furthermore, we suggest comparing in a longitudinal study both consumer-driver and firm-driver communities.

The third important limit is that we don't analyze the optimal point of heterogeneity index. Which heterogeneity index could be optimal in order to stimulate participation, and therefore, increase the probability to co-create value? Can it be generalized?

Further studies could concentrate their attention about the optimum index of heterogeneity. It could be a potential research area raised by our study. More academic research regarding heterogeneity and value is needed to comprehensively understand consumers' motivation and intentions to participate.

A consequent limit comes from the methodology adopted. Using a quantitative method we could lose other important information that may relevant.

In this case we suggest adopting a qualitative methodology of analysis to better interpret and/or extend our results.

We are convinced that in the frame of the explorative study of the paper, the empirical evidence can be considered as fitting to generate qualitative insights. Therefore, the extension of the sample base will

represent another further needed research step.

Another main limit of our work is we don't include in the study a size variable but linked the findings only with heterogeneity variables. Some authors like Scarpi (2010) considered size as a moderator for the relationships between community and loyalty, comparing small and large web-based brand communities and highlighting that small communities operate differently from larger ones with regard to numerous aspects, and possess specific strengths and weaknesses.

We suggest adding in our model the size variable in order to better understand if the dynamic of the model change if the size decrease or increase.

We must not control for individual characteristics, which can have an impact on MEM and PART as well. There could be a problem of endogenous selection of the sample; therefore there could be selection bias. Moreover, there could be different biases in the two groups.

For example, in consumer based communities we can expect to have more loyal customers with respect to firm based community users, this is because there are extra organizational costs which should be born in consumer based communities.

Further investigation must consider the model for censored data (such as Tobit), but this issue must be addressed using a larger sample.

ALBA J.W., HUTCHINSON J.W. (1987), "Dimensions of Consumer Expertise", *Journal of Consumer Research,* 13 (4), pp. 411-54.

ALGESHEIMER R., DHOLAKIA U.M., HERRMANN A. (2005), "The social influence of Community of consumption: evidence from European car clubs", *Journal of Marketing,* Vol.69*,* pp. 19-34.

ANDERSEN P.H. (2005), " Relationship marketing and brand involvement of professionals through web-enhanced brand communities: the case of Coloplast", *Industrial Marketing Management*, Vol.34, pp. 39-51.

ARNOULD E.J., THOMPSON C. J. (2005), "Consumer culture theory (CCT): Twenty Years of Research"*, Journal of Consumer Research,* Vol.31 (4), pp. 868–882.

ARNOULD, E. J., PRICE L., MALSHE A. (2006), In the service-dominant logic of marketing: Dialog, debate, and directions", *Armonk, NY: M.E. Sharpe,* pp. 320-333.

BACKMAN C.M., HAUNSCHILD P.R. (2002), "Network learning: the effects of partners' heterogeneity of experience on corporate acquisitions", *Administrative science quarterly*, Vol.47, pp. 92-124.

BAGOZZI R.P., DHOLAKIA U.M. (2002), " Intentional social action in virtual communities", *Journal of interactive Marketing*, Vol.16 (2), pp. 2-22.

BAGOZZI R.P., DHOLAKIA U.M. (2006), "Antecedents and purchase consequences of customer participation in small group communities of consumption", *International journal of research in Marketing,* Vol.23, pp. 45-61.

BANTEL K.A., JACKSON S.E. (1989), "Top management and innovations in banking: Does the composition of the top team make a

difference?", *Strategic Management Journal*, Vol. 10 (1), pp. 107–124.

BHATTACHARYA C. B., SEN S. (2003), "Consumer-Company Identification: A Framework For Understanding Consumers' Relationships With Companies", *Journal of Marketing*, Vol.67, pp. 76-88.

BLAU P. (1977), "Inequality and Heterogeneity", 1st edition*, New York: The Free Press.*

BOWMAN S., WILLIS C. (2003), "We media: How audiences are shaping the future of news and information", *The Media Center at The American Press Institute.*

BRABHAM D.C. (2009), "Moving the crowd at threadless: motivations for participation in a crowdsourcing application", *Presented at AEJMC Conference.*

BRABHAM D.C. (2008), "Crowdsourcing as a model for problem solving - An introduction and cases*", Convergence: the International Journal of Research into New Media Technologies*, Vol. 14 (1), pp. 75-90.

BROWN S., KOZINETS R.V., SHERRY J.F. (2003), "Teaching Old brands New Tricks: Retro Branding and the Revival of Brand Meaning", *Journal of Marketing,* Vol.67, pp.19-33.

BUNDERSON J.S., SUTCLIFFE K.M. (2002), "Comparing alternative conceptualizations of functional diversity in management teams:

Process and performance effects", *Academy of Management Journal*, Vol.45, pp. 875-893**.**

BYRNE D. (1971), "The attraction paradigm", *New York Academic Press.*

CARPENTER M.A. (2002), "The implications of strategy and social context for the relationship between top management team heterogeneity and firm performance", *Strategic Management Journal*, Vol.23 (3), pp. 275-284.

CARÙ A., COVA B. (2006), "Comprendere l'immersione del consumatore nell'esperienza: il potere dell'introspezione", *Mercati e Competitività*, Vol.1.

CHATMAN J.A., FLYNN F.J. (2001), "The influence of demographic composition on the emergence and consequences of cooperative norms in work teams"**,** *Academy of Management Journal*, Vol.44 (5), pp. 956-974.

COVA B. (1997), "Community and consumption: Towards a definition of the "linking value" of product or services", *European Journal of Marketing*, 31, pp.297-316.

COVA B., COVA V. (2002), "Tribal Marketing: the tribalisation of society and its impact on the conduct of marketing ", *European Journal of Marketing*, Vol.36 (5), pp. 595-620.

COVA B., DALLI D. (2009), "Working consumers: the next step in marketing theory", *Marketing Theory*, Vol.9, pp. 315-339.

COVA B., PACE S. (2006), “Branding tribal su internet: <<MyNutella the community>>”, *Micro e Macro Marketing*, vol.16 (1), pp.165-182.

DALLI D., CORCIOLANI M. (2008) “Collective forms of resistance: the transformative power of moderate communities. Evidence from the Bookcrossing case”, *International Journal of Market Research,* Vol.50 (6), pp. 757-775.

DHOLAKIA U.M., BAGOZZI R.P., PEARO L.K. (2004), “A social influence model of consumer participation in network- and small-group-based virtual communities”, *International journal of research in Marketing*, vol.21, pp.241-263.

DIMAGGIO P.J., POWELL W. (1983),"The iron cage revisited institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, Vol.48, pp. 147-60.

DURFEE E.H. (1999), "Distributed problem solving and planning. In Multiagent systems: a modern approach to distributed artificial intelligence", *MIT Press.*

EISENHARDT K.M., ZBARACKI M.J. (1992), "Strategic Decision Making", *Strategic Management Journal*, Vol.19, pp.17-37.

ELY J.R., THOMAS D.A. (2001), "Cultural diversity at work: the effects of diversity perspectives on work group processes and outcomes", *Administrative Science Quarterly***,** Vol.46 (2), pp.229-273.

FINE G.A. (1979), " Small groups and culture creation: The idioculture of little league baseball teams", *American Sociological Review*

FIRAT F., VENKATESH A. (1995), "Liberatory postmodernism and the reenchantment of consumption", *Journal of Consumer Research*, Vol.22, pp. 239-267.

FOURNIER S. (1998), "Consumers and their brands: developing relationship theory in consumer research*", Journal of Consumer Research*, 24, pp. 343-353.

FOURNIER S., LEE L. (2009). "Getting brand communities right". *Harvard Business Review*, Vol.87 (4), pp. 105-111.

HARRISON D.A., KLEIN K. (2007), "What's the difference? Diversity constructs as separation, variety, or disparity in organizations", *Academy of Management review*, vol.32 (4), pp. 1199-1228.

HARRISON D.A., PRICE K., GAVIN J., FLOREY S. (2002), "Time, teams, and task performance: changing effects of surface and deep-level diversity on group functioning", *Academy of Management Journal,* Vol.45 (4), pp. 1029-1045**.**

HOLBROOK M.B. (2006), "ROSEPEKICECIVECI versus CCV: Theresource-operant, skills-exchanging, performance-experiencing, knowledge-informed, competence-enacting, co-producer-involved, value-emerging, customer-interactive view of marketing versus the concept of customer value: 'I can get it for you wholesale", In R. F. Lusch & S. L. Vargo (Eds.), *The service dominant logic of marketing: Dialog, debate and directions* (pp. 208–223). *Armonk, NY: M.E. Sharpe*.

HOLT D.B. (2002), "Why Do Brands Cause Trouble? A Dialectical Theory of Consumer Culture and Branding", *The Journal of Consumer Research*, Vol. 29 (1), pp. 70-90.

HONG L., PAGE S.E. (2001), "Problem solving by heterogeneous agents", *Journal of Economic Theory*, Vol.97 (1), pp.123-163**.**

HOWE J. (2006), "The rise of crowdsourcing", *Wired Magazine*, 14 (6).

HUNT J. (2000), "A general theory of competition: too eclectic or not ecletic enough? Too incremental or not incremental enough? Too neoclassical or not neoclassical enough?", *Journal of Macromarketing*, Vol.20 (1), pp. 77-81.

JACKSON S.E., BRETT J.F., SESSA V.I., COOPER D.M., JULIN J.A., PEYRONNIN K., (1991), " Some differences make a difference:

individual dissimilarity and group heterogeneity as correlates of recruitment, promotions and turnover*", Journal of applied psychology*, Vol.76, pp. 675-689.

JACKSON S.E., JOSHI A., ERHARDT L.N. (2003), "Recent Research on Team and Organizational Diversity: SWOT Analysis and Implications", *Journal of Management*, Vol.29 (6), pp. 801–830.

JACOBY J., TROUTMAN T., KUSS A., MAZURSKY D. (1986), "Experience and Expertise in Complex Decision Making", *Advances in Consumer Research*, Vol. 13, pp. 469-475

JEHN K.A, NORTHCRAFT G.B., NEALE M.A. (1999), "Why differences make a difference: a field study of diversity, conflict, and performance in worksgroups", *Administrative Science Quarterly*, vol.44 (4), pp. 741-763.

KALAIGNANAM K., VARADARAJAN R. (2006). "Customers as coproducers: Implications for marketing strategy effectiveness and marketing operations efficiency". In R. F. Lusch & S. L. Vargo (Eds.), *The service dominant logic of marketing: Dialog, debate and directions* (pp. 166–180). *Armonk, NY: M.E. Sharpe.*

KHUN T. (1962,1970) "The Structure of Scientific Revolution", *Chicago University Press, II ed.* La struttura delle rivoluzioni scientifiche, Torino, Einaudi, 1979.

KOZINETS R. (1997), " I want to believe: a netnography of the X-phyles subculture of consumption", *Advances in Consumer Research*, Vol.24, pp. 470-475.

KOZINETS R. (1999), "E-tribalized Marketing: the strategic implications of virtual communities of consumption", *European Management Journal*, Vol.17 (3), pp. 252-264.

KOZINETS R. (2001), " Utopian enterprise: articulating the meanings of Start Trek's culture of consumption", *Journal of Consumer Research*, Vol.28, pp. 67-88.

KOZINETS R. (2002), "Can consumers escape the market? Emancipatory illuminations from Burning Man", *Journal of Consumer research*, vol.29, pp. 20-38.

KOZINETS R. (2002), "The field behind the screen: using a netnography for marketing research in online communities", *Journal of Marketing Research*, Vol.1, pp. 61-72.

KOZINETS R., HANDELMAN J.M. (2004), "Adversaries of consumption: consumer movements, activism and ideology", *Journal of Consumer Research*, Vol.31, pp.691-704.

LATTIN J., BAKER D.L. (2003), "Analyzing Multivariate Data", *Brooks/Cole Cengage Larning*, ISBN 0-534-38226-6.

LAZZARATO (1997), "Lavoro immateriale. Forme di vita e produzione di soggettività", *Verona, Ombre corte.*

LUSCH R., VARGO S. (2006), "The service-dominant logic of marketing: Dialog, debate, and directions", *Armonk, NY: M.E. Sharpe*

MAFFESOLI M. (1996), "The time of the tribes", *Sage Publication Ltd*, ISBN 0-8039-8474-X.

MATHWICK C., WIERTZ C., DE RUYTER K. (*2008*), "Social capital production in a virtual P3 community", *Journal of Consumer Research,* Vol.34, pp. 832-849.

MAUSS M. (1990), "The Gift: forms and functions of exchange in archaic societies", *London Routledge*

MAZZOLA D. & DISTEFANO A. (2010), "Crowdsourcing and the participation process for problem solving: the case of British Petroleum", *itAIS 2010, VII Conference in Information Technology and Innovation trends in organizations*, ISBN 978-88-6105-124-9.

MCALEXANDER J.H., SCHOUTEN W.J., KOENIG H.F. (2002), "Building community of consumption", *Journal of Marketing*, Vol.66, pp. 38-54.

MCMILLAN D.W., CHAVIS D.M. *(1986), "*Sense of community: A definition and theory", *Journal of Community Psychology,* 14(1), pp. 6-23.

MITCHELL A., DACIN P.F. (1996), "The Assessment of Alternative Measures of Consumer Expertise," *Journal of Consumer Research*, Vol.23, pp. 219-240.

MUNIZ A. & O'GUINN T.C. (2001), "Community of consumption", *Journal of Consumer research*, vol.27 (4), pp. 412-432.

MUNIZ A., SCHAU H.J., BAYSINGER (2005), "Religiosity in the abandoned Apple Newton community of consumption", *Journal of Consumer research*, vol.31, p.737-747.

NELSON P. (1970), "Information and consumer behavior", *Journal of Political Economy*, Vol.78, pp. 311-329.

O'REILLY A., CALDWELL D.F., BARNETT W.P. (1989), "Work group demography, social integration, and turnover", *Administrative Science Quarterly*, vol.34 (1), pp. 21-37.

O'REILLY C., WILLIAMS K., BARSADE S. (1998) 'Group Democracy and Innovation: Does Diversity Help?", in Gruenfeld, D. et al. (eds) *Research and Managing Groups and Teams*. JAI Press.

OUWERSLOOT O., ODERKERKRN-SCHRODER (2008), "Who's Who in Brand Communities - and Why?", *European Journal of Marketing.*

PARK C.W. (1976), "The Effect of Individual and Situation-Related Factors on Consumer Selection of Judgment Models", *Journal of Marketing Research*, Vol.13, pp. 144- 151.

PAYNE A.F., STORBACKA K., FROW P. (2008), "Managing the co-creation of value", *Journal of the Academy Marketing Science,* Vol.36, pp. 83-96.

PELLED L.H. (1996), "Demographic diversity, conflict, and work group outcomes: an intervening process theory", *Organization Science*, vol.7 (6), pp. 615-495.

PENROSE E. (1959), "The Theory of the Growth of the Firm", *New York, Wiley and Sons,* ISBN 978-0-19-828977-7

Personal Web Space", *Journal of Consumer Research*, Vol.30, pp. 385-404.

PILLER F., SCHUBERT P., KOCH M., MO¨SLEIN K. (2005). Overcoming mass confusion: Collaborative customer co-design in online communities", *Journal for Computer Mediated Communication.*

PRAHALAD C.K. & RAMASWAMY V. (2004), " The co-creation connection", *Strategy+Business,* issue 27.

PRAHALAD C.K., RAMASWAMY V. (2004), " Co-creating experiences: the next practice in value creation", *Journal of interactive Marketing,* vol.18 (3), pp.5-14

PRAHALAD C.K., RAMASWAMY V. (2004), "Co-creating unique value with customers", *Strategy and Leadership,* vol.32 (3), pp. 4-9.

RHEINGOLD H. *(*1993*),* "The Virtual Community: Homesteading on the Electronic Frontier", *Massachusetts: Addison-Wesley*. ISBN 0-201-60870-7.

RIORDAN C., SHORE L. (1997), " Demographic diversity and employee attitudes: examination of relational demography within work units", *Journal of applied psychology*, Vol.82, pp. 342-358

SCARPI D. (2010), "Does size matter? An examination of small and large web-based communities of consumption*"*, *Journal of Interactive marketing*, vol.24 (4), pp. 14-21.

SCHAU H.J., GILLY M.C. (2003), "We Are What We Post? Self-Presentation in

SCHAU H.J., MUNIZ A., ARNOULD E.J. (2009), "How community of consumption practices create value", *Journal of Marketing*, Vol.73, pp. 30-51.

SCHOUTEN J., MARTIN D., MCALEXANDER J. (2007), " The Evolution of a Subculture of Consumption", *Book chapter, Elsevier,* pp. 67-75.

SCHOUTEN J., MCALEXANDER J. H. (*1995*). "Subcultures of Consumption: An Ethnography of the New Bikers*", Journal of Consumer Research,* Vol.22 (3), pp. 43–61.

SCHOUTEN J.W., MCALEXANDER J.H., & KOENIG H.F. (2007), "Transcendent customer experience and community of consumption", *Journal of Academy Marketing Science,* Vol. 35, pp. 357-368.

SHIH P., HU H., FARN C. (2010), "Lead User Participation in Brand Community: The case of Microsoft MVPS", *International Journal of Electronic Business Management,* Vol. 8 (4), pp. 323-331

SMITH A. (1776), "The wealth of nations", BOOK I, *The modern library*, ED. 1937

SRULL T. K. (1983), "The Role of Prior Knowledge in the Acquisition, Retention, and Use of New Information," in Richard Bagozzi and Alice M. Tybout (eds.), *Advances in Consumer Research*, Vol. 10, pp. 572-576.

VAN KNIPPENBERG D.L., SCHIPPERS M. (2007), "Work Group Diversity". *Annual Review of Psychology*, Vol. 58.

VARGO S.L., LUSCH R.F. (2004), "Evolving to a new dominant logic of Marketing", *Journal of Marketing,* Vol.8, Vol.1, pp. 1-17.

VARGO S.L., MAGLIO P.P., AKAKA M.A. (2008), "On value and value co-creation: a service systems and service logic perspective", *European Management Journal,* 26, pp.145-152.

VARGO S.L., MORGAN F. (2005), "Historical perspectives on service-dominant logic", In the service-dominant logic of marketing: Dialog, debate, and directions", *Armonk, NY: M.E. Sharpe,* pp.29-42

WEISBERG R.W., ALBA J.W. (1981), "An examination of the alleged role of "fixation" in the solution of several "insight" problems", *Journal of Experimental Psychology*, Vol.110 (2), pp. 169-192.

WELLMAN B., SALAFF J., DIMITROVA D., GARTON L., GULIA M., HAYTHORNTHWAITE, C. (1996)."Computer networks as social networks: Virtual community, computer supported cooperative work and telework", *Annual Review of Sociology,* Vol. 22, pp. 213-238.

WILKINSON A. (1998), "Empowerment : theory and practice", *Personnel Review,* Vol. 27 (1), pp. 40-56.

WILLIAM L.M., LEHMANN D.R. (1980), "Individual Differences in Search Behavior for a Nondurable", *Journal of Consumer Research*, Vol.7, pp. 296-307.

WILLIAMSS K.J. & O'REILLY C.A. (1998), "Demography and diversity in organizations: a review of 40 years of research", *In Staw*

B. & Cummings L., Research in Organizational Behavior, vol.20, pp. 77-140

WOODRUFF R. B., FLINT D. J. (2006), "Marketing's service-dominant logic and customer value". In R. F. Lusch & S. L. Vargo (Eds.), *The service dominant logic of marketing: Dialog, debate and directions*, (pp. 183–195). Armonk, NY: M.E. Sharpe.

ZIMMERMAN B. J. (1995), "Self-efficacy and educational development". In A. Bandura, *Self -efficacy in changing societies*, (pp. 202-231). Cambridge: Cambridge University Press.