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MANAGING GROUP DYNAMICS WITH THE VIABLE SYSTEMS APPROACH (VSA)
A study on consonance, group cohesiveness, and positive conformity

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To Arlinda, her patience and love.

Everything we hear is an opinion, not a fact. Everything we see is a perspective, not the truth.

Marcus Aurelius

ABSTRACT

In ancient Greece there was a classical philosophical debate between Parmenides and Heraclitus. Parmenides denied the existence of change and motion. On the other hand, Heraclitus became a precursor of change with his famous statement: "everything is in perpetual flux" – quoted by Plato in his *Cratylus* (Sedley 2003, pp. 16-19). This discourse can be expressed in different dichotomies that manifest the dualism between structure and system (Barile et al., 2011, pp. 17). So: in physics there is the dichotomy corpuscle-wave; in medicine the dichotomy anatomy-physiology; in business management the dichotomy structure-strategy (Chandler, 1962); in arts the dichotomy photo-video, etc. In synthesis, the discussion above is about statics and dynamics. These general laws, implicitly or explicitly, are applied also on groups in order to study the behavior of individuals. In organizational behavior groups are the second level of investigation, after the individual one. We cannot understand groups if we limit our investigations in a static equilibrium, or only at structural level. Therefore, becomes dutiful to study groups from a systems perspective because the behavior is something dynamic and groups are viable systems able to maintain a separate existence for a defined period (Beer, 1981).

This dissertation makes an inquiry to the group phenomena from the perspective of the Viable Systems Approach (Golinelli, 2000a, 2000b, 2002, 2005, 2008, 2010, 2011; Barile, 2000, 2006, 2008a, 2009, 2011; Barile et al., 2011). It is specifically focused in concepts like consonance (De Falco and Gatti, 2012), group cohesiveness (Festinger et al., 1950; Forsyth, 2010), conformity (Asch, 1955) and positive conformity, interpersonal attraction (Lott and Lott, 1965), and optimism (Scheier et al., 1994; Seligman, 2006). The empirical research was entirely conducted at the University of Tirana with the students of *Organizational Behavior* course. The study/experiment has shown that it was possible (.66) to achieve what the author of this thesis calls *positive conformity*. Also, the study verified that consonance, as one of the most discussed and researched VSA's concepts, can be used as a valid indicator of group cohesiveness. Another innovative aspect of this dissertation was a new way of measuring consonance, weaving the apperception test with the value test which confirmed to be very effective.

Referring to the dissertation's framework, the study was devised in five chapters.

The first chapter indicates the structure of the thesis, making an introduction to the study. It refers to the general drafting in which are evidenced the challenges of the actual research and the hypothesis to be verified. It explains also the general framework of the research design.

The second chapter is focused in the situation "as-is". It makes firstly a general review of the literature, ascending then to the specific topics of the literature. In this chapter, a brief presentation of group dynamics and VSA is realized.

Chapter three unfolds the research methodology and methods. This is a very important part of the thesis because shows the logical and the scientific itinerary.

Chapter four shows and explains the research findings. In this chapter, there is an interpretation of the achieved objectives. This is an essential chapter because measures the effectiveness of the work.

Finally, in chapter five, a general discussion follows. The topics are about:

- implications that this study has on the academic and the managerial field, especially in the context of organizational behavior;

- recommendations for future research with the hope that this thesis turns on the intellectual illumination of other researchers;

- limitations, which externalize the awareness of what have been done and what can be done, showing the work's boundaries;

- conclusions, or better: the open conclusions…

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CONTENTS

Chapter I

INTRODUCTION

Chapter II

REVIEW OF RELATED LITERATURE

Chapter III

RESEARCH METHODOLOGY

Chapter IV

REVELATION AND INTERPRETATION OF RESEARCH FINDINGS

Chapter V

DISCUSSION

PREFACE

«*Eppur si muove*!» is the famous quote of Galileo Galilei that puts the Sun at the center of the Solar System with the Earth and the other planets moving around; a law that broke other laws. There were the Pythagorean scholars for first to argue a similar thing, followed by Copernicus' investigations and the Kepler's laws, culminating with Galileo and lately with Einstein.

Referring to Galileo's "*Dialogo Sopra i Due Massimi Sistemi del Mondo*", it can be deduced that the Sun behaves as the main suprasystem with other subsystems orbiting around it. This spectacular phenomenon gives us a technical dimension of systems. But viable systems (e.g. social systems) go beyond mechanical laws, embracing cognitive and emotional dimensions. In this perspective, Dante Alighieri in his "*Divine Comedy*" (*Paradise XXXIII*) underlines the magical role of love: "*L'amor che move il sole e l'altre stelle*". Thus, the dynamics between viable social systems is conditioned, not only by mechanical laws, but, and overall, by cognitive-emotional ones. In other words, there is a "gravity force" responsible for designing the orbits of individuals, groups and organizations.

Aristotle defined individual as a *zoon politikon*, a political animal, where *polis* is the city and the human is intended as an animal of the city, as a being that yearns for social interaction. In other words, the city, as a territorial organization, is a unit of aggregation for individuals like there are many other organizations (business or not). Hundreds years later, Maslow talked about social needs, the third scale of his pyramid of needs. It is evident that people stay together – and they need/want it – in every type of organization, but the main question is: *which is the "gravity force" that makes people stay together*? If we limit the knowledge only in the "what" dimension, we can understand that people stay together, but we cannot understand why they do this. The "why" dimension is the essence of research because puts into evidence the general interpretation scheme (i.e. the general law) of a defined phenomenon.

For the above reasons, my present work emphasizes the "why" dimension of social interactions within organizations (it doesn't matter business or not), comprising also the "what" and the "how", and describing cognitive, emotional and social dynamics within groups. Concepts like cohesiveness, conformity, and consonance, help us to define the group dynamics in this sense and to understand the managerial implications within

organizations. Understanding individuals' relationships is crucial for organizational outcomes, such as performance, satisfaction, turnover, absenteeism, and citizenship behavior. Hence, human relational needs inspired me to have a systems perspective and to treat groups as viable systems, composed by interacting components (individuals) which form particular social orbits to be explored.

Tirana, Albania, April 2013

Xhimi Hysa

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Aristotle defined the individual a political animal. The same concept was taken by Dante to be expressed in a sweet way: he called individual a companionable animal. Philosophers used the concept of "minus" to describe individuals as not self-sufficient, where a minus of someone is compensated by the plus of somebody else.

In this beautiful journey, too many pluses have fed my brain with knowledge, my heart with love, my soul with serenity and positive energy.

This PhD dissertation wouldn't have been realized without the physical and the spiritual support of my family, friends and colleagues.

In primis, I feel to show a profound gratitude to the Master of Masters, to my Professor Sergio Barile. He is the greatest motivational meteor in my academic path; a leader by example.

In secundis, to Prof.ssa. Silvana Grillo[†] is dedicated every part of this work that represents the social life, including the dimensions of tolerance, joy, sacrifice, hard work, happiness, and faith. Thanks to her, my heart has opened a door to the diversity, and my mind has developed a metaphysical perspective towards life.

Since I do not believe much in numbers, and as strangely I used them, Kreshnik (one of my dear brothers) and Dott. Elton Beqiraj (one of my best friends and colleagues) helped me a lot to get out from the storm of the statistical analyzes. I really thank them so much for their endurance and passion.

To Eng. Ylli Metushi is dedicated the chapter of the methodology, not because he guided me in this dissertation, but because he has oriented me to be rational and a methodologist throughout the life. His behavior has been the best example of how people should resolve problems. Without his systematic lectures on mathematics since I was a young boy, the quantitative approach in this work wouldn't have been realized.

Curious of human relationships, I decided to start a study of this kind using a sociometric software called *GroupDynamics Software®*. At a certain point I was messed up with too many arrows. Thus, I would like to express a special thank to the software's creator, Simone Capretti, which helped me to fix the aroused technical problems.

I have exchanged a lot of ideas with many colleagues interested on the arguments, but above all (without excluding anybody) special thanks go to Prof. Kasimati, Dott.

Calabrese and Dott. Beqiraj, which have not spared intellectual insights that have inspired me to compose this work.

I would also like to extend an appreciation to all the seminary students of Group B.3-01 (Organizational Behavioral course, Faculty of Economics, University of Tirana, AY – 2012-2013) who have worked with me six months consecutively with questionnaires and experiments. This is the best example of value co-creation. I wish them all the best.

According to Kierkegaard, to survive in difficult times loving should be a must. I don't know if my wife, Arlinda, has some appreciation about Kierkegaard, but I'm deeply convinced that the most important thing is the art of showing love in the everyday life, and in this context she is a guru for me. I apologize to her for all the seconds I missed and maybe I'll miss, because this is my professional/passionate destiny. Beyond this, I strongly believe in our reciprocal love and dreams. Thank you honey!

Finally, through this work and all the other challenges I have exceeded, I would like to remember to my mother and to my father that nothing would have been possible without their attention, love and support (i.e. attachment). Thank you for your goodness and all your advices. Thanks to you I grew up and understood that someday a child should be a man.

Thank you all!

CHAPTER I

Introduction to the study

SUMMARY: 1.1. Problem statement – 1.2. Research questions and hypothesis – 1.3. Purpose of the study – 1.4. Context and significance of the study – 1.5. Preliminary considerations on the methodology – 1.6. Definition of terms.

1.1. PROBLEM STATEMENT

Since the creation of the conformity concept (Allport, 1920a, 1920b, 1924; Jenness, 1932), its connotation has been "negative" and actually continues to be in most cases. Although some authors consider an absurd question the fact of labeling conformity as "good" or "bad" (Aronson, 2008), the concept is generally understood as a lack of individual's independence, or as a distortion of judgment under the group pressure (Asch, 1951; 1952; 1955; 1956). In its simplest definition conformity has been defined as "*yielding to group pressures*" (Crutchfield, 1955, 1962; Man, 1969), so as something that we should make resistance. In spite of this fact, there are some authors that define conformity in accordance with the normative social influence, or the *"influence to conform with the **positive expectations** of another [...] person, group, or one's self"* (Deutsch and Gerard 1955, pp. 629). Maybe, the most significant works in this sense are those of Cialdini, Kallgren, & Reno (1991), and Kallgren, Reno, & Cialdini (2000). They have developed a model of normative conduct in order to influence people to *conform toward correct and socially approved behavior*, meaning with socially approved behavior the behavior based on social norms (the rules that a society has for acceptable behaviors, values, and beliefs). Furthermore, researchers have made advancements showing a positive correlation between **conformity to group norms** and **team cohesiveness** (Myers 2010, pp. 213; Schermerhorn et al., 2010, pp. 188-189; Carron, 1982; Kinoshita, 1964; Lott and Lott, 1961). These advancements are important because the **cohesiveness** itself is positively related with **performance** (Carron and Brawley, 2012; Forsyth 2010, pp. 138; Park and Shin, 2009; Beal et al., 2003; Gully et al., 1995; Mullen and Copper, 1994; Oliver, 1988) and **satisfaction** (Hellriegel and Slocum 2011, pp. 373; Manxhari 2010, pp. 297; Williams 2007, pp. 51-54; Van der Vegt, 2001; Hoyle and Crawford, 1994;

Hackman, 1992; Hogg, 1992; Hare, 1976; Van Zelst, 1952). It means that conformity, given the appropriate contingency factors, can serve also as a positive component. Notwithstanding the above positive intentions, researchers are "ambiguous" to label (at least in some cases) conformity as *positive conformity*, or as a positive component of group dynamics (at least in necessary situations), even though this is strongly dependent from context and scope.

Another limit connected with the majority of conformity experiments, or at least with the most famous ones, is their accomplishment on **unknown individuals** (Jenness, 1932; Sherif, 1935; Asch, 1955; Crutchfield, 1955). Hence, rather than experimenting the conformity in organizations where individuals know each other – within groups of individuals with an historical relationship memory (i.e. teams) – experiments are "suddenly" performed on extemporaneous individuals' aggregation[1] without any significant tie. In other terms, experiments are conducted more toward citizens (components of society) than to human resources (components of organization). This is a derivate of the predominance that conformity studies about the society as a whole have had on specific conformity studies on business and other organizations. It is comprehensible because conformity is a matter born in the campus of social psychology, and the application of the concept in the field of organizational behavior remains a value proposition or an extension. As a result, it happens frequently to "hear" from the eminent scholars of the conformity concept that conformity is a "conditioned reflex" of *social influence*, meaning with "social influence" the influence coming from the society or a portion of it (e.g. a specific aggregation extracted from a crowd) with the scope to change our attitudes, behaviors, values, and beliefs (Bond and Smith, 1996; Cialdini and Trost, 1998; Cialdini and Goldstein, 2004). However, conformity experiments, developed from noted exponents on the topic, have been realized also within organizations to study for example: the conformity to group norms (Kelley and Shapiro, 1954); the conformity to group attractiveness (Rotter, 1967); or simply the conformity caused by normative social influence upon individual judgments, while individuals were not unrelated parts of an *aggregation*, but interrelated compositional parts of a *group* (Deutsch and Gerard, 1955).

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[1] Further it is shown a difference between an *aggregation* and a *group*, like there is analogically explained in systems terms the difference between a *random grouping* and a *structure*.

In the general literature of social psychology and organizational behavior, and in the specific literature of group dynamics, there are many considerations about the topics of cohesiveness, conformity and their influence on the dynamics of groups, especially on job performance and job satisfaction, as mentioned before. There are also enough **systems theories**' considerations on **group cohesion** and **conformity** (Parsons, 1951; Parsons and Shils, 1962; Tziner, 1982; Agazarian, 1991; Farrel and Barnes, 1993; Luhmann, 1995; Vancouver, 1996; Vanderstraeten, 2000, 2002; Connors and Caple, 2005; Espejo and Reyes, 2011). Nevertheless, these considerations are few especially when it comes to the **Viable Systems Approach** (VSA), which is more focused on the *inter*-relational aspects of organizations rather than the *intra*-relational ones (Golinelli 2010, pp. 147-186; Golinelli et al., 2002). However, recent developments of VSA have shown particular attention about *intra*-relationships between government body (top management) and individuals (human resources) in terms of knowledge transfer (Simone 2011, pp. 223-233), individuals' resources-capabilities-competences (Siano, Basile, & Confetto, 2008), and consonance (Barile, 2009, 2011), formulating as well relationship indicators between individuals.

Considering the *attraction*[2] as the main component in defining group cohesiveness (Festinger 1950, pp. 274; Lott and Lott, 1965, pp. 259; Nixon, 1979, pp. 76; Hogg and Vaughan 2011, pp. 290), a "vortex" of the actual studies turns out to be the way group cohesiveness (in terms of attraction) is defined and measured. Citing Forsyth (2010, pp. 118), "*cohesiveness takes so many different forms and fulfills so many functions that some theorists have complained that the concept, ironically, lacks cohesion*". So, some authors use as indicator of group cohesiveness the sociometric test, remaining in a descriptive relational diagram (i.e. the sociogram + metrics), and defining only the "what" dimension (Moreno, 1953; Sherif and Sherif, 1956; Kitawaki, 1956). Others use qualitative analysis based on participant observation, monitoring group behavior between trust (communal concern) and secrecy (individual self-interest) (Fine & Holyfield, 1996). Finally, are those who prefer multi-item scales – *Group Cohesiveness Scale-Revised* (Treadwell et al., 2001), *Group Environment Questionnaire* (Widmeyer, Brawley, and Carron, 1992), *Perceived Cohesiveness Scale* (Bollen and Hoyle, 1990), *Group Attitude Scale* (Evans and

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[2] "Attraction between individuals is a basic ingredient for most groups, but when these relations intensify and proliferate throughout a group they can transform a conjoined group into a cohesive one" (Forsyth 2010, pp. 119).

Jarvis, 1986), *Gross Cohesiveness Questionnaire* (Stokes, 1983) – «with the goal, as ambitious as naïve, to 'measure the human and the society'» (Corbetta 1999, pp. 277). Although some initial efforts of eminent scholars (Ackoff and Emery, 1972), generally, systems theorists have underestimated these aspects within organizations, while there is a systemic approach (i.e. the Viable Systems Approach) that provides a necessary indicator (i.e. the **consonance**) to study and evaluate group dynamics from the perspective of attraction, however not proved yet in the specific field of group dynamics and organizational behavior.

1.2. RESEARCH QUESTIONS AND HYPOTHESIS

The composition of research questions and hypothesis is based on the nature of the research. Creswell (2009, pp.129-143) associates research questions with qualitative research and hypothesis with quantitative one. However, the author explains that a research question can be designed even for a quantitative research when causal relations can be found between independent and dependent variables, taking into account the theory and the control variable. Although Creswell in order to avoid redundancy suggests distinguishing research questions from hypothesis, he also supports the mixed procedure unless the hypothesis follows the logic of the research question. Zikmund (et al., 2009, p.60) sustains that research questions must be used in exploratory and descriptive research, instead hypothesis are appropriate in causal research. Kothari (2004, p.184) defines the hypothesis simply as a formal question to be resolved.

The above reflections were good insights to write up the research questions and the hypothesis of this dissertation. The research design structure was developed mixing research questions and hypothesis. Considering what have been *problematised*[3] before (in the section of the research problem or problem statement), below are the research questions and hypothesis aroused in this work.

Research Question 1 (RQ 1):
Can the group cohesiveness be measured and explained by consonance?

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[3] Problematising is the process in which people translate situations into problems to be resolved through a defined procedure (Jonker and Pennink 2010, pp. 5-7).

Hypothesis 1 (H 1):

Consonance explains the cohesiveness within groups by measuring the interpersonal attraction between group members in accordance to their system of values.

Research Question 2 (RQ 2):

What is the relationship between the social influence based on optimism, considered the latter as a positive component of psychological capital (PsyCap), and the conformity behavior toward it?

Hypothesis 2 (H 2):

Because the conformity might be considered as a general law, the social influence/pressure can cause conformity toward negative norms/attitudes, like there is true the opposite (at least in consonant groups).

1.3. PURPOSE OF THE STUDY

> *Spiegare un'opera complessa in pochi minuti/passi*
> *è come fare uno scacco matto alla Bobby Fischer.*
> Imixh Asyh

The general aim of this study was to provide a comprehensive approach in managing group dynamics from a viable systems perspective, focusing the attention basically on consonance, cohesiveness, and conformity. Precisely, it aimed to measure and explain group cohesiveness through consonance, and to apply the positive conformity within consonant groups. This general purpose was disclosed in specific objectives, as follows:

a) understanding the relationships between students through the natural and the participant observation;

b) using a sociometric test (i.e. the *GroupDynamics software®*) in order to divide the participants in groups according to their friendship preferences;

c) creating an innovative method for measuring consonance (i.e. PAVT – *picture apperception value test*).

d) using the Picture Apperception Value Test (PAVT) with the aim to explain group cohesiveness referring to the members' system of values (i.e. macro-categorical values);

e) measuring the optimism level of every participant through the Life Orientation Test-Revised (LOT-R) with the scope to define the "cavy" of the experiment internally of each participating group;

f) transforming – in case of appropriate circumstances, and within consonant groups – the classical concept of (negative) conformity into positive conformity through the intervention of social influence based on positive attitudes (e.g. optimism).

1.4. CONTEXT AND SIGNIFICANCE OF THE STUDY

The significance of a study is strongly connected with the context within which is considered. It is necessary to remember that the context is a portion of environment, fruit of a subjective perception by an observer in space-time dimensions, and can assume a multicolor face (Maturana and Varela, 1992). Despite the subjective dimension, during a scientific research, a social, an intellectual, a professional, and a research context should be taken into account (Koxhaj et al., 2010, pp. 238-239). For instance, today there is an interesting trend of positivity in social sciences (e.g. positive psychology, positive organizational behavior, economics of happiness, neuro-linguistic programming, viable systems approach, transformational and servant leadership, etc). This trend would have not been possible without an intellectual context created by the contributions of multidisciplinary thinkers and writers. The intellectual context of positivity has affected the social context as well. As a result, people have changed their relational perspective and the way to treat communication handicaps. Referring to the professional context, organizations have adopted schemes and tools coming from different fields and applied effectively in business or non-business organizations for the purpose of human resources management, human resources empowerment, and individuals' life improvement. Finally, the research context affects and is affected at the same time by the developments of positivity in science; it remains an incubator having the aim to invent and test new theories, tools, techniques, and methods.

The positivity in social sciences has affected also this dissertation. But, what's new in it? Firstly, this work fills a simultaneous gap present both in organizational behavior and Viable Systems Approach (VSA). To organizational behavior this work transfers, taking into account context and scope, the positive perspective of the conformity concept within groups, until now seen by the consolidated literature mainly as a lack of independence of individual's behavior, or at least not defined directly (even when attempts are made) as a positive component of group dynamics. Next, an innovative aspect is the consideration of groups as viable systems, managing them with the principles and postulates of VSA. In addition, this study offers to the community of organizational behavior scholars a new indicator for measuring group cohesiveness (i.e. the consonance). On the other hand, some contributions to the systems researchers, especially viable systems ones, have emerged from this work. Concretely, through this work is reinforced the intra-systemic focus of organizations, certifying the VSA's concepts within groups. To the VSA's community (including also social psychologists and organizational behavior scholars) a value added is given by the new method of measuring group consonance (i.e. the PAVT). Furthermore, with this study the macro-categorical values – derived from a list of categorical values in a study made by Barile and colleagues (Barile, 2009, 2011) – find their first empirical application as universal human values in general, and in the field of organizational behavior in particular.

In synthesis, the above topics are relevant for all the contexts mentioned before. They are original, because some theoretical aspects are emergent and the empirical research of this kind is relatively new (in terms of execution, context, and contribution). The concepts are organized systematically and coherently. There is an appropriate methodology comprising traditional and innovative methods intertwined with each other. Finally, this dissertation respects all the criteria that generally a research should have: it is theory and researched-based; has a valid measurement; it is open to development ("state-like", not "trait-like"); and has organizational performance impact (Luthans, Luthans, & Luthans, 2004; Luthans and Youssef, 2004).

1.5. PRELIMINARY CONSIDERATIONS ON THE METHODOLOGY

"*Does scientific discovery have a logic*?" (Simon 1977, pp. 326). This is one of the questions Herbert Simon tries to give a response in his *Models of Discovery*. If we refer to Popper's (2005)[4] *The Logic of Scientific Discovery* the answer is "no" because Popper bases his reasoning in subjectivity and falsifiability. Similarly, Max Weber (1949, pp. 50) seems to be ironic when he says the *"objectivity in social science"*. Nevertheless, for Simon exists a logic in scientific discovery that stars with hypothesis, continues with tests, and ends with a new scientific formula that Kuhn (2009)[5] calls paradigm.

For some authors (Jonker and Pennink 2010, pp. 17) it is René Descartes the Godfather of methodology. We have learned from Descartes and Newton the determinism and reductionism in studying diverse phenomena. This trend of conception the science as a mechanical system has had powerful impacts in theory and practice. The generalization of this philosophy is the limit of itself. Yet, especially in quantitative methodology the problem is broken into smaller problems, translated in hypothesis and research questions certified by the empirical evidence. This is coherent with the first principle of Descartes' scientific method. According to him, the first principle consists in not accepting a response, which has not been recognized by the evidence, as real (Descartes 2008, pp. 26). In other terms, any illuminated response (e.g. theory) should find a practical context where to be divulgated; this is the process invention-innovation-diffusion (Schumpeter, 1939), like there is the concept of pragmatism (Peirce 2008, pp. 429). Thus, evidence becomes a prerogative in scientific investigation. But, to reach evidence the process of scientific discovery starts with intuitions and abductions. While intuition has an irrational character, an absolute discontinuity with the formal logic (Barile, 2009), the abduction is the first step of scientific reasoning (Peirce 2003, pp. 160). The abduction, intended not as an Aristotelian syllogism, is the act of launching hypothesis.

Given this panoramic journey of methodology, this PhD thesis is made of intuitions, abductions and inductions. Hence, it is present the qualitative methodology as a representation of sensitive dimensions of mind, and the quantitative methodology as a representation of reasoning and empirical evidence.

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[4] First English edition published in 1959 by Hutchinson & Co.
[5] First edition published in 1962 by University of Chicago Press.

Because the research methodology is explained in details in chapter three, the following is a synthesis.

First of all, the preoccupation of a researcher from a methodological standpoint is where and how to gather the data to analyze. In this context, this work is based in primary and secondary data. The **secondary data** are mainly gathered by articles, books, online encyclopedias and official websites, which are related to the review of the literature (chapter two). A fundamental support on data gathering was the service offered by *Biblioteca Digitale Della Sapienza* (BIDS), using VPN-Sapienza and the BIXY software. The main databases accessed (mainly from the EBSCO Host) were: Business Source Complete; EconLit; Education Resource Information Center (ERIC); Regional Business News; JSTOR, PsycINFO®; PsycCRITIQUES®; PsycEXTRA®; PsycARTICLES®; and FRANCIS.

The **primary data** were gathered by the research in campus, as explained below.

Starting from qualitative methodology, the qualitative methods used for accomplishing the dissertation objectives were as follows:

- the observation in natural environment, in which the observer/researcher was limited to look, hear and study the student dynamics in a classroom without being a stimulus of particular behaviors;

- the participant observation, in which the researcher was immersed in students' social context, interrogating them, discovering inspirations, world's conceptions, motivational factors etc, in order to comprehend students from inside. In addition, a study of personality types was realized thanks to the Myers-Briggs Type Indicator® (MBTI).

Although the qualitative methods were necessary in this work, anyhow they were supportive for the quantitative methods. They helped to give a profound explanation of the problems. However they were not the core methods of the study, which are dominated basically by the quantitative ones.

The quantitative procedures, including methods, techniques, and instruments, used in this PhD thesis were as follows:

- the sociometric test using the GroupDynamics software®;

- the measurement of Consonance through the Picture Apperception Value Test (PAVT), using the scaling technique of Osgood's semantic differential;
- the optimism test using the Life Orientation Test-Revised (LOT-R) of Scheier, Carver, and Bridges;
- the positive conformity experiment based on the logic of Solomon Asch's conformity experiment.

1.6. DEFINITIONS OF TERMS

- **Viable System:** a system able to maintain a separate existence, having the scope to survive in its context by interacting with other suprasystems and subsystems. For instance, it can be an individual, a group, an organization or another system.

- **Information Variety:** a viable system seen as knowledge construct composed by three layers – categorical values, interpretation schemes (general and synthesis), and information units.

- **Macro-categorical values:** basic human values (strong beliefs) that subconsciously orient individuals during the decision making process.

- **Consonance:** an indicator that expresses the major or minor potential that two or more information varieties have in aligning their values, schemes, and information; it indicates the relationship distance or cohesiveness degree between systems (e.g. individuals within a group).

- **Resonance:** an indicator of systems' interactions, which can be qualified as accelerative or declarative, representing consonance's variations when new information units are perceived or exchanged by the interacting information varieties.

- **Relevance:** a latent variable which cannot be observed directly and which can be measured through the critical bearing of resources and the systemic influence. It is impactful on decisions, choices and behaviors due to the expectations from and pressures by other systems (e.g. individuals).

- **Organizational behavior:** the study of individuals and groups within organizations. It is based on individual processes (perception, motivation, attitudes, values,

emotions, satisfaction, etc), interpersonal processes (teamwork, decision making, conflicts, communication, leadership, etc), and organizational processes (strategy, structure, culture, innovation, change, etc) with the goal of improving organizational and individual performance, enhancing people satisfaction, reducing at the same time absenteeism and HR turnover.

- **Group:** two or more individuals staying and interacting together for a common purpose.
- **Group Dynamics:** the way groups and individuals act and react to changing circumstances.
- **Group cohesiveness:** the result of all the forces acting on the members to remain in the group. It is a manifestation of interpersonal attraction between individuals as group members or between an individual and the group as a whole.
- **Conformity:** the process of individual's behavioral change due to the social influence/pressure, for fulfilling the expectations of others.
- **Positive conformity:** the act of conforming toward positive attitudes of others (e.g. optimism) for a positive organizational purpose. It depends from circumstances, but the term positive in this work means a *necessary alignment* of a group member toward group's positive attitudes as a whole in order to achieve common goals. Thus it refers to a *requisite conformity*.
- **Continuous conformity:** a state in which an individual perceives a real or an imagined continuous pressure by the group every time when his/her opinion is diverse from other group members, at a point that become a sort of classical conditioning that obligates the individual to conform every time his/her opinion is divergent form the group.
- **Osgood's semantic differential:** a scaling technique (1-7) used in questionnaires in order to measure the connotative meaning of objects, subjects, situations etc, with the goal to understand individuals' attitudes and values.
- **Myers-Briggs Type Indicator® (MBTI):** a psychometric measure of individuals' personalities focused on the four Jungian's psychological functions (sensation, intuition, thinking, and feeling) and the two basic attitudes (extraversion and introversion).

- **Thematic Apperception Test (TAT):** a projective psychological test in which the subject under investigation makes an interpretation of a picture or series of pictures projected to him/her. In other terms the individual tells a story that he or she connects to the picture exposed. So, each picture projected serves as a stimulus to induce responses guided by unconscious needs, motives, fantasies, conflicts, thoughts, and other hidden aspects of personality.

- **Value tests (VT):** tests based on human values. They may differ in scope. For instance, some value tests are based in understanding personal individual values, some others aim to understand the corporate culture, and others refer to the cultural dimensions of a country.

- **Picture Apperception Value Test (PAVT):** a combined test using picture projection as stimuli to obtain structured responses focused on macro-categorical values with the aim to understand personal values and group consonance (i.e. interpersonal attraction or harmony) between members in terms of their values.

- **Life Orientation Test Revised (LOT-R):** a test aiming the assessment of individual differences in generalized optimism versus pessimism. It is used in a good deal of research on the behavioral, affective, and health consequences of this personality variable.

- **Sociometric test:** the systematic study of interpersonal relations that are to be established within small groups (e.g. classroom).

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<div style="text-align:center">

CHAPTER II

Review of related literature

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SUMMARY: 2.1. Theoretical perspectives on group dynamics: first studies and other reflections – 2.2. Groups in systems thinking: from Tavistock Institute to Mental Research Institute of Palo Alto and beyond – 2.3. Toward groups as viable systems and information varieties: a Viable Systems Approach (VSA) proposition – 2.3.1. Origins of VSA – 2.3.2. Principles of VSA – 2.3.3. Ten fundamental Concepts (FCs) of VSA – 2.3.4. Postulates of VSA – 2.3.5. Groups as Viable Systems: again with fundamental principles – 2.3.6. The group as an Information Variety – 2.4. The dynamics of group formation and development through consonant and resonant relationships – 2.4.1. Consonance as the "why" of staying together – 2.4.2. Resonance as acceleration/deceleration of systemic interactions – 2.4.3. Group cohesiveness – 2.4.3.1. The socialization perspective or the social cohesion – 2.4.3.2. The operationalization perspective or the task cohesion – 2.4.4. Analyzing holistically group formation and development – 2.5. The conformity – 2.5.1. Classical studies and experiments – 2.5.2. The polyhedral nature of conformity – 2.5.2.1. Majority vs. minority influence – 2.5.2.2. Conformity between horizontal and vertical pressure – 2.5.2.3. Continuous conformity as classical conditioning – 2.5.3. The emergence of "positive conformity".

2.1. THEORETICAL PERSPECTIVES ON GROUP DYNAMICS: FIRST STUDIES AND OTHER REFLECTIONS

The term "group dynamics" was coined and popularized for the first time by Kurt Lewin in the 1930s with the scope to describe the way groups and individuals act and react to changing circumstances[6]. Fundamentally, the dynamics of a group conceptually derives from the continuous interaction (resonance) between its members. For Lewin, the principle of *interactionism* in his *field theory* is expressed by the formula: $B = f(P,E)$ which means that the behavior *(B)* of an individual (i.e. group member) is a function *(f)* of the interaction between personal attributes *(P)* and environmental factors *(E)* (Lewin, 1951). Said with Lewin's words, "*every psychological event depends upon the state of the person and at the same time on the environment, although their relative importance is different in different cases*" (Lewin 1936, pp. 12).

Even though Lewin is recognized by the scientific community as the founder of group dynamics both as a subject matter and a scientific discipline of study, other predecessors

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[6] For a deepen analysis on the origin of group dynamics see: Cartwright, D., Zander, A. (Eds.). (1968). *Group dynamics: Research and theory*, 3rd Ed. New York: Harper & Row; Cartwright, D., Zander, A. (2000). "Origins of Group Dynamics". *Group Facilitation: A Research and Applications Journal*, 2, pp. 40-55.

have wrote about the topic. In the late 1800s and in the early 1900s various disciplines were concerned about the behavior of individuals within small or huge groups. For instance, the father of experimental psychology, Wilhelm Wundt, used simultaneously elements of psychology and anthropology in order to study scientifically the cognitive aspects of individuals as group members (Wundt, 1916). Then, it was Freud who introduced the psychoanalysis in studying group psychology (Freud, 1922). He explained that the basics of group processes are the emotional ties between the group members. To him, the concept of "identification" became the core of interpersonal processes, where an individual aims to be similar like another. The in-group similarity creates a deindividuation (losing the self-awareness) of an individual making at the same time a self-categorization (Turner et al., 1987). Even though the most recent *self-categorization theory* has a stronger intra-group focus, the social identity approach was founded under the name of the *social identity theory* (Tajfel, 1978; Tajfel and Turner, 1979). This is a good introduction for group formation and group cohesiveness based specifically in the interpersonal attraction. Freud's and Tajfel's concept of identification is not far from the third scale of Maslow's pyramid of needs: belonging and affection needs, or social needs (Maslow, 2010)[7]. The individual as an Aristotelian *zoon politikon* cannot survive without love and affection, but to potentially have them he should be part of a group. So, these needs cannot be satisfied in an out-group perspective. With Maslow there is a passage from psychoanalysis to motivational psychology. Many years before the humanistic psychology (e.g. Maslow's motivational psychology), the Nobel Prize in Physiology and Medicine (1904), Ivan Pavlov, elaborated the *classical conditioning* experiment (Pavlov, 1966). The experiment can be executed following a procedure in which a neutral stimulus is repeatedly paired with a stimulus that already triggers a reflexive response. Pavlov's theory was based on a linear causation where (A) is the *stimulus* (the cause) and (B) the automatic response (the *reflex*, or the effect). Many politicians and especially dictators have made use of this approach in order to direct crowds orienting their behavior like a responding reflex of leader's conditional mentality. Hence the levels of analysis regarding social dynamics are concentrated not only in small groups and on few individual's peculiarities, but are extended also in the social life of larger groups. A significant work on

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[7] First edition published in 1954 by McGraw Hill.

psychology of crowds is that of Gustave Le Bon (2001)[8]. Le Bon explains in his work the "popular mind", the opinions and the beliefs of crowds, and how leaders through the persuasive means of affirmation, repetition, and contagion influence and direct crowds. Thus, the focus is shifted in sociology and in the social dynamics of large groups. The French sociologist, Émile Durkheim, wrote in his dissertation about the division of labor in society saying that the keystone of a society are the shared beliefs that he called collective representations (Durkheim, 1997)[9]. There are exactly the collective representations that create what Durkheim calls *collective consciousness* by which crowds are unified. But social groups are not typified only by anthropological, psychological, and sociological features, but also by political and legislative ones. A significant example in this context is the *social contract* of the political philosopher Jean-Jacques Rousseau. For Rousseau there is a discontinuity between the individual nature and the social interdependence. The social reciprocal dependence overlaps on the free nature of individual (based only in the moral order). This dualism becomes the cause of inequality, injustice and conflict, which can be overcome through the moral solution and the "principles of political right" (Massarenti 2006, pp. 26-227). Said with VSA's terms, it means that groups are not simply self-regulated systems that live in an absolute freedom. Their life is and should be regulated as well by *rules* and *constraints*.

Shifting the focus on the behavior within organization, other interesting perspectives (with a common denominator on systems theory) are to be taken into consideration. According to Golinelli (2010, pp. 27-35), a firm can be seen as mechanical, organic, cybernetic, autopoietic, cognitive (including the emotional dimension), and viable system. These metaphors and analogies[10] are important for understanding the dynamics of groups within business firms and other organizations. In addition, only through metaphors and analogies the science makes progress and creates new paradigms (Kuhn, 2009), taking

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[8] First English edition published in 1896 by McMillan Co.

[9] The original edition is in French and was published in 1893 by Universitaires de France.

[10] According to Barile and Iannuzzi 2008, pp. 50, there is a difference between a metaphor and an analogy. A metaphor allows, using the simulation of a concept through a specific word, to express a defined experience referring to another. Instead, an analogy goes further: it aims to extend the knowledge background of a particular phenomenon or entity and the behavioral properties of that phenomenon/entity to another one which seems to be "similar". For example seeing a group as a brain is a metaphor, instead seeing it as a cognitive system is an analogy because it explains how the brain works. So, a metaphor is a structural concept, it is static (e.g. a photo). At the other hand an analogy is a systemic concept, it is dynamic (e.g. a video); one expresses the anatomy and the other the physiology of the phenomenon.

always into account the limits of an exaggerated vocabulary composed by metaphors and analogies (Golinelli, 2000).

The analogy of organization/group with a mechanical system has "the machine" as its root metaphor. It is based fundamentally in the Newtonian mechanics, determinism and reductionism (e.g. Descartes' automata). The *mechanical perspective* of organization recalls the classic school of management: the Taylor's scientific management. With this perspective human needs are ignored and the group of workers is seen as a "unique unit" without considering the diversity, the personality and the personal motives of specific individuals. Thus, individuals are seen as clones of one another, as objects (not as subjects), and as costs. Following the logical thread of the machine metaphor, human resources are no more than a robot[11]. Standardization, *one best way*, and production efficiency are the key terms of mechanical organizations.

The *organic perspective* of organizations is a metaphor used in consideration of the analogy between firm and biological species. In the reality of management science and organizational theory it was important to consider the organization as an organism because it contributed to discover and (later) to match organizational needs with individual ones (Argyris, 1964). With this perspective the focus was shifted from production process to human resources needs. The most notable studies and experiments are the Hawthorne Studies at Western Electric Company started by Elton Mayo and colleagues at the end of 1920s until 1932. «Mayo concluded that people's behavior and attitudes are closely related, that group factors significantly affect individual behavior, that group standards establish individual worker output, and that money is less a factor in determining output than are group standards, group attitudes, and security» (Robbins and Coulter 2012, pp. 34). These factors are commonly known as *Hawthorne effect*. Other relevant studies were those of Maslow (1954) about the *hierarchy of human needs*, the *theory X* and *theory Y* of Douglas McGregor (1960), and the Herzberg's *Two-factor theory* (1959). These were basically motivational theories that considered the individual as a psychological organism. Nevertheless, they were really important inasmuch the motives create physiological responses. Because individuals are open systems, the psychological inputs determine biological effects. For example, an actual challenge of individuals as group members is

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[11] A masterly interpretation of this perspective is the comedy film *Modern Times* (1936) written and directed by Charlie Chaplin, in which is described ironically the capitalist industrialized world.

how they cope with stress. In other words, psychological stimuli induce individuals and groups to react physiologically, biologically, and behaviorally.

Groups as subsystems of any organization are open systems and present biological needs; they have a life cycle within which the groups should cope with the complex dynamic environment in order to exchange resources aiming the survival. So, groups are dynamic and complex adaptive systems. Group members are living creatures where genetics, biochemical processes, and contingency factors influence their interaction. Group members are sometimes influenced so much by the environment that their genetic code, in a long term horizon, can change. This epigenetic standpoint is advocated by Dr. Bruce Lipton in his *Biology of Belief* (2008). Dr. Lipton shows that genes and DNA do not control our biology, that instead DNA is controlled by signals from outside the cell, including the energetic messages emanating from our positive or negative thoughts. Therefore, group members and the group as a whole, receive and process information (signals) from the environment. This communication process is based on cybernetic principles.

Although Plato used for first the word "cybernetics" intending a process of self-government, as a scientific discipline cybernetics was introduced by Norbert Wiener in 1948. He defined cybernetics as the study of control and communication in the animal and the machine (Wiener, 1948). In group dynamics, cybernetic laws justify the Lewin's principle of interactionism; group members interact by exchanging information (i.e. communication). The control component of cybernetics refers to the feedback; individuals control the information units in return that serve as a stimulus to respond. Applied at organizational level, the *cybernetic perspective* of organization was first introduced by Stafford Beer in his *Cybernetics and Management* (1959). Then, in *Brain of the Firm* (1972), Beer founded a neurocybernetic model known as the Viable System Model (VSM). In his model, the self-government is ensured by communication, feedback, and self-regulation. But self-regulated systems have: components which do things – *operations*; components which control the doers – *management*; surroundings in which they function – *environment*. These components, referring to Beer's first principle of organization, tend to equate; they should be designed in a way that the variety of the controller is at least equal with the variety of operations and environment. In other words, all the components lie on the Ashby's *law of requisite variety*: only variety destroys (or

absorbs) variety (Ashby 1957, pp. 202-218). If we consider the group as a self-regulated system, operations refer to what group members do, environment refers to where and when individuals interact, and management refers to the team manager that controls and leads group members. In order to maintain the group under control, the team manager must have a variety (e.g. knowledge background) that exceeds the variety (complexity) produced by the dynamics of groups (i.e. member's interaction) and the variety produced by the environmental factors.

All the mentioned and the upcoming perspectives are interconnected with each other and therefore necessary to study the lifecycle of groups. Because autopoietic and cognitive perspective are more strongly related they are analyzed contemporaneously. This fact is reinforced by autopoiesis' founders in their book title: *Autopoiesis and Cognition: The Realization of the Living* (Maturana and Varela, 1980). They describe living systems as living machines (Maturana and Varela, 1992) or autopoietic machines: "*An autopoietic machine is a machine organized (defined as a unity) as a network of processes of production (transformation and destruction) of components which: (i) through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produced them; and (ii) constitute it (the machine) as a concrete unity in space in which they (the components) exist by specifying the topological domain of its realization as such a network*" (Maturana and Varela 1980, pp. 78). Thus, considering groups like autopoietic machines, individuality, autonomy, and unity become the basic features of these self-referring and self-reproduced living systems. Groups as autopoietic systems are not a "castle in the sky", but they can also be measured using techniques and metrics such as biometrics (Markus, 2008).

In the basics of all group members' interaction is the communication. The group as autopoietic system tries to reproduce itself through communication flows between participants, creating a linguistic domain. Information units are distributed among members who behave as observers that perceive a subjective reality. Hence, group's autopoiesis process generates the group's cognition domain through perception and distribution of information among group members in order to ensure autonomy, identity, unity, homeostasis, and survival.

The cognitive perspective is highlighted by the metaphor of "brain" seeing the organization as a self-organizing entity able to learn (Morgan 2002, pp.103-160). This

standpoint has opened the door to the theory of *organizational learning* (Argyris and Schön, 1974; 1978). So, the organization is perceived as a cognitive construct where individuals are to be considered not only agents of action but also agents that learn through cognitive maps created within organization (Bonazzi 2002, pp. 105). This collective learning gives to group/organizational members the opportunity to use or *"destroy creatively"* (Schumpeter, 2003) the organizational cognitive maps, making a passage from individual learning to organizational learning. The organizational learning theory is completed by the complementary *learning organization theory*[12], which has been promoted in a system perspective by Peter Senge through five disciplines: "personal mastery", "mental models", "building shared vision", "team learning", and "systems thinking" (Senge, 1990). Through Senge's disciplines group members achieve significant advantages in terms of their development and feel more satisfied due to an enjoyable and creative workplace (van Assen, van den Berg, & Pietersma 2009, pp. 176).

In addition to the above considerations, groups can reproduce themselves also through decision making processes[13] and knowledge sharing. They are knowledge containers and decisional units. Some authors, following the cognitive perspective, underline the crucial role of knowledge management as a bridge between learning organization and organizational learning (Lu and Tsai 2008, pp. 1579-1594), or as a capability to assist the study of learning process of and within organizations (Yang and Chen 2009, pp. 303-320). In other words, groups can increase their knowledge background through the learning process, where group members gather and distribute information among each-other. They should behave as knowledge workers, a concept invented by Peter Drucker (1959) to describe individuals who use more the head than the hands, and who create and distribute knowledge as a fundamental part of their job. Therefore, the knowledge creation process starts from the single individual who has the "obligation" not only to create knowledge but to start as well a conversation itinerary with other group members for the purpose of knowledge sharing, converting the *tacit dimension* of knowing (Polanyi, 1966) to an *explicit* one. According to Nonaka and Takeuchi (1995), individuals must convert

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[12] According to Smith and Lyles (2003, pp. 10-11), as cited in Schwartz (2006, pp. 229), "Learning Organization is defined as an entity, an ideal type of organization, which has the capacity to learn effectively. Organizational learning refers to the study of the learning processes of and within organizations."

[13] The decision making process is part of another paragraph, therefore only some considerations of knowledge management as part of the cognitive approach will be taken into account.

knowledge considering the relationships between tacit and explicit knowledge in four modes:

- *Socialization* – acquiring tacit knowledge through sharing experiences;
- *Externalization* – converting tacit knowledge into explicit concepts through the use of abstractions, metaphors, analogies, or models;
- *Combination* – creating explicit knowledge by bringing together explicit knowledge from a number of sources;
- *Internalization* – embodying explicit knowledge into tacit knowledge, internalizing the experience gained in the form of shared mental models.

At group/organization level, knowledge can be manifested as an "organized system of collective intelligence" that Rullani metaphorically calls the *"factory of the immaterial"* (Rullani, 2004). The concept of organizing is really important in cognitive processes. Through organizational schemes people give meaning to their experiences, a process that Weick (1995) names *sensemaking*. At group level, the sensemaking has no sense if concentrated only on the single individual; since we are talking about groups, and thus about a collective level, it is relatable to consider that lacking this inter-subjective agreement, communication cannot take place, synchronized action is impossible, and meaning remains connected just at an individual level (Weick and Roberts, 1993).

As it was mentioned before, the cognitive perspective includes an emotional dimension, because the brain hemispheres are responsible both for analytical/logical/rational processes (left brain) and for intuitive/holistic/emotional processes (right brain)[14]. In brief, individuals as group members think and act in a relational way taking into account not only the *conceptual intelligence* but also the *emotional intelligence*. According to Goleman (1998) the components of emotional intelligence are:

i. **Self awareness** – the ability to recognize and understand own moods, emotions, and drives, as well as their effect on others.

ii. **Self-regulation** – the ability to control or redirect disruptive impulses; trustworthiness, integrity and moods comfort with ambiguity; the propensity to suspend judgment and to think before acting.

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[14] For those who are curios to navigate into the labyrinths of the emotional brain, is suggested: LeDoux, J. (1996). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. New York: Simon & Schuster.

Table 2.1. Group Dynamics from a multidisciplinary perspective.

Disciplines and branches	Main contributors	Relevant topics
Social Psychology	Kurt Lewin	Group Dynamics
Experimental Psychology	Wilhelm Wundt	Psychological Anthropology
Psychoanalysis	Sigmund Freud	Identification
Social Psychology	Henri Tajfel	Social Identity Theory
Physiological Psychology	Ivan Pavlov	Classical Conditioning
Sociology and Social Psychology	Gustave Le Bon	Psychology of Crowds
Sociology	Émile Durkheim	Collective Consciousness
Political Philosophy	Jean-Jacques Rousseau	Social Contract
Humanistic Psychology	Abraham Maslow	Hierarchy of Human Needs
Organizational Psychology	Elton Mayo	Hawthorne Effect
Organizational Psychology	Frederick Herzberg	Two-factor Theory
Organizational Psychology	Douglas McGregor	Theory X & Y
Organizational Theory	Gareth Morgan	Metaphors of Organization
Organizational Theory	C. Argyris and D. Schön	Organizational Learning
Organizational Theory	Peter Senge	Learning Organization
Management	Peter Drucker	Knowledge Worker
Knowledge Management	Michael Polanyi	Tacit Knowing
Knowledge Management	I. Nonaka and H. Takeuchi	Knowledge Conversion Model
Knowledge Management	Karl Weick	Sense-making
Psychology	Daniel Goleman	Emotional Intelligence
Mathematics	Norbert Wiener	Cybernetics
Cybernetics and Systems Theory	William Ross Ashby	Law of Requisite Variety
Living Systems Theory	H. Maturana and F. Varela	Autopoietic Systems
Management Cybernetics	Stafford Beer	Viable System Model
Management and Systems Thinking	G. Golinelli and S. Barile	Viable Systems Approach
Management and Systems Thinking	Sergio Barile	Information Variety

Source: *Author's elaboration.*

iii. **Motivation** – a passion to work for reasons that go beyond money or status a propensity to pursue goals with energy and persistence.

iv. **Empathy** – the ability to understand the emotional makeup of other people skill in treating people according to their emotional reactions.

v. **Social Skill** – an ability to find common ground, builds rapport, and creates relationship networks.

Because individuals in groups are interactive components, one who inspires to be a team leader must have skills like attunement, organizational awareness, influence, inspiration, consonance, mentoring, etc. So, it is almost obligatory for an effective leadership to identify and develops a *social intelligence* (Goleman and Boyatzis, 2008).

Finally, group dynamics can be seen from a systems perspective in general and from the lens of the Viable Systems Approach in particular, but considering the importance, the analysis of group dynamics from this standpoint merits a differentiated treatment in the next paragraph.

2.2. GROUPS IN SYSTEMS THINKING: FROM TAVISTOCK INSTITUTE TO MENTAL RESEARCH INSTITUTE OF PALO ALTO AND BEYOND

> *"There is a general tendency toward integration in the various sciences, natural and social. Such integration seems to be centered in a general theory of systems. Such theory may be an important means for aiming at exact theory in the nonphysical fields of science. Developing unifying principles running "vertically" through the universe of the individual sciences, this theory brings us nearer the goal of the unity of science. This can lead to a much-needed integration in scientific education."*
> – Von Bertalanffy 1968, pp. 38.

In systems thinking the fundamental unit of analysis is a system made up of many parts (Parsons, 1971). But what is a system? There are many definitions of systems, but all of them have a common conceptual denominator. For example, Ackoff (1981, pp.15-16) defines the system as a set of two or more interrelated elements with the following properties:

a) each element has an effect on the functioning of the whole;

b) each element is affected by at least one other element in the system;

c) all possible subgroups of elements also have the first two properties.

Generally, a system is an entity (individual, group, organization, etc) perceived as such by an observer, and is made up of logical and physical interacting components (subsystems) that strive toward a common goal (Barile et al. 2011, pp. 150). As it can be deduced by the above definitions, there is a contradiction in defining the system as a whole of interdependent *elements* or *components*. Citing Laszlo and Krippner (1998), "*By substituting the concept of 'element' for that of 'component', it is possible to arrive at a definition that pertains to systems of any kind, whether formal (e.g., mathematics, language), existential (e.g., 'real-world'), or affective (e.g., aesthetic, emotional, imaginative)*". Right now, it should be clear that *elements* are a collection of entities with homogenous properties in which an aggregation nexus can be found; only at the moment in which to the elements are recognized the capabilities to accomplish defined functions, respecting the specific roles attributed to them for the emergent system (considering at the same time the predefined rules and constraints), then we can talk about *components* either logical or physical (Barile and Saviano 2008, pp. 70).

Following the precedent considerations seems easy and logical to perceive the group as a system of individuals (components) in continuous interaction for specific interests/goals. The principle of Lewin's interactionism is the most important concept that gives to groups the dynamic properties, and as a consequence the "scientific right" to consider them as systems. Lewin was a gestalt psychologist and he strongly believed that because of interactionism, a group is a Gestalt, or a unified system with emergent properties that cannot be fully understood by focusing the attention only on isolated parts. It means that since the conception of group dynamics the system perspective was present. But, the concept of dynamic systems and interactionism have no sense if the system is considered closed. Von Bertalanffy was the first to distinguish closed and open systems and to give to systems thinking the legitimated intellectual movement, transforming it in a paradigm (Bertalanffy, 1950, 1968). He characterized open systems with features such as regulation, feedback, and equifinality, describing general laws in order to transport over the systems theory the "general" character. Thus, applications of his theory embraced physics, biology, psychology, psychiatry, and later, organizational theory.

In Management and Organization Theory was Chester Barnard who introduced the concept of system, describing organizations as cooperative systems (Barnard, 1938). To

Barnard, an individual is obligated to cooperate in order to fulfill the tasks. However, an open systems view of management, applying principles from general systems theory and from other systemic approaches[15], was better offered by Katz and Kahn (1966), Thompson (1967), Koontz and O'Donnell (1974), Kast and Rosenzweig, (1981), and Scott (2002). Great contributions came especially from the Tavistock Institute of Human Relations, where Lewin exercised a considerable influence on the creation of the socio-technical systems theory and on the Institute itself (Neumann, 2005). According to Jackson (2002, 2009), the initial phase of the theory was based on the "Coal Mining Studies" (Trist and Bamforth, 1951), followed by work in Indian textile mills (Rice, 1953), to study social and technical aspects of the work performed within industrial organizations, but taking into account only the Barnard's idea of the internal mechanical-equilibrium in which the external environmental factors were almost ignored. Then, relying on the contingency approach and on the Bertalanffy's open systems theory, Eric Tirst and Fred Emery elaborated the socio-technical approach (Emery and Trist, 1960). Later, the authors accepting the system as an open entity, and the relation with the surrounding environment, demonstrated that the environment has various degrees of systemic interconnections (i.e. casual texture) with which an open system must interact by adapting its behavior to environmental conditions in order to maintain homeostasis and ensure survival (Emery and Trist, 1965). Their theory was a response to the limits aroused by Taylor's scientific management and from the human relation movement. Thus, "*If the structure of the work organization is designed with only the technology in mind, then it may be disruptive of the social system and not achieve maximum efficiency. If it is designed with only the social and behavioral aspects in mind, it is unlikely to make very good use of the technology*" (Jackson 2002, pp. 118). Because any organization is composed by *production units* and *decisional units*, a combination of concrete material elements with abstract immaterial elements is needed, taking into consideration the structure and the function attributed to the same units (Panati and Golinelli 1988, pp.178). In other words, in the socio-technical systems theory there is a tendency to jointly optimized social (individual/group), technical (machineries), and economic (costs) subsystems. In accordance with the purpose of this dissertation, the paramount idea of Tavistock theorists was that of the *semi-autonomous*

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[15] For a deepen analysis about the application of systems thinking on management see: Jackson, M. C. (2002). *Systems Approaches to Management*. London: Kluwer Academic Publishers.

work groups. These groups are supposed to act as self-regulated systems adopting cybernetic and autopoietic principles. Managers do not give orders from outside, because the group makes decisions internally and is self-controlled. The managerial efforts, treating the group as an open system, are concentrated on ensuring to the group the necessary input from the environment, and to the environment (e.g. stakeholders) the necessary output from the group in a consonant logic. Hence, the manager behaves more as an observer rather than a director. Transporting Beer' Viable System Model and Ashby's law of requisite variety on the dynamics of groups, it could be argued that the variety of the operating system (e.g. the group processes) should absorb the variety of the environment (i.e. the complexity).

The Tavistock Institute of Human Relations was constituted first as a division of Tavistock Clinic (Tavistock Institute of Medical Psychology). So, before the socio-technical perspective there was the socio-psychological perspective of the Institute, where a particular attention was given to group processes and to family problem solving strategies (Trist and Murray, 1990).

The family therapy[16] based on systems theories is very rich with relevant concepts and tools for group dynamics. This research strand, initially assumed two important ramifications: the Tavistock Clinic and the Mental Research Institute of Palo Alto. From the Tavistock Clinic the main exponent is the British psychoanalyst and the founder of *attachment theory*, John Bowlby. Referring to Bretherton (1992), the formal statement of the theory was presented in three classic papers of Bowlby (1958, 1959, and 1960) in which he launched the basis for a well-functioning mother-child relationship. The mother for an infant is a source of love, affection and security, and when these components are well transferred to the child he/she grows psychologically healthy. But to create such relationship and develop infant-mother attachment patterns, the attachment figure (the caregiver system) should possess maternal sensitivity to infant signals (Ainsworth, 1969). However, the importance of attachment theory goes further than infancy. In "*Attachments*

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[16] The reason why the author of this work is considering the family therapy, is not because he is interested in particular family questions (e.g. marriage counseling), but because the basic principles (e.g. communication process) coming from the different schools of family systems theory are relatively the same with those of organizational psychology and group dynamics within organizations, and therefore can be seen as general interpretation schemes. Eventually, the family is a group.

Einstein said: "I want to know how God created this world. I am not interested in this or that phenomenon, in the spectrum of this or that element. I want to know His thoughts, the rest are details."

beyond Infancy" (1989), Ainsworth explains in a systems perspective that attachment theory is extended to pertain to developmental changes in the nature of children's attachments to parents and surrogate figures during the years beyond infancy, and to the nature of other affectional bonds throughout the life cycle. The attachment theory can be applied also for team-working within organizations. For instance, Pistole (1997) describes attachment theory applying it to group counseling, focusing on attachment styles, attachment and care-giving, the group leader's goals, and the group as an attachment experience. The relationship between care-giving system and care-receiving system recalls in mind the rapport between leaders and followers. The leader transfers to group members attitudes and values influencing their behavior. Technicisms don't really matter in team work when social relations are poor. Once the social cohesion is guaranteed, the task cohesion is only a detail. According to James March (2003)[17] "*The critical concerns of leadership are not technical questions of management or power; they are fundamental issues of life*". Hence, the inclusion of attachment theory in the study of leadership could strengthen leadership theories as a whole being at the same time a relevant component for leadership researchers (Bresnahan and Mitroff, 2007).

Finally, an interesting perspective of attachment theory refers to *virtual group dynamics* (i.e. online communities). Community member attachment can be achieved by strengthening either group identity or interpersonal bonds (Yuqing et al., 2012). To increase identity-based attachment, information about group activities and intergroup competition must be distributed to members. To increase bond-based attachment, information about the activities of individual members and interpersonal similarity should be given.

As it was mentioned before, family systems theories found a fertile ground at Mental Research Institute (MRI) of Palo Alto. Concepts from cybernetics, general systems theory, anthropology, and ecology have been introduced to social psychology and psychotherapy focusing the attention on communication between systems. Given the complexity of communication, Bateson and colleagues offered a theory of schizophrenia rooted on the communication theory (Bateson et al., 1956, 1963). Essentially the theory is based upon the conflict resulting in an individual's inability to discriminate between injunctions

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[17] The documentary film "*Passion and Discipline: Don Quixote's Lessons for Leadership*" was written by Prof. James March and presented by the Graduate School of Business of Stanford University.

presented verbally and at more abstract levels of communication. A communication dilemma (called *double blind*) is created because the individual or the group perceives two or more conflicting messages, in which one message (e.g. non-verbal) negates the other (e.g. verbal). So, the communication patterns can be a source of schizophrenia even when individual's brain is totally functional. This is the case in which there is a mind (systemic) problem and not a brain (structural) problem; it is sufficient to change communication patterns, or the organizational schemes of how information units are framed, reframed, and transferred. It has a vital importance for group dynamics because, changing positively communication schemes, member's satisfaction and productivity increase as a consequence. Naturally a question arises: how to change? The answer comes from the founders of MRI's Brief Therapy in their book "*Change*" (Watzlawick, Weakland, & Fisch, 1974). Their change principles are based on Russell's *logical types* (2006, pp. 131-140) and Bateson's *logical levels of learning* and communication (2008, pp. 324-356). In substance, an element (e.g. an individual) cannot be the group and the group cannot be the element; between them exists a recursive property which defines a hierarchy of levels. If we act at the same level in which the problem arises, this is a superficial intervention called *first order change*; we are simply combining the elements with each other obtaining an overall *status quo* of relationship status. If we act "outside the box" this is called a *second order change* which is structural. As a result, we are changing the substance. An interesting work to understand in practice first and second order change is that of George Orwell (1945): *Animal Farm*. Orwell, criticizing the Russian Revolution of 1917 describes two classes: the animals of the farm and the humans that maltreat them. The human class is losing the power and the animal class is coming violently to power through a revolution. Using Watzlawick's terms, it was a first order change because a class of elements (i.e. the humans) was substituted by another class of elements (i.e. the animals) with the same behavioral properties of the first. Simply put, when the dictatorship regime produces another dictatorship regime it doesn't matter who governs because the philosophy (communication pattern) remains the same. In order to have a second order change, the leadership philosophy must change, and as a consequence the class/group will behave differently. Another example can be found within the research filed. For instance, the qualitative research refers to the methodology (the class), instead the natural observation and the participant observation refer to the methods used within this methodology (the

elements of the class). If a researcher wants to pass on the quantitative methodology (another class) he/she must act not *within* the precedent class (qualitative methodology) combining its elements (observation methods), but should directly act *on* the class changing it. Therefore, if a researcher changes the natural observation for the participant observation he/she remains at the same class of qualitative methodology registering a first order change. But if he/she uses the quantitative methodology, it doesn't matter if he/she uses, for example, an experiment or a quasi-experiment method, automatically the class changes and a second order change is registered. Reflecting about groups in organizations, the group is the class and the individuals the elements within it. So, if we want to change the dynamics of groups obtaining substantially a different result, we must act directly on the group and not deterministically on single individuals seeing them as isolated parts. This is a leadership task. Frequently, when soccer team's coaches are interviewed after the match they do not speak (at least exaggeratedly) about the attributes of a single player, but they try to emphasize the team as a whole. This is a holistic view of the reality, and only in this way superior order changes can be produced.

Another branch of MRI's family therapy is Strategic Family Therapy developed by Jay Haley. Haley was deeply inspired by the ideas emerged during the Bateson Project, but the most influential figure was Milton Erickson (to whom he dedicated various books) and his hypnotherapeutic approach. As Haley (1973, pp. 17) wrote in "Uncommon Therapy: The Psychiatric Techniques of Milton H. Erickson MD": *Therapy can be called strategic if the clinician initiates what happens during therapy and designs a particular approach for each problem […] Strategic therapy isn't a particular approach or theory, but a name for the types of therapy where the therapist takes responsibility for directly influencing people*". In other words, strategic therapy is any type of problem solving free of predefined schemes and biases, where the therapist uses a contingency approach adapting and modifying the strategy during therapy, personalizing it for each person and for each problem. Codifying it in managerial terms, the therapist (which can be a leader) may have an intended strategy for the patient (individual or group) that, if fully realized can be called a deliberated strategy, but if not realized an emergent strategy should appear in order to reach the target (Mintzberg, Ahlstrand, & Lampel 1998, pp. 10-12). Therefore, there is always the intentionality of the "therapist" to influence the "patient", but in a changing environment the therapist must renew competences so as to achieve congruence

with the emergent situation. By adopting, integrating and reconfiguring resources and functional competences the therapist reacts through a *dynamic capabilities approach* (Teece, Pisano, & Shuen, 1997).

Hay's strategic therapy influenced also Salvador Minuchin's Structural Family Therapy[18]. For Minuchin, the problem inside the group (family) does not consist in a single individual, but is a derivate of members' interaction as part of the whole family system or specific subsets inside the family system (Minuchin, 1974). Interactions produce emotional reactions between family members. To reduce emotional tensions between members of a family system, Murray Bowen introduced the concept of triangulation in family systems theory and that of differentiation of self (Bowen, 1985). A triangle is a three-person relationship system necessary for tolerating much more tension, because two-person systems are unstable due to a concentrated and not distributed tension. The differentiation of self is a concept connected with the group-thinking phenomenon and with conformity: the lower the differentiation of self, the lower the individuality (independence).

Other relevant contributions were also the Milan Systemic Family Therapy (Selvini, 1988) and Conjoint Family Therapy (Satir, 1983) based on the research made in MRI of Palo Alto.

Even though the above considerations contain general interpretation schemes that can be used for any type of group, they are mainly concerned with family context. However, the systemic principles were so interesting that illuminated in the early 1980's several scholars to apply systems theory to the psychology of groups[19]. For instance, Whitner (1985) combines general systems theory with gestalt therapy in group counseling. Agazarian, (2008, 2012) uses a systems-centered® group psychotherapy in order to study the hierarchy of defense modification and the role modification process. Others make use of social network analysis and complexity theory to study relationships and the change over time of Internet specific group targets (Quinn, Woehle, & Tiemann, 2012). Another exciting elaboration is the application of communication and psychotherapy (from Palo Alto school) to group facilitation and group model building through system dynamics

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[18] There is a difference between structure and strategy. Structure refers to "how things are made", instead strategy refers to "how things should be done" (or are intended to be done). They are complementary components of each other.
[19] For a "meta-analysis" (review) of group systems theory see: Connors, J., Caple, R. (2005). "A Review of Group Systems Theory". *Journal for Specialists in Group Work*, 30 (2), 93-110.

(Visser, 2007). Finally, there is a holistic standpoint in integrating interpersonal neurobiology with systems-centered method and attachment theory for group therapy (Gantt and Cox, 2010).

2.3. TOWARD GROUPS AS VIABLE SYSTEMS AND INFORMATION VARIETIES: A VIABLE SYSTEMS APPROACH (VSA) PROPOSITION

Before introducing groups as viable systems and information varieties a brief prologue about the Viable Systems Approach (VSA) is indispensable.

2.3.1. Origins of VSA

The paradigm of the Viable Systems Approach is based on multidisciplinary studies mainly focused on systems thinking, systems theory, management cybernetics, and organization theory, from which are drawn principles and patterns to be applied synergistically in organizations. Maybe the real origin is rooted in ancient Greece where opposite reflections between Parmenides and Heraclitus defined statics (i.e. the structure) and dynamics (i.e. the system). Then, it was the Aristotelian dictum "the whole is greater than the sum of its parts" to illuminate individuals for thinking systemically. Tightening the focus, the first real formalized attempts in systems thinking are the works of two Russian writers: *Tektology* of Alexander Bogdanov (Gare, 2000) and *Biosphere* of Vladimir Vernadsky (1998)[20]. After that, in 1968 Bertalanffy introduced the General Systems Theory in which he described general behavioral laws of systems. Concepts like homeostasis, self-regulation, and open systems had a powerful impact on the scientific community. Galloping developments in cybernetics (Wiener, 1948; Ashby, 1947) and social cybernetics (or second order cybernetics, or cybernetics of cybernetics, or the cybernetics of observing systems) (Foerster, 2003) were of great importance too. Thus, "*Systemics and cybernetics can be viewed as a metalanguage of concepts and models for transdisciplinarian use, still now evolving and far from being stabilized*" (François, 1999). These concepts were widely applied by Stafford Beer to business and other type of

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[20] The original works of Bogdanov on *Tektology* were published in Russia in three volumes between 1912 and 1927. On the other side, the work of Vernadsky about the biosphere was originally published in Russian in 1926.

organizations, through which Beer founded *management cybernetics* (a field of cybernetics concerned with management and organizations)[21], stimulating the intellectual fantasy of many Italian scholars. The Italian studies on systems approaches to management began with the names of Zappa, Amaduzzi, Saraceno, Fazzi, Panati, Golinelli, Rullani, Barile, and others. The first initiatives were followed by the research association of G.A.I.A (*Gruppo di Ricerca per le Attività Interdisciplinari di Studi Aziendali*), founded by Prof. Sergio Barile at University of Salerno. In more recent years the focus was shifted on the collaboration between the research group of Sapienza University of Rome (leaded by Prof. Gaetano Golinelli), and the research group of G.A.I.A. The culminating point of the research was the year 2000, where Prof. Gaetano Golinelli and the other collaborators published the first book in Italian edition entitled: *L'approccio Sistemico al Governo dell'Impresa*, vol. 1: *L'impresa sistema vitale*. Ten years later – as a result of efforts made by the Italian group of researchers, and the collaboration with international scholars from the fields of Network Theory (e.g. many-to-many marketing of Evert Gummesson), Service-Dominant Logic (Vargo and Lusch), Service Science-Management-Engineering (SSME) of the International Business Machines Corporation (IBM) – emerged the first International edition entitled: *Viable Systems Approach (VSA): Governing Business Dynamics*, prefaced by Jim Spohrer (Director, from 2003 to 2009, of Almaden Services Research and IBM Global University Programs at IBM Almaden Research Center).

In synthesis (as shown in Table 2.2), VSA is a multidisciplinary approach for diagnosing organizations as viable systems, in order to achieve *consonance* and *competitiveness*, and as a consequence, viability. VSA considers both statics and dynamics of viable systems; it serves as a bridge between reductionism (focus on parts) and holism (focus on the whole), starting from the structure and arriving to the emergent system following the steps designed by the VSA's conceptual matrix.

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[21] Liverpool John Moores University offers a catalogue of Beer's publications. For further details see: Liverpool John Moores University (1996). The Stafford Beer Collection: Catalogue. http://www.ljmu.ac.uk/lea/77471.htm

Table 2.2. Disciplines that have contributed to VSA's groundwork.

VSA Foundations	Main Focus
Multidisciplinary interpretative approach – *between holism and reductionism*	Attention shifting from parts to whole.
Open systems – *systems thinking*	Every system is in strong relation with other system entities.
System's boundaries – *systems thinking*	Valorizing exchanges with the environment for system's goal.
Autopoiesis and common finality – *chemical and biological sciences*	Dense pattern of relations with supra and subsystems.
Homeostasis and self-regulation – *natural and ecological sciences*	Living organisms' capacity to preserve own viability and stability in any condition.
Structures, Systems, and Equifinality – *natural and ecological sciences*	Static versus dynamic representation of organism.
Consonance and Resonance – *sociological and psychological sciences*	Potential connectivity and its activation (structural compatibility and related system harmony).
System viability – *systems thinking*	System developing (and surviving) within its context in a consonant and resonant way.
Adaptation and relationships development – *natural and ecological sciences*	Relationships and peripheral components; transformations and organization design; restructuring and organization plan rethinking.
Complexity and decision making – *sociological and psychological sciences*	Qualitative traits of the observed phenomenon correlating a combination of multiplicities and autonomies with the impossibility of any explanation and based on three parameters: "variety", "variability", and "indeterminacy".

Source: Barile and Polese, 2010.

2.3.2. Principles of VSA[22]

Some of the central principles on which VSA is based are:

 - a viable system lives having the aim to survive within a context which is populated by other (viable) systems;
 - every context is subjectively perceived from the viable system's Government Body (the decision-maker or top management) by analyzing its environment (a macro-system in which the decision maker is immerged) distinguishing and

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[22] As a member of ASVSA (*Association for Research on Viable Systems*), the author of this work has reported here the basic principles of VSA from ASVSA's official website (with the permission of the association): http://www.asvsa.org/index.php/en/

identifying its relevant suprasystems (resources' owners) in relation with the system's objective;

➴ context is the synthesis of a reticulum of viable systems, within which it is possible to distinguish a certain number of systems (relevant supra-systems), which are able to condition top management decisions by exercising pressures and manifesting expectations;

➴ the system's structural definition and the level of consonance between its evolved components (interacting supra and sub systems), define a given system's grade of elaboration;

➴ a viable system has the capability of dynamic adjusting (self-regulation) its structure: hence we may refer to consonance as a system's attempt to correctly interpret contextual signals, and resonance to the concretization of the consequent competitive behavior in order to maintain stability (if the system satisfies external expectations and needs displayed by relevant supra-systems).

2.3.3. Ten Fundamental Concepts (FCs) of VSA[23]

► FC.1. *Systems approach*: Individuals, organizations, and social institutions are systems that consist of elements directed towards a specific goal.

► FC.2. *Systems hierarchy*: Every system (of level L) identifies several supra-systems, positioned at a higher level (L+1), and several sub-systems, located at a lower level (L-1). This is called recursive property of viable systems.

► FC.3. *Reductionism and Holism*: The interpretation of complex phenomena requires interdisciplinary approaches, and should synthesize both a reductionist view (analyzing elements and their relations) and a holistic view (able of observing the whole).

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[23] The 10 Fundamental Concepts (FCs) of VSA have been reported in this dissertation from: Barile, S., Bassano, C., Calabrese, M., Confetto, M., Di Nauta, P., Piciocchi, P., Polese, F., Saviano, M., Siano, A., Siglioccolo, M., & Vollero, A. (2011). *Contributions to Theoretical and Practical Advances in Management: A Viable Systems Approach (VSA).* Avellino: International Printing Editore, pp. 151-155. The above authors have made an ulterior elaboration of the original concepts found in: Barile, S., Polese, F. (2010). "Smart Service Systems and Viable Service Systems: Applying Systems Theory to Service Science". *Service Science*, 2 (1/2), pp. 21 – 40.

► FC.4. *Opens Systems and Systems Boundaries*: Systems are open to connection with other systems for the exchange of resources. A system boundary is a changing concept within which all the activities and resources needed for the system's evolutionary dynamic are included.

► FC.5. *Autopoiesis, Homeostasis, and Self-regulation*: Viable Systems are autopoietic and self-organizing; that is, they are able of self-generating internal conditions, which through self-regulation, support the reach of equilibrated conditions, thus synthesizing internal possibilities and external constraints.

► FC.6. *Structures and Systems*: Every organization is constituted by components that have specific roles, activities, and objectives, which are undertaken within constraints, norms, and rules. From structure emerges a system through the transformation of relations into dynamic interactions with sub-systems and supra-systems.

► FC.7. *Consonance and Resonance*: Systems are consonant when there is a potential compatibility among the system's components. Systems are resonant when there is effective harmonic interaction among components.

► FC.8. *System's Viability*: A system's viability is determined by its capability, over time, to develop harmonic behavior in sub-systems and supra-systems through consonant and resonant relationships.

► FC.9. *Adaptation and Relationship Developments*: Business dynamic and viability require continuous structural and systemic changes focused to the alignment of internal structural potentialities with external systemic demands.

► FC.10. *Complexity and Decision-Making*: Viable Systems continuously align internal complexity with external complexity in order to better manage changes affecting its viable behavior. Decision-makers within these cognitive processes are influenced by strong beliefs (i.e. categorical values), interpretation schemes, and information units.

2.3.4. Postulates of VSA[24]

    I.   *Survival:* The viable system, living in a specific context, extrapolated from the general environment by the system's government body or the observer, has the primary end of survival. It means certifying a separate existence for the recognizable entity/viable system.

    II.   *Eidos:* The viable system in its ontological qualification can be conceived in a double perspective: that of the structure and that of the system.

    III.   *Isotropy:* The viable system in its behavioral qualification is characterized by the emergence of two logically distinct areas: that of deciding (decision-making area) and that of action (decision-performing/problem-solving/operations area).

    IV.   *Interactionism and Finalization:* The viable system, in its existential dynamics, is projected toward pursuing purposes and attaining objectives by interaction with suprasystems and subsystems, with which exchange respectively pressures, expectations, guidelines and rules.

    V.   *Exhaustiveness:* For a viable system, all the external entities that populate the surrounding environment are viable systems too, or components related to a viable system of a higher level. So, a viable system, as an autonomous entity, may be dissolved within the suprasystem to which it refers during a specific time-frame, because of consonance and resonance conditions.

2.3.5. Groups as Viable Systems: again with fundamental principles

The attempt to define groups or their components (members) as viable systems from the lens of VSA is innovative but not radically new. Interesting notes on the concept of viable system and the postulate of survival can be traced in the psychotherapy of groups according to a logic leader-follower. Quoting Agazarian and Peters (1981, pp. 111): *"If the therapist in the psychotherapy group is both an effective and a successful leader, then every member in the group eventually emerges as a self-leader. Only thus can the individual in this sophisticated culture take up the responsibility of his social role, which*

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[24] For a thorough analysis see: Barile, S. (2008a). *L'impresa come sistema: Contributi sull'Approccio Sistemico Vitale*, 2nd Ed., pp. 24. Torino: Giappichelli. Golinelli, G.M. (2005). *L'approccio Sistemico al Governo dell'Impresa: L'impresa sistema vitale*, Vol. 1. 2nd Ed., pp. 106-110. Padova: Cedam.

is to maintain himself as a viable system and to choose viable systems to relate to, and finally to create new systems for his own and for cultural survival".

Now, the question is: what is a viable system? Referring to Beer's Viable System Model (1985), a viable system can be described as a system that survives, remains united and is complete; it is homeostatically balanced both internally and externally and furthermore has mechanisms allowing it to grow and learn, develop and adapt, and thus become increasingly more effective in its environment. Simply put, a viable system is any system organized in such a way as to meet the demands of surviving in the changing environment. One of the prime features of viable systems is that they are adaptable, which is a necessary requisite to meet their finality: the survival. A system's ability to survive is determined by its capability to develop over time consonant and resonant behavior with subsystems and suprasystems (Piciocchi et al., 2009). A viable system can dynamically adjust its structure and behavior to achieve consonance with its context, and thus preserve its stability (homeostasis). In VSA terms, a system is viable when it possesses the fundamental principles and respect all the postulates previously analyzed. After these considerations comes out naturally the logic of considering groups as viable systems in harmony with the fundamental concepts and postulates discussed upon. Therefore, subsequently are described groups as viable systems making an application and an interpretation of the VSA's fundamental principles on groups.

10 Fundamental Principles for groups as viable systems:

- 🔵 FC.1. *Systems approach for group analysis*: Because of Lewin's principle of interactionism the group is a Gestalt, or a unified system with emergent properties that cannot be fully understood by focusing the attention only on isolated parts. For instance, if we analyze only the psyche and the behavior of a single member we lose the general phenomenon of the group that emerges as an interpersonal process flanked by the relationships projected and activated between members (formal/informal leader included).

- 🔵 FC.2. *Group's hierarchy and recursion*: Every social entity defined as a group enjoys the recursion property. Hence, a group (level L) identifies several suprasystems (level L+1) (e.g. the family, the organization, the community, the industry sector, the socio-economic system, the ecosystem, etc) and subsystems (level L-1) (i.e. the individuals inside it).

- FC.3. *Reductionism and holism*: Given the complexity of groups as social systems, it is necessary to study the individuals separately (e.g. their personality, motives, perceptual world, values, attitudes, unconsciousness, and emotions), and in relation with each other seeing the group as a whole (e.g. group cohesiveness, group consonance, group performance, etc).

- FC.4. *Groups as open systems and the system's boundaries*: To accomplish the purpose of survival, groups, as purposeful systems, exchange material and immaterial resources (e.g., products, projects, energy, money, information, etc) with the surrounding environment (e.g. with other groups inside or outside the organization, with the organization as a whole, with single individuals, etc). So, they are undoubtedly open systems. From the structural standpoint groups have physical boundaries defined by the total number of components (i.e. individuals) they are composed and by their interaction that produces the group's process. The demarcation line between the activities performed inside the group and those outside it defines the structural boundary of the group. From the systemic perspective the boundary is invisible physically and decided from the leadership of the group (formal or/and informal). Only the leader determines the openness degree of the group as a viable system. Thus, the group is a partially open system and contextualized. The range of government action and the strength of the relationship between groups in terms of intergroup consonance and resonance, define the system's boundary.

- FC.5. *Autopoiesis, homeostasis, and self-regulation of groups*: The group is an autopoietic machine: its individuals are able to generate new internal conditions with the purpose of self-regulation (continuously aligning internal and external complexity), maintaining at the same time a dynamic equilibrium (homeostasis). For example, an internal conflict might serve as a feedback for change. Individuals (with or without the aid of the leader) generate new communication patterns to solve the conflict. From the moment the conflict is resolved, as a consequence, a new state of equilibrium is automatically reached.

● FC.6. *Group's structure and group's system*[25]: From a static viewpoint the group can be described like a structure. In fact groups has a structure constituted by the individuals inside the group, to which are assigned functions, roles and tasks to be performed in consideration of norms, constraints and rules. When the structure is activated, to wit, when the individuals begin to perform (by interaction), the group is set in motion as a viable system where emergent properties can be revealed (e.g. cohesion, decision making, social pressure, conformity, productivity, etc).

● FC.7. *Group's consonance and resonance*: In the field of group dynamics, consonance may refer to the compatibility degree between individuals within the same group, or between individuals of different groups considering the respective values, attitudes, and information background. When the relation is established only between two viable systems (individuals or groups) the consonance must be labeled dyadic; instead, when more actors become part of the relation, consonance should be considered contextual. On the other side, resonance is the activation of the relation (a photographic state), transforming it into an interaction (a video-graphic state). For example, when group members are rallied to accomplish a project it can be said that a relation is founded and an initial consonance is ensured. When the work starts, the relation is transformed in interaction and the group begins to resonate due to the teamwork (work done by members' interaction).

● FC.8. *Group's viability*: When group members (leaders included), through the conditions of internal/external consonance, internal/external competitiveness, and group cohesiveness, are able to guarantee a separate existence of the group as a whole, at that time the group can be considered as viable. In other words, when individuals feel harmony with each other and simultaneously develop a

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[25] The dichotomist perspective of the group as a structure and as a system is not new in the field of group dynamics. As cited in Forsyth (2006, pp. 4):

Structure – "A group is a social unit which consists of a number of individuals who stand in (more or less) definite status and role relationships to one another and which possesses a set of values or norms of its own regulating the behavior of individual members, at least in matters of consequence to the group" (Sherif & Sherif 1956, pp. 144).

System – "Groups are open and complex systems . . . a complex, adaptive, dynamic, coordinated, and bounded set of patterned relations among members, tasks, and tools" (Arrow, McGrath, & Berdahl 2000, pp. 34).

competitive spirit as a necessary impulse for improvement, the viability increases and makes the survival more secure and clear.

- ⬤ FC.9. *Adaptation and relationship expansion*: The group is only a part of the whole organization or the general community. Thus, everything that happens to the whole affects also the group and its members. Because of it, groups have the obligation to adapt their structures in a changing environment, by means of systemic re-equilibrium interventions (i.e. simple adaptation, transformation, restructuring, and reconversion), with the purpose to secure the first postulate of VSA: the survival. This end can be achieved only if the group activates, reinforces, and expands relationships inside and outside the system's boundaries, developing effective communication channels.

- ⬤ FC.10. *Complexity[26] and decision-making*: Groups live in complex environment composed by three components: variety (or the number of states that a phenomenon presents to an observer in a specific moment, interpreted as a differentiation of the possible cases that can occur in one and the same time); variability (or the changes undergone by that phenomenon over the time, namely, how the variety at time (t1) is transformed at time (t2), and so on); indeterminacy (the percentage of understanding during the perception of a certain phenomenon). The complexity makes decisions more difficult from the rational standpoint, because tends to increase the cognitive alignment gap between the observing system (member, leader, or/and team) and the observed system (any kind of situation), due to a lack of knowledge.

2.3.6. The group as an Information Variety

Taking a cue from the 10th VSA's fundamental principle (i.e. complexity and decision-making), in the paradigm of the Viable Systems Approach a viable system is seen always from the perspective of its Government Body, which is defined as the top decision making entity (e.g. the leader or the board), composed by one or more individuals (Golinelli 2010, pp. 187-241). It comes out that the destiny (i.e. system's survival) of every viable system depends on the decisions made by the government body. As Tony Robbins said: "*It is in*

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[26] For further comprehension on the topic of complexity see: Golinelli 2010, chap. 4; Rullani 1989, pp. 16-17; Bocchi and Ceruti, 2007.

your moments of decision that your destiny is shaped" (Robbins 1991, pp. 40). Referring to Barile and Canfora (2008, pp. 220), for viable systems the concept of *decision* is strictly connected with that of *survival*. Since the decision-making is a cognitive course of action, the maintenance of viability implies a continuous decisional process that can be represented as a knowledge itinerary (figure 2.1). The viable system during the lifecycle encounters many problems; as Popper (1999) said: "*All life is problem solving*". For solving problems, a viable system must use cognitive abilities such as perceiving, learning, reasoning, memorizing, reflecting, and so on. Briefly, using a Jungian terminology, and associating to the viable system a personality type, the cognitive course of action can be the continuum between perceiving and judging (Jung, 2009). Perception might have as a superior function the *intuition* or the *sensing*, as on the other side the Judgment might have the *thinking* or the *feeling*. In facing everyday problems (in or outside organizations) individuals use all these dimensions. The question is: how much rationality are them able to employ? It is logical that information makes the difference here. Napoleon said that "the right information at the right place and time equals 9/10 of a victory".

Figure 2.1. The Knowledge Curve (or 4C curve).
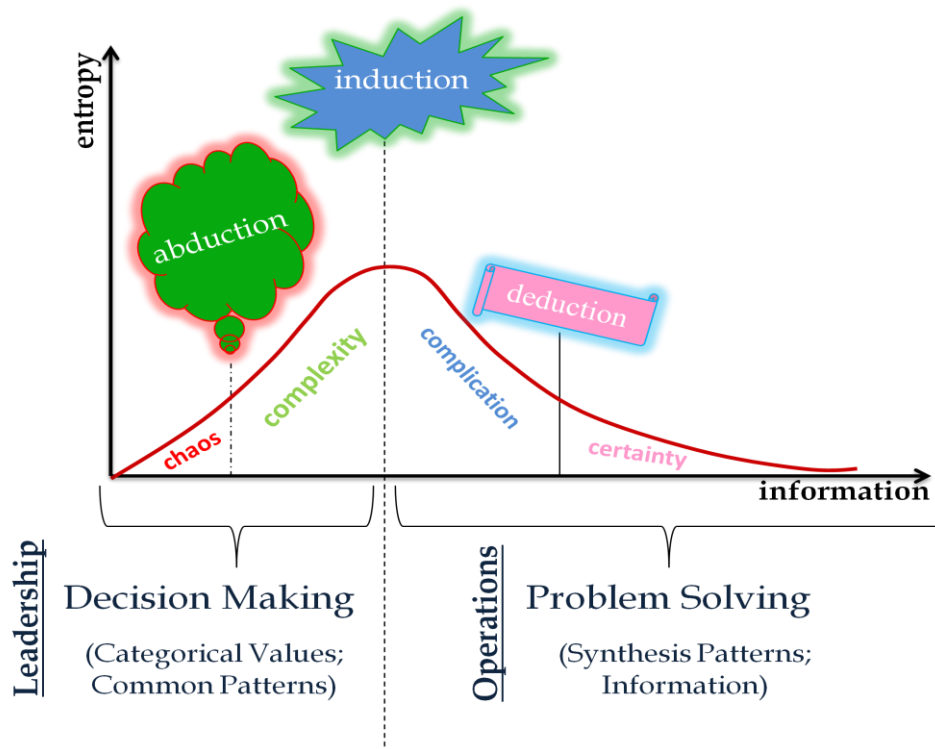
Source: Adapted from Barile 2009, pp. 53.

Looking to the Knowledge Curve of figure 2.1 it is comprehensible that higher the information units (X-axis), higher the rationality (certainty). Anyway, problems differ in character; this is why Simon coined the terms *bounded rationality* and *satisficing*, with the purpose to describe those phenomena that are not fully understandable and for which an acceptable (not optimal) level of decision making should be aimed (Simon, 1947, 1959; Augier and March, 2004). The more the rationality is bounded, the greater is the entropy[27] (Y-axis), and the more the decision is "irrational". At this point, what kind of knowledge does the viable system use? To give an answer, we need to go back in time, when Plato defined knowledge as *justified true belief*.

- **True** – what does it correspond to in the world? An object, subject, or every observable fact that is known by the community and corresponds to something in the world. It refers to a declarative knowledge (know what).
- **Justified** – what procedure did you follow to acquire it? Paths of action, strategies, norms, rules, tactics, etc. It refers to a procedural knowledge (know how).
- **Belief** – are you willing to act upon it? The willingness is rooted in subconsciousness and in some categories that make resistance toward change. It refers to a value system (know why).

In other words, seems that knowledge is something complex and not composed only by information. Indeed, Nonaka and Takeuchi (1995, pp. 58), relying on Plato's knowledge definition, expressed that *"knowledge, unlike information, is about beliefs and commitment"*. In a similar direction Rumizen (2002, pp. 6, 288) defines knowledge as "*Information in context to produce actionable understanding*". So, information is an operand resource to be acted upon through commitment/will in order to produce a new pattern with the aim to comprehend some phenomenon. A more complete definition can be found in Davenport and Prusak (1998, pp.5):

"Knowledge is a fluid mix of framed experience [**interpretation schemes**]*, values* [**categorical values**]*, contextual information* [**information units**]*, and expert insight that provides a framework for evaluating and incorporating new experiences and information* [new interpretation schemes]*. It originates and is applied in the minds of*

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[27] Entropy refers to the confusional degree within a viable system's "mind".

knowers. In organizations, it often becomes embedded not only in the documents or repositories but also in organizational routines, processes, practices, and norms."

The above definition is quite symbiotic with that of the Viable Systems Approach. Recent progress in VSA, has defined the viable system as an endowment of information units (Uinf) interpretation schemes (Sint), and categorical values (Cval) (Barile, 2008b, 2009, 2011; Barile et al., 2011; Barile and Calabrese, 2012).

An information unit is every incoming signal from the external context or/and from the internal brain's memory center, subjectively perceived by the observer in accordance with his/her needs or/and desires.

Interpretations schemes serve as filters acting on information units through particular elaborations. These are organizational patterns because have the primary task to rationally organize the information. *Generally, a schema can be defined as a cognitive framework that represents organized knowledge* [information] *developed through experience* [owned interpretation schemes] *about people, objects, or events* (Schermerhorn 2010, pp. 87). Within the coordination function of a schema it can be described the attention role, the selection role, the organization role, the interpretation role, and the retrieval role. Therefore, schemas through their organizational and interpretative roles shape information units. Furthermore, interpretation schemes are devised in *general interpretation schemes* (G-Sint) and *synthesis interpretation schemes* (S-Sint) (Barile, 2009, 2011). The first have a general character in the sense that have a larger perspective of observation comparing with synthesis schemes that are more technical and specific. Whereas synthesis schemes are *pro tempore*, general schemes are more constant. In addition, synthesis schemes are derived by general schemes. An example can clarify better the idea. Let's suppose a group of three individuals (I_1, I_2, and I_3). Each one of them presents a problem connected with dependent variables of organizational behavior. So, I_1 has a low performance, I_2 has a high (voluntary) absenteeism, and I_3 has a low job satisfaction. In front of this situation, the team leader must undertake adaptable and corrective mechanisms for each group member. After a thorough analysis the team leader arrives at this conclusion: for I_1 the synthesis scheme (problem resolution) is to set to the individual more competitive goals or more stressed objectives which are supposed to increase the performance; for I_2 the synthesis scheme is to delegate to the individual more responsibilities which will stimulate the individual to feel the importance of the work, and at the same time will obligate him to be

more present at work in order to justify the loaded responsibilities; for I_3 the synthesis scheme is to increase simultaneously the wage and the promotional chances that are indispensable for the individual to feel a higher satisfaction in his/her job. After the successfully resolved situations, the team leader understood that the corrective interventions had a common denominator (*general scheme*): the motivation. In other words, the exploited synthesis interpretation schemes were a derivate of the same general interpretation scheme. Therefore, the same general scheme, varying the context, produces assorted synthesis schemes. It means that a synthesis scheme is a contextualized general scheme.

The categorical values, which represent the *strong beliefs* of a viable system, are responsible for the refusal or acceptance regarding rationally justified elaborations exercising resistance to change. They are strongly linked to the emotional level of the decision maker and qualify states of unconsciousness which tell us if something is "good" or "bad". Categorical values serve as a "guru" during the operationalization of interpretation schemes. They orientate general schemes in the way the latter are used to derive synthesis schemes.

Figure 2.2. The Viable System conceived as an Information Variety.
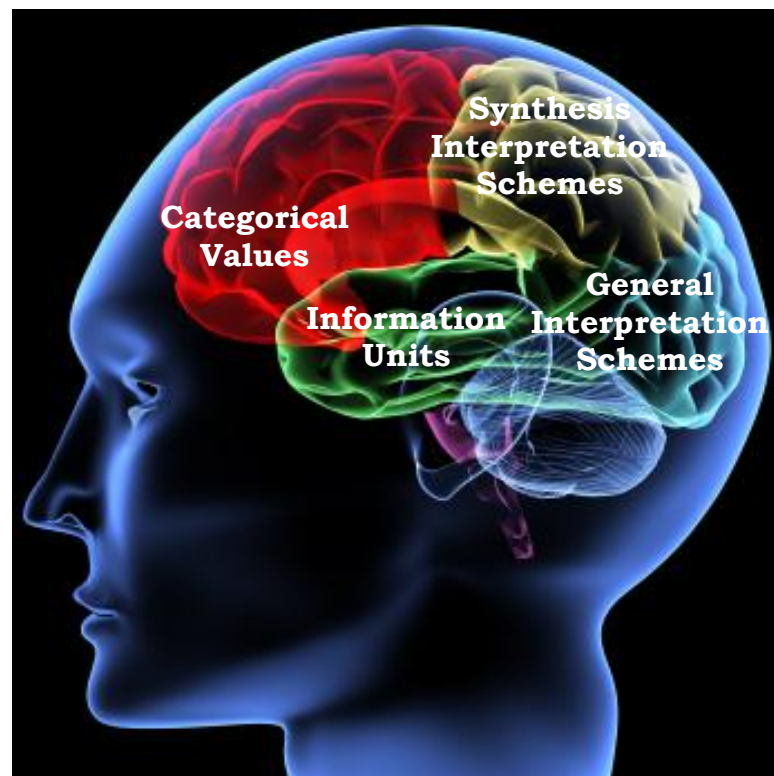
Source: *Author's elaboration.*

Information units, interpretation schemes, and categorical values are all components of a whole called Information Variety (Vinf) (figure 2.2). The information variety is a representation of knowledge that a viable system possesses. Therefore, given that groups as viable systems are cognitive entities and knowledge holders, responsible for decision-making and problem solving, then they can be conceived also as information varieties. This is a natural derivation if we take into account that groups as a whole, and the individuals inside them, own information, schemes, and values. For example, language is a general interpretation scheme used by large groups (e.g. communities) in order to communicate, learn and comprehend. In this regard, so is expressed Barile (2011, pp.79): *"An interesting aspect concerns the possibility about the existence of Interpretation Schemes referring not so much to the single individual, as so much they can refer to the community of human beings (viable systems). Exactly the language would seem to have, in addition to other specific properties, the ability to provide the conditions for a possible Consonance, as much decisional as operational, between members of the same community and other related communities"[28]*. In this way the community behaves as an information variety.

The precedent analysis leads us to consider groups as information varieties that in making decisions and in solving problems use the information variety's components (Uinf, Sint, Cval). But what is the difference between *decision making* and *problem solving*, and what is the role of information varieties' components (Uinf, Sint, Cval) in affronting everyday problems, which are determinants for the dynamics of groups in all the senses? To answer this question, a review of the Knowledge Curve (figure 2.1) is necessary. The curve is also called 4-C curve due to the *problematical areas* that covers:

- C1 = *Chaos* – a situation in which the viable system has an unconscious fastidious sensation but is not aware about the origin/cause, the effect, and the solution. So, both problem and resolution scheme are incognita.
- C2 = *Complexity* – a problematical area characterized by the viable system's consciousness about the problem. Although the problem is known the viable system is convinced that there is no way how to solve it.

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[28] The text is the dissertation author's translation from the original Italian text.

- C3 = *Complication* – a context in which the viable system increases the optimistic percentage thinking that the problem has a solution, but the formula (i.e. interpretation scheme) is not yet in its hands; it is just a matter of time.
- C4 = *Certainty* – is the last area characterized by that type of problems that seems to be very easy (99% certain[29]) to solve because already exists a method. These are repeated problems, such as organizational routines.

The above areas are distinct/connected from/with each other by three type of reasoning:

- *Abduction* – the launch of hypothesis, which is the first step of scientific reasoning.
- *Induction* – the experimentation of hypothesis going from particular single cases and arriving to a general composition.
- *Deduction* – the deriving of a conclusion starting from general statements (premises).

It is clear now that the decisional activity depends from the information that the observer has about the problem, subjectively perceived. In this way, considering the information units and the entropy levels, the problem can be qualified as chaotic, complex, complicated, or simple (certain). If the viable system faces issues extended along the first two areas (C1 & C2), it means that due to the deficiency of sufficient information, the rationality is really low (bounded). Therefore the tendency is to use more categorical values and some general schemes[30], which is typical to those decisions labeled decision making. If the viable system encounters a problematic referred to complication or certainty areas, then synthesis schemes and information units are more present to solve the problem. This is the reason why the paradigm of the Viable Systems Approach makes a distinction between *decision making* (occupied more with strategic tasks and intuitions) and *problem*

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[29] The certainty cannot be 100%, as it is demonstrated graphically in the figure 2.1, where the curve runs asymptotically with x-axis. The reason is that every solution (e.g. theory) should be open for improvement. Popper (2005) calls it *falsifiability;* Kuhn (2009) calls it *paradigm shift;* Schumpeter (2003) calls it *creative destruction.*

[30] Interpretation schemes are composed by general schemes and synthesis schemes. For example, body-language, paralanguage, and verbal language are manners (synthesis schemes) through which people exchange information. All these synthesis schemes are parts of a general category: the communication (general scheme). Therefore, it is always necessary to not confuse the logical levels, incorrectly equating the element (part) with the class (whole).

solving (focused more on operations and routines) (Barile, 2009). Even though a very clear distinction between decision making and problem solving wasn't given yet before that of Barile's proposition, however many scholars have written about the concept. Therefore, in conclusion of this paragraph a synthesis about decision making and problem solving is offered (table 2.3) which is of fundamental importance for team leaders (i.e. decision makers) and followers (i.e. problem solvers).

Table 2.3. Assorted contributors on decision making and problem solving.

	Authors	Types of decision	
International scholars	Chester Barnard (1938)	illogical mental processes	logical mental processes
	George Katona (1964)	authentic decisions	habitual behavior
	Herbert Simon (1947)	satisficing decision	rationale decision
	Henry Mintzberg (1998)	emergent strategy	deliberate strategy
	Michael Polanyi (1966)	tacit dimension	explicit knowledge
	Ralph Stacey (1996)	implicit models	explicit models
	T.J. Peters & R.H. Waterman (1982)	emotional-affective managerial techniques	analytical-rationale managerial techniques
	Alvin Toffler (1970)	non-programmed decisions	programmed decisions
	Robert Dilts (2003)	virgin problems	recurrent problems
	Dissertation's Author	leadership decisions	followership decisions
Italian scholars	Pasquale Saraceno (1972)	government decisions	administrative decisions
	Roberto Fazzi (1982)	camp of ideas	camp of economic amounts
	A. Cartoccio & G. Varchetta (1983)	imaginative functions	logical functions
	Sergio Sciarelli (1997)	strategic decisions	roles of mere execution
	B. Di Bernardo & E. Rullani (1990)	irreversible-conjunctive decisions (meta-decisions)	reversible decisions (interdependent micro-decisions)
	Gaetano Golinelli (2011)	quest of the possible	practice of the real
	Sergio Barile (2009)	decision making	problem solving

Source: *Author's rework on* Calabrese, 2012.

2.4. THE DYNAMICS OF GROUP FORMATION AND DEVELOPMENT THROUGH CONSONANT AND RESONANT RELATIONSHIPS

2.4.1. Consonance as the "why" of staying together

Humans are relational beings. They need/want to be part of a group for many reasons. Ignoring for the moment the many reasons why individuals try to be part of a group, let's focus the attention on the real force ("gravity force" or "strange attractor") that maintains group members together. The force/driver that maintains people (viable systems) together, expressed through their compatibility degree in terms of shared objectives and interests, is called consonance[31] (Golinelli, 2011). This refers to the degree of integration among viable systems' structures in order to create the compatibility conditions for potential exchanges of resources. It is a structural concept because it refers to the systems' structures and the *relation* between their logical and physical components. The first considerations and applications of consonance from the paradigm of Viable Systems Approach are made at the whole organizational level, trying to find the harmony between organization's government body (i.e. the observer or the viable system) and suprasystems that populate the external environment. The question is: what kind of resources are to be taken into account? At organizational level, the resources evidenced for inter-organizational exchange are called *productive resources* (e.g. inputs for the production process) (Barile and Calabrese, 2009, 2011). This is justified for any kind of business organization because there is present always a technology of transforming inputs in outputs not only in the material sense; remember for example service organizations. The situation is different when it comes to evaluate group processes and the compatibility between members. In this case, because individuals are natural viable systems (and not production machines) with a cognitive center (i.e. the brain) that processes information, resources are called "*informative resources*" (i.e. information units). Therefore the compatibility degree between individuals is seen from the perspective of information background, interpretation schemes, and categorical values. These are the components of the so-called information variety. In other words, the consonance (harmony or empathy) between group members as information varieties (viable systems) is measured referring to

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[31] For the history and application of the term in different fields of study (e.g. music, culture, communication, information systems, conflicts, business management, strategy, etc.) see: De Falco et al., 2008; Calabrese, De Renzi, & Gatti, 2012).

the degree of integration among information varieties' components (Uinf, Sint, Cval), as shown in figure 2.3.

Figure 2.3. Research of Consonance.
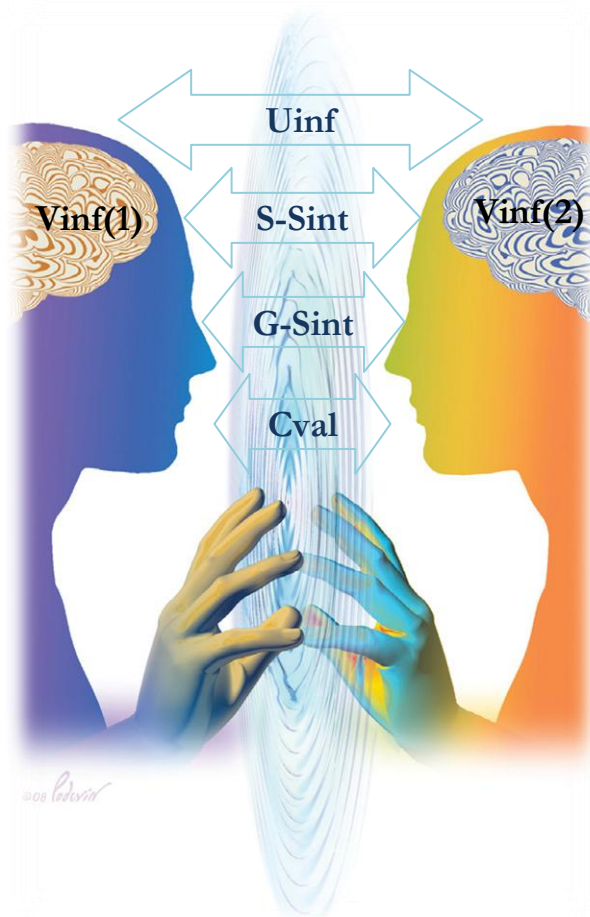
Source: Adapted from Goleman and Boyatzis, 2008.

So, the information variety of a certain viable system (K) is expressed as a function of information units, interpretation schemes, and categorical values:

$$V_{inf\,(k)} = f\,\{U_{inf\,(k)},\, S_{int\,(k)},\, C_{val\,(k)}\}$$

In this sense, the components of information variety are intended as conditional factors of knowledge dynamics, where: Uinf might be proposed as the structural composition of knowledge; Sint are the knowledge forms; Cval refer to the resistance opposed to change from the knowledge possessed by the viable system.

Now, because a viable system conceived as information variety is an open system, it changes due to relationships established with other information varieties. The rapport

created is reciprocally active and influential because individuals simultaneously induce change and are exposed to change, in spite of influence extent. According to Barile (2009, pp. 94-95), the consonance between two information varieties V_{inf1} and V_{inf2} that transfer information units to each other ($\boldsymbol{u} = \boldsymbol{u_1} - \boldsymbol{u_2}$) is expressed as greater of lesser potentiality that the two information varieties have in aligning (in a vector space) their respective knowledge. A famous quote of Barile referring high levels of consonance is: "…*people very close-knit, so as to understand each other on any matter simply looking into each other eyes*". In formula, respecting what said above, the consonance can be defined as follows:

$$Cons = \lim_{u_1 \to u_2} \frac{v_{inf1} - v_{inf2}}{u_1 - u_2}, then: Cons = \frac{\partial v_{inf}}{\partial u}$$

The consonance, as it can be deduced, manifests mutually a relational phenomenon and a relational measure. As a relational measure, consonance identifies the strength of ties between viable systems. Said in Granovetter's words, *"...the strength of a tie is a (probably linear) combination of the amount of time* [relational period], *the emotional intensity* [produced by similar/complementary categorical values], *the intimacy (mutual confiding)* [produced by similar/complementary interpretation schemes], *and the reciprocal services which characterize the tie* [exchange of informative/productive resources]*"* (Granovetter 1973, pp.1361). When the consonance refers to the compatibility degree between only two viable systems it is called dyadic consonance; when it considers the relation between more actors, it is called contextual consonance (Liguori and Proietti 2008, pp. 159-164; Gatti and Proietti 2011, pp. 132-152).

Regarding group dynamics, consonance can be evaluated at individual, group, and organizational level with an in-group and an out-group focus[32], remembering that levels are intertwined. Within organizations there are, using a "Batesonian" terminology, three logical levels: the individual level (represented from his own information variety); the group level (represented by a team leader for each group); the organizational level (represented by the authority, or formal leader, or government body, or manager for the

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[32] In-group members are individuals belonging to the same group. The term "In-group" refers to the group member/s or the team leader that is/are taken as point of reference. An out-group member or leader is a viable system that is part of another group. So, "out" means a component outside the reference point group, and therefore part of another group which is called for convenience out-group.

whole organization). As a consequence, systems' relationships can be instituted – between individuals as group members within the same group or between different groups, individuals and team leaders, team leaders with each other, manager and group members, manager and team leaders – through dyadic or contextual consonance as shown in table 2.4.

Table 2.4. Dyadic and contextual consonance of group members, team leaders, and top management.

Dyadic Consonance (one-to-one relations)	Contextual Consonance (one-to-many & many-to-many relations)
in-group Member – in-group Member	in-group Member – in-group Member(s)
in-group Member – out-group Member	in-group Member(s) – in-group Member(s)
in-group Member – in-group Team Leader	in-group Member – out-group Member(s)
in-group Member – out-group Team Leader	in-group Member(s) – out-group Member(s)
in-group Team Leader – out-group Team Leader	in-group Member(s) – in-group Team Leader
Member – Manager (authority/government body)	in-group Member(s) – out-group Team Leader
Team Leader – Manager	in-group Member – out-group Team Leader(s)
	in-group Member(s) – out-group Team Leader(s)
	Manager – Member(s)
	Manager – Team leader(s)

Source: *Author's elaboration.*

An interesting fact resulting from the analysis is that in-group members (members belonging to the same group) are related to only one in-group leader, because for each group there is only one team leader that represents the group. Therefore, between group members and in-group team leader relationships are at most many-to-one, but cannot be many-to-many due to a single leader per group, like there is no possible to have a one-to-one relation between two leaders of the same group. A many-to-many approach between members and leaders is possible only when considering team leaders of other groups, like there is possible a one-to-one relation between team leaders of different groups. If we lift up the level and focus the attention on organizational level a similar phenomenon with the

precedent is repeated. So, the manager[33] is the only responsible figure of the whole organization, and for him group members or team leaders are all human resources, despite of the group to which they belong. As a result, every relationship (dyadic or contextual) started from the manager begins with "one-to-" and finishes with "one" (if dyadic) or "many" (if contextual).

Finally we can say that the strength of relationships between individuals, leaders, managers, etc, depends on levels of consonance, or the merger between viable systems' information, schemes, and values.

2.4.2. Resonance as acceleration/deceleration of systemic interactions

When conditions of consonance between viable systems are secured, then the viable systems are able to interact or to enter in resonance with each other. If the consonance is a relational concept the resonance is an interactional one[34]. There is a shift from static to dynamic states. It means that resonance creates acceleration or deceleration on levels of consonance during systems' interaction. For example, individuals after accomplishing a team work (e.g. a classroom project executed by students), at the end can be more or less consonant with each other comparing the final state with the initial conditions of consonance before starting the team work.

In general lines, resonance is an ideal development of consonance. It is a sharing of trust, objectives and strategies, accompanied by membership, tuning, and a progressive attenuation of structural boundaries due to the openness degree of systems as participants of a new inclusive systemic reality (Golinelli 2000, pp. 180-181).

Because resonance refers to acceleration or deceleration of velocity (i.e. compatibility) levels, it evokes the concept of *change*. For instance, Gardner (2008) considers resonance as one of the critical factors of mental change and people influencing. According to Barile (2011, pp. 101-102), resonance represents change that consonance might have during the amplifying process of an information variety/viable system, measuring the sensibility

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[33] Even though the government body of an organization can be composed by different members defining the board, for convenience he is considered here as an inseparable unit.
[34] Again, referring to Russell's logical types and Bateson's logical levels of learning, relations and interactions are elements of a general class such as relationships. Therefore, relations represent static relationships and interactions dynamic ones. It can be deduced that relations, and the consonance as their producer, refer to the structure, conversely interactions, and the resonance as their producer, refer to the system.

toward suprasystems in perceiving new information units. Conceptually and mathematically the resonance is a derivate of consonance, and as a consequence can be expressed (like the consonance) through the following formula (Barile 2009, pp. 98):

$$Res = \lim_{u_1 \to u_2} \frac{C_{ons1} - C_{ons2}}{u_1 - u_2} \,, then: Res = \frac{\partial C_{ons}}{\partial u}$$

The concept of resonance is applied also in the context of group dynamics, and has been defined as *"a felt sense of energy, rhythm, or intuitive knowing that occurs in a group of human beings that positively influences the way they interact toward a common purpose"* (Levi 2005, pp. 21). Thus, Ainsworth (2011) examines factors that contribute to the development of collective resonance in small, intact work groups, relating resonance with group performance. Callary and Durand-Bush (2008) have used group resonance intervention between a consultant, a coach, and athletes in order to increase performance within a volleyball team. Wotton (2013) intertwines together communicative musicality and group analysis creating an analogy between interval in music and intersubjective space in the group, with the aim to develop a greater flexibility in interacting. Thygesen (2008) considers resonance as a-causal expression of meaning rather than causal interactions, defining it as a relevant factor in group therapy and group formation.

Especially in the context of leadership, writings about resonance are considerable. Goleman, Boyatzis, and McKee (2001, 2002) call out the question of *primal leadership* based on emotional and resonant leadership. They explain the importance of resonance especially in times of crisis where leaders' emotions and moods influence those of followers. The authors define also the resonance as a dynamic phenomenon (in the same line with VSA) because leaders must be in tune not only with themselves but as well with those around them. Therefore, resonant leadership can be considered as an inspirational and motivational perspective (Boyatzis and McKee, 2006) used to connect with people through mindfulness, hope, and compassion (Boyatzis and McKee, 2005). The concept turns out to be so important that some author tries to define the laws of resonant leadership focusing the attention in the education area (Kopelowitz, 2009).

In conclusion, group resonance can be defined as a "common vibration" in order to wave at the same frequency for a specific purpose (figure 2.4).

Figure 2.4. Group Resonance through mental vibration at the same frequency.

Source: *Author's elaboration.*

2.4.3. Group cohesiveness

"A collection of twigs is more difficult to be broken."

Scanderbeg (the Albanian national hero)

As a general phenomenon, cohesion can be encountered in chemistry (i.e. intermolecular attraction), in linguistics (i.e. the semantic coherence of communication), in computer science (i.e. the correct recognizing from the decoder to a signal sent from the source), in biology (i.e. the normal functioning of human body, or the correct communication between organs), in ecology (i.e. the harmony between organisms and their environment), in music (i.e. the melody produced by harmonic combination of instruments), etc. So, the general interpretation scheme, in spite of the context where cohesion occurs, is harmonic communication and compactness.

Within organizations, the *"organizational cohesion is achieved by the willing alignment of individuals' purposes, which recognize the synergistic advantage of their coordination"* (Espejo and Reyes 2011, pp. 75). When the question is addressed to social groups, then it is correct to talk about group cohesiveness[35]. The theory of group cohesiveness was firstly developed by Festinger and colleagues (1950). They were deeply convinced that group cohesiveness was a resultant valence of a field of forces, mainly

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[35] In the field of social psychology, organizational behavior, and group dynamics both the terms *cohesion* and *cohesiveness* are taken into consideration to describe the phenomena of interpersonal attraction, emotional empathy, harmonic communication, compactness, etc, but because cohesion (as a word) is used also in many other fields as mentioned above, in this dissertation it has been made use more frequently to cohesiveness which seems to be more targeted in the study of group dynamics.

concentrated on the reciprocal attractiveness degree between individual and group members or/and the group as a whole. This relationship is based on a mutual satisfaction of expectations. Therefore, the greater the attractiveness, the higher the tendency of group membership continuity and adherence to group standards. After the first studies, many other scholars have contributed on this topic, giving also their perspective on the definition of this subject matter. For instance:

► Aronson, Wilson, and Akert (2010, pp. 258) define group cohesiveness as *"The qualities of a group that bind members together and promote liking between members"*[36];

► Hogh and Vaughan (2011, pp. 288) describe it in terms of solidarity, *esprit de corps*, team spirit, and morale. More precisely, for the authors, group cohesiveness is *"The property of a group that affectively binds people, as group members, to one another and to the group as a whole, giving the group a sense of solidarity and oneness [...] – the way it 'hangs together' as a tightly knit, self-contained entity characterized by uniformity of conduct and mutual support between members"*;

► Myers (2010, pp. 213) defines group cohesiveness as *"A 'we feeling'; the extent to which members of a group are bound together, such as by attraction for one another"*;

► Schermerhorn and colleagues (2010, pp. 188) delineate team cohesiveness like *"the 'feel good' factor that causes people to value their membership on a team, positively identify with it, and strive to maintain positive relationships with other members [...] Cohesiveness is the degree to which members are attracted to a group and motivated to remain part of it"*;

► Wagner and Hollenbeck (2010, pp. 188) agree with the fact that *"A group's cohesiveness reflects the degree to which a group sticks together. In a cohesive group, members feel attracted to one another and to the group as a whole"*.

► For Hellriegel and Slocum (2011, pp. 372) *"Cohesiveness is the strength of the members' desire to remain in a team and their commitment to it"*.

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[36] The concept of "liking promotion" is really important in the actual era of digital socialization. It is sufficient to remember how Facebook works; probably the Facebook team has thought about group cohesiveness.

► Finally, Luthans (2011, pp. 283) defines cohesiveness as "togetherness", focusing the attention on the effects that group cohesiveness has on some dependent variables (e.g. performance, satisfaction, etc.)

The cohesiveness depends so much on the brain parts that individuals employ when committed to a group as a whole considering concurrently what they expect from the group. For this reason, if an individual expects from the group to serve his/her financial, developmental, professional interests, the cohesiveness is rational; when he or she looks at the group as a possibility to offer contributes, be valuable, and of real benefit to others, then the cohesiveness is emotional. The role of emotions in group cohesiveness is pertinent, and more prevalent than the rational aspects. Especially, showing positive emotions in group situations affects directly the cohesiveness (Zurcher, 1982). *"This is because positive emotions strengthen feelings of control. As such, positive emotion is a necessary precursor of group cohesiveness* […] *Thus, facilitated by processes of emotional contagion, positive group affect energized by emotionally aware leaders, can enhance organizational creativity performance by facilitating group cohesion and positive affect"* (Ashkanasy and Ashton-James 2007, pp. 66).

A more completed model that expresses rational and emotional cohesiveness with the systemic term of consonance is offered by Simone (2008, pp. 239) as shown in figure 2.5.

Figure 2.5. The structure of consonance.
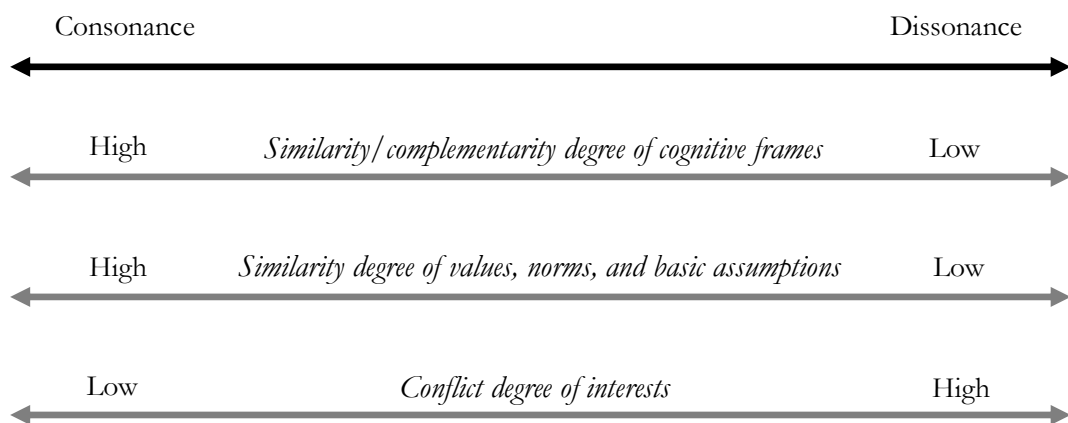
Source: Adapted from Simone 2008, p. 239

The similarity/complementarity degree between cognitive frames refers to the consonance (i.e. cohesiveness) based on interpretation schemes. When the consonance is based on synthesis schemes, the cohesiveness is purely rational; instead, when it is based on general schemes it is mainly emotional.

The similarity degree between viable systems' values, norms, and basic assumptions refers to the evaluation of consonance in terms of categorical values. In this case the approach is totally emotional, because categorical values are anchored in emotions. According to Härtel, Zerbe, and Ashkanasy (2005, pp. 29), "*Emotions can express meanings and understanding because strong judgments and values are anchored in emotions and struggling*". The precedent opinion is sustained also by Taylor (1995) and Kirkeby (2001), and dates back in Aristotle's idea (1998).

The conflict degree of interests in a teamwork perspective, indicates principally how convergent or divergent are the objectives of group members. According to Hornby (1974, pp. 587), an objective is something real referring to actual facts, uninfluenced by feelings or opinions. In philosophical terms, an objective means having existence outside the mind. Hence, objectives indicate information units (Uinf). Like the consonance based on synthesis schemes, the consonance based on information units is rational too.

Group cohesiveness can be analyzed also from two other perspectives: the socialization perspective and the operationalization one. Even though the two perspectives are interlinked with each other and therefore holistic, for the simplicity of analysis they are treated separately.

2.4.3.1. The socialization perspective or the social cohesion

Every single individual is part of a society, a community, and a group. The life within these circles cannot be understood without the interaction between members and overall without the need of belongingness (Maslow, 1954). In every organization people need and want to socialize with each other. This process is called social cohesion. However, this is a selective process, because individuals are more attracted by others which have similar values, mentality and information background. If we calculate the ratio of in-group choices to out-group choices, the greater the ratio, the greater the cohesiveness of the group (Dion, 2000). It means that the *attraction* is the core component of group

cohesiveness (Festinger 1950, pp. 274; Lott and Lott, 1965, pp. 259; Nixon, 1979, p. 76; Hogg and Vaughan 2011, pp. 290).

The question of attraction is complicated because there are different levels of attraction. If two individuals within a group enjoy high levels of interpersonal attraction, it doesn't mean that the group is cohesive. But when cohesion is based on the attraction at group level, individuals remain as group members even when particular members (to whom actual group members are interpersonally attracted) leave the group (Ehrhart and Naumann, 2004; Mobley et al., 1979). Extreme cases of interpersonal attraction may influence to leave even members highly attracted by the group; in terms of Viable Systems Approach this situation is called a "cerebral suprasystem's influence". Therefore, becomes necessary to distinguish what Hogg (1993) calls *personal attraction* and *social attraction*. If the attraction is personal, it is based on idiosyncratic preferences and close relationships (e.g. friendship or lovely relationships). In case of social attraction the individual perceives himself and the other group members in terms of 'prototypicality' or group norms. Hence, the social attraction is depersonalized.

Because attractiveness is the main force of cohesion becomes important to consider what causes attraction. In this context the research of social psychologists (although some little discrepancies) turns out to be coherent and convergent. Thus, the principal factors of attractiveness are: proximity, physical attractiveness, similarity and complementarity of attitudes, cultural stereotypes, same language, familiarity, opinions and personality, self-disclosure, common interests and experience, etc. Synthesizing, the interpersonal attraction both at personal or group level[37] can be ensured when the relational viable systems (i.e. group members) exchange with each other similar or/and complementary categorical values, interpretation schemes (i.e. attitudes) and information units. Remembering that this is the model of Information Variety, we can say that interpersonal attraction can be differently called consonance. Resuming the equivalence of the figure 2.6 (Interpersonal attraction $\cong$ Cohesiveness), and benefiting of the mathematical transitive property, then:

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[37] In analogy with Hogg's definition, the personal attraction refers to the dyadic consonance, whereas the social attraction refers to the contextual consonance.

Interpersonal attraction ≅ Cohesiveness

Interpersonal attraction ≅ Consonance

Consonance ≅ Cohesiveness

Figure 2.6. General framework of the social cohesion/
interpersonal interdependence model.

| Existence of individual goals that cannot be satisfied independently |
| Aggregation of unrelated individuals |
| Mutual interdependence and cooperative interaction |
| Mutual goal satisfaction |
| Individuals perceive one another as sources of reward: thus imbued with positive valence |
| Interpersonal attraction ≅ Cohesiveness |
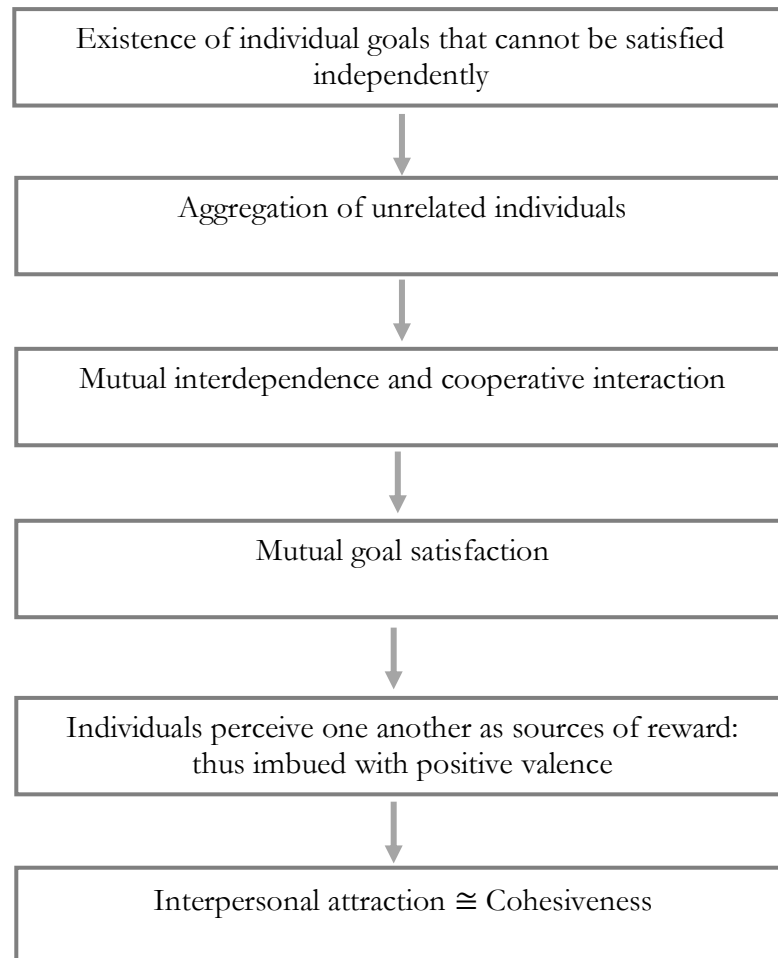
Source: Hogg and Vaughan 2011, pp. 290.

Thus, consonance, as a phenomenon[38], can explain also the cohesiveness. Further it is shown that consonance serves as well as a valid indicator of group cohesiveness.

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[38] It is of vital importance to not confuse the consonance as a phenomenon, and the consonance as an indicator of group cohesiveness; the first refers to the theoretical background of social relations, and the second to the measure of social relations.

An ulterior point to be clarified is that cohesiveness may increase due to some factors such as proximity or physical attractiveness, but this can be simply an effect of a "pathological" resonance (a quick exponential acceleration) without fundaments. In this case the group life cycle will be really short because the consonance or the compatibility degree in terms of values-schemes-information is really low between members. It is like the passionate/romantic love and companionate love. Both types of love are necessary in a couple, but if the first is an acceleration like a curve that increases with future declining rates, the second manifests a constant and deep affectionate attachment, activating several parts of the brain (Aron et al., 2005) due to the strong fundaments (especially categorical values and general schemes).

2.4.3.2. *The operationalization perspective or the task cohesion*

Once the social cohesion or the consonance between group members is established, they are ready to enter in resonance for accomplishing a common goal. In other words, the first step of "let's *stay* together" becomes a prerogative of the successive step of "let's *play* together". Thus, people feeling empathy with each other have greater chances to operationalize even difficult tasks and to reach defined objectives. Task cohesion is more evidenced in task-oriented teams like sport teams (Pescosolido and Saavedra, 2012) and military squads (Siebold, 2007). A classic model of cohesion that includes both social and task cohesion is Carron's model, based on environmental factors, personal factors, leadership factors, and team factors (Carron, 1982). Restricting the focus on task cohesion, for Carron this is the degree to which members of a group work together to achieve common goals. To achieve high levels of performance group members must have and share similar or/and complementary information units (knowledge background) and synthesis interpretation schemes (knowledge tools). In this way, cohesiveness between members regarding tasks' accomplishment increases. Therefore, group members must have and share the adequate resources, capabilities, and competencies (Siano, Basile, & Confetto, 2008). Resources might be physical, cognitive, financial, etc. Capabilities are combination of resources creating a general scheme which is a-contextualized and a-finalized. Competencies are contextualized general schemes or synthesis schemes applied to particular situations. A group whose cohesiveness is generated by a shared cycle of resources-capabilities-competencies has great probability to be high in collective efficacy,

which stands for shared beliefs, perceived competence in group coordination, and perception of collective resources by the group members in accomplishing competently and effectively a group's task (Zaccaro et al., 1995).

Finally, as mentioned also in chapter 1, group cohesiveness affects, and is positively related with some dependent variables of organizational behavior, such as **performance** (Carron and Brawley, 2012; Forsyth 2010, pp. 138; Chiocchio and Essiembre, 2009; Park and Shin, 2009; Beal et al., 2003; Gully et al., 1995; Mullen and Copper, 1994; Oliver, 1988) and **satisfaction** (Hellriegel and Slocum 2011, pp. 373; Manxhari 2010, pp. 297; Williams 2007, pp. 51-54; Van der Vegt, 2001; Hoyle and Crawford, 1994; Hackman, 1992; Hogg, 1992; Hare, 1976; Van Zelst, 1952). Furthermore, researchers have shown a positive correlation between team cohesiveness and **conformity** to group norms (Myers 2010, pp. 213; Schermerhorn et al., 2010, pp. 188-189; Carron, 1982; Kinoshita, 1964; Lott and Lott, 1961), underlying that conformity **pressure** is higher in more cohesive groups (Janis, 1972; Giordano, 2003)

Focusing the attention on performance, a question arises: are cohesiveness and performance causally connected and reciprocally influenced? Studies made by Forsyth, Zyzniewski, and Giammanco (2002) suggest that cohesiveness is related to performance, not because cohesiveness causes groups to perform better, but because groups that perform better become more cohesive. On the other hand, in their meta-analyses, Mullen and Copper (1994) have shown that cohesiveness and performance are reciprocally influenced in a bidirectional relationship (figure 2.7).

Figure 2.7. The bidirectional relationship cohesiveness-performance.
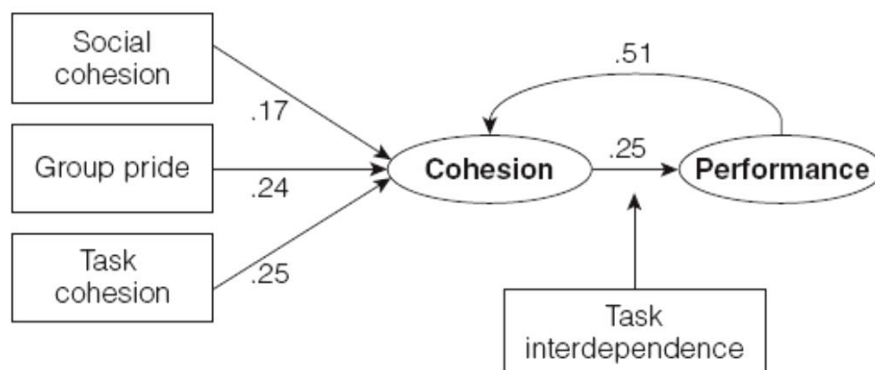
Source: Forsyth 2010, pp. 138.

2.4.4. Analyzing holistically group formation and development

Generally a group has been defined as a collection of two or more individuals relating and interacting together for a common purpose. As repeated various times during this work, the basic principle is that of Lewin's *interactionism*. Individuals within group interact in respect to their roles for accomplishing defined activities and tasks. When the frequency of interaction increases, people associate more and more to their activities not only a technical perspective, but also an emotional one that derives from human relationships within the group. Both perspectives determine the performance. The above description of group formation refers to George Homans (1950) which based his theory on interactions, activities, and sentiments.

Another perspective of how people create groups is the proximity or the *propinquity* effect, as the social psychologists call it. According to Berscheid and Reis (1998), the likelihood to have friends and lovers depends on the meetings with people who, by chance, are the ones you see and interact the most. Although the proximity is a fundamental requisite to fulfill the Homans' principles of interaction, activities, and sentiments, today there are present also the virtual groups in which their members (relatively) fulfill the above principles without being in proximity with each other. Nevertheless, it must be taken into account that proximity enhances the intensity of interpersonal feelings and emotions. Beyond this fact, the concept of distance has changed due to the social networks and must include two dimensions: one physical, and another socio-psychological. It must be clarified that the socio-psychological distance can be verified as well for individuals nearby each other, indeed it is better verified for individuals close to one another.

The socio-psychological distance (without excluding the physical one) is evidenced, referring to the interpersonal attraction, also by Theodore Newcomb in his *balance theory of group formation* (Newcomb, 1961). For him a group can be created by individuals who are interpersonally attracted in terms of common attitudes (*interpretation schemes*) and values (*categorical values*). Newcomb's theory brings in mind Barile's *theory of Information Variety* where consonance can be evaluated between information varieties in terms of interpretation schemes (general or synthesis schemes) and categorical values. In addition, the *theory of Information Variety* extends the compatibility degree between viable systems also in terms of information units.

Anyway, the most completed theory of group formation and development seems to be the Tuckman's model (1965, 1977)[39] based on the following five developmental stages:

✦ *Forming stage* – this is the first stage of group development where group members have just acquired the membership status and try to be orientated within the group. They are confused and uncertain about group's purpose, leadership style, tasks, structure, and culture. In this phase, members are interested to know each other and to be aware about the acceptable behavior. Also, they want to know what the group can offer to them and what they can offer to the group; mutual expectations, beliefs, perceptions, and informal obligations define a sort of psychological contract (Rousseau, 1995).

✦ *Storming stage* – this is a high tension phase and emotionally unstable. Dissatisfaction and disagreement about roles and tasks, conflict among members, and hostility toward leadership style are the main features of the storming stage. Because individuals fight for a strong status position, coalitions (or mini-groups inside group) tend to be created. However, this is an important phase because members start to know each other (personality traits, interpersonal styles, ambitions, etc) and to clarify the future goals and positions.

✦ *Norming stage* – this may be called also the "togetherness" stage when a "we-feeling" dominates. As a consequence members begin to develop social cohesion by communication, empathy, and cooperation. The group cohesiveness implies harmony, trust, group-thinking and conformity.

✦ *Performing stage* – once the social cohesion is reached the group is ready to afford the process of goal achievement. In other words, once the relations (i.e. the consonance) between members are well established, interactions (i.e. the resonance) naturally follow. This is a phase of high task-orientation where group members develop high levels of task cohesion. Decision making and problem solving are executed by the team respecting the diversity of individual members. Because the team is more reliable, the leader prefers to delegate more in this phase,

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[39] For an historical overview of Tuckman's model see: Bonebright, D.A. (2010). "40 years of storming: a historical review of Tuckman's model of small group development". *Human Resource Development International*, 13 (1), pp. 111–120. For a practical evaluation of Tuckman's stage development model in a quantitative perspective see: Miller, D.L. (2003). "The Stages of Group Development: A Retrospective Study of Dynamic Team Processes". *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 20 (2), pp. 121-134.

even though the delegation depends also on the cycle resources-capabilities-competencies that the team own for accomplishing the duties.

➤ *Adjourning stage* – this last stage was added later to the original model by Tuckman and Jensen (1977) in their revisited version. It refers to the end of a group's lifecycle. It is simply comprehensible in specific task-oriented teams, in which once the target is reached the team is dissolved. In ongoing or permanent groups, although some members drop out, the lifecycle is revitalized by the entrance of new members. Consequently the cycle restarts.

It is interesting the fact that Tuckman's model has also captured the attention of some researcher in a *Viable System Model* (VSM)[40] and *Service Management* perspective (Graves, 2009). According to the author (pp. 49), *"Yet when we look at the 'management' section of the VSM, it seems it covers only three of the five Group Dynamics phases: VSM system-5 'policy' aligns to 'forming'; system-4 'strategy'* [intelligence] *aligns to the later part of 'forming', plus most of 'norming'; and system-3 'direction'* [control or audit] *aligns to the later part of 'norming', plus most of 'performing'* […] *And although the original VSM system-3*', 'random-audit', does sort-of touch the 'adjourning' phase, it only does so on an occasional basis* [...] *We do cover these 'missing' issues here, via our extended system-2 as 'coordination services' and system-3* as 'pervasive services'.*

Now, group formation and development can be analyzed also from the lens of the Viable Systems Approach through the VSA's Conceptual Matrix (figure 2.8).

The conceptual matrix shows that groups are developing systems passing from embryonic states, through the evolving phase, to accomplished system's states (Golinelli 2000, pp. 185-186; 2010, pp. 167-171; Massaroni, 2007; Gatti, Liguori, & Proietti 2011, pp. 74-89; Liguori and Iannuzzi, 2008; Barile, 2009a; Barile 2011, pp. 332-334; Barile and Saviano 2011, pp. 48-50).

When the viable system is in its embryonic stage the situation is highly abstract and entropic. The observer cannot oversee the whole, but concentrates his attention only on specific parts which seems to be qualified as a *random grouping of elements* without any nexus of homogeneity (Golinelli 2010, pp. 67). In terms of group dynamics, *"More likely*

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[40] The Viable System Model was founded by Stafford Beer in his *Brain of the Firm* (1972) and is composed by five systems: System (1) – **Implementation**; System (2) – **Coordination**; System (3) – **Control**; System (4) – **Intelligence**; System (5) – **Policy**.

these are merely social aggregates, collections of unrelated individuals - not groups at all" (Hogg and Vaughan 2011, pp. 273). Hence, there is a difference between groups and aggregates. In systemic terms, aggregates are like a random grouping of coexisting elements; in contrast, groups can be seen in a dichotomous perspective: that of structure, and that of system. To pass from a random grouping to a structure, an intermediate phase is necessary: that of the *ordered set*.

Figure 2.8. VSA's Conceptual Matrix for group formation and development through consonant and resonant relationships
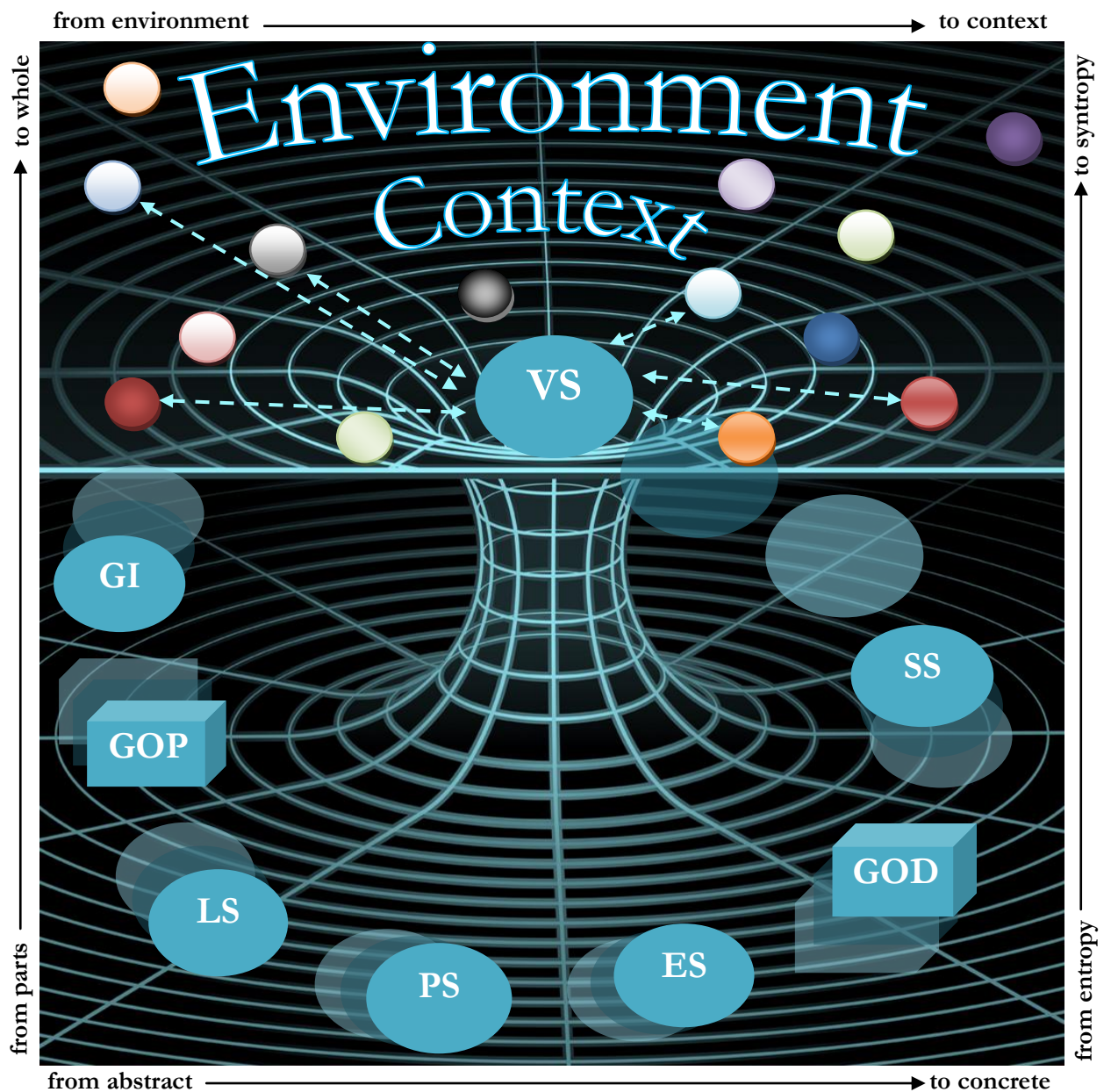
Source: *Author's rework on* Golinelli 2000, pp. 106.

The ordered set is a collection of connected entities (elements) in which can be identified a nexus of homogeneity capable to express an aggregative logic (Barile and Saviano 2008, pp. 69). This is the fruit of conceptual elaborations by the observer. His efforts to decode the communication between parts make an evolution of the embryonic system that now enter in a new phase: the evolving phase in which the system is towards accomplishment. However, a *set* is different from a (viable) *system* (O'Connor and McDermott 2003, pp. 14), and moreover, to become a system must first of all be transformed into a *structure*.

The structure is an evolved ordered set, because to the identified elements are attributed defined *functions*, recognizing the capability to perform specific *roles* respecting the concerning *rules* and *constraints*[41]. Thus, the *connected elements* become *related components*.

The last phase is that of the emergent viable system or the system's accomplished stage, where the observer's focus is shifted from the parts to the whole (Capra 1997, pp. 17-35). In this stage the structure begins to move forward in order to reach the viable system's scope. Component's *relations*, once established the communication code (i.e. the consonance), are transformed in dynamic relationships (i.e. *interactions*) through resonance. So, the whole structure is transformed in a viable system.

The above analysis was a short description in order to understand some systemic terms and the system's evolution from the embryonic to the accomplished stage. Now, it is essential to define the traits of evolution from the group idea (GI) to the emergent group as a viable system, applying the VSA's conceptual framework to group formation and development (figure 2.8).

The first element of the matrix is the *group idea* (GI). It refers to the intentionality of the observer (in our case the team manager or the formal team leader) to create a cohesive group in order to fulfill effectively and efficiently organizational tasks. Let's suppose that the group is a new soccer team, and the team manager is its coach. When a new soccer team is created by a coach, initially the team seems like an embryonic system because its members are a collection of unrelated individuals or a social aggregate. Then, the coach defines, through the *group organizational plan* (GOP), a large-scale representation of all

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[41] While rules indicate ways of behavior imposed internally of the organization by the government body, constraints indicate limits and obligations of behavior imposed externally by public entities which are concerned with the "regulation activities" of various organizations.

the **group processes** (group structuring, conflicts and communications, relations and interactions, power and politics, leadership and trust, cohesiveness and conformity, team work and decision making), from **human inputs** (personality traits, biographical characteristics, emotions, values and attitudes, perceptual world, abilities, motivation, decision making) to **human outputs** (performance, satisfaction, turnover, absenteeism, deviant workplace behavior, and citizenship behavior). The detailed representation of GOP is manifested with the logical structure (LS), the physical structure (PS), and the extended structure (ES).

In the logical structure is determined "who makes what, and how". So, LS is a map containing group's chart, functions, roles, and norms. In the soccer play team, the coach defines the tactics of the game. After that, tactics must be executed by the team players (physical components). The coach has many possibilities of combination (different players) of how to accomplish his tactics. Therefore, different physical structures may correspond to a single logical structure. In other words, the *physical structure* (PS) is the actualization of the logical structure. Whereas LS means "what should be done", PS means "let's do it".

The *extended structure* (ES) indicates potential intra or/and inter-group relations between physical components (i.e. members). The relations can be activated between team members with each other, or between members and the coach, or even with out-group members. This is an important phase because requires a careful evaluation of the *environment* in order to define the *relevant suprasystems*, both from the members' perspective and that of the team manager. Within the team there is a possibility to create coalitions and to identify emergent informal leaders which may behave as opinion makers or influencers. For example, in soccer teams one who holds the captain's band is a relevant suprasystem that can influence even the coach's decisions. Therefore, it is in the interests of the other team members to create consonant relations with the captain, otherwise may remain in the bench (as substitutes) out of the trainer's composition for the supposed incoming competition. So, after the environmental considerations about potential relations, the trainer must carry out the contextual choices concerning effective actual relations.

Through the *group organizational design* (GOD) there is a passage from *environment* to *context* (i.e. a portion of the environment) and from *extended structure* (ES) to *specific structure* (SS). Retaking the example of the soccer team, in this stage the coach tries to

define his final composition of the team. For instance, if there is a champion's league match, only 11 (+ 3 potential substitutions) from 22 players will be part of the game. In this case, the whole squad represents the environment or the extended structure. The coach, after deciding "who makes what and how" (i.e. the tactics of the game), referring to the relevance of each player (for the specific game), select from the whole group the definite team which represents the specific structure.

Now, the team is ready for the match. Once the match begins, relations between members are activated and transformed into interactions. There is a shift from consonance to resonance and the viable system emerges.

2.5. THE CONFORMITY

2.5.1. Classical studies and experiments

The conformity is a phenomenon we run into the everyday life in every type of organization. There have been realized many studies and experiments on this subject matter. One of the first scholars concerned with the phenomenon of conformity on experimental basis was Arthur Jenness, which was influenced by the works of the social psychologist Professor Floyd Allport (1920a, 1920b, 1924). In his research paper *The role of discussion in changing opinion regarding a matter of fact* (1932), Jenness defined conformity (though he didn't made use of this term) as an alteration of individual's opinion when others differ materially in their opinions regarding a question. For the author, *"This may be interpreted as an indication of the influence of social pressure in contributing to understatement, rather than overstatement of opinion, even after the individuals who constituted the social situation are no longer present"* (pp. 294).

Some years later, Muzafer Sherif (1935, 1936) made public the results of his experiments about conformity. He based his experiments on a visual illusion called autokinetic effect. The autokinetic effect was used to create an ambiguous situation for every single participant due to an unstable reference point where to anchor the position of the light. So, when participants were gathered, they heard from each other different viewpoints regarding light's movement, and consequently they conformed to a common group's estimate. It means that the personal insecurity can be compensated with group's

security, using group members as a source of information, and believing that group's opinion is the correct one. This is a process of informational social influence[42] (social proof) (Cialdini, 2009), or *"The influence of other people that leads us to conform because we see them as a source of information to guide our behavior; we conform because we believe that others interpretation of an ambiguous situation is more correct than ours and will help us choose an appropriate course of action"* (Aronson, Wilson, & Akert 2010, pp. 215). It means that in front of uncertain conditions group members use the responses of others in the group as reference points and informative resources, being thus influenced by an *informational power* (Raven, 1965). The case of informational social influence rather than a simple *public compliance* is a *private acceptance* (that follows or not the compliance) based on a genuine belief that the influencer's behavior (what he/she is saying or doing) is right and should be followed. When the influencer has a *referent power* (Raven, 1992), so that the influenced individual is attracted or identified with him, the component of social influence that comes out is that of *identification*. In this case the influenced mind thinks: "I want to be like the influencer". A step forward is the *internalization*, where values, beliefs, or behaviors of the influencer are not simply "things" to be followed by the influenced individual in specific moments; they are components of a "permanent cause" deeply rooted on the individual's system of beliefs. Therefore the individual makes both a public compliance and a private acceptance. These components of social influence (i.e. compliance, identification, and internalization), ideated by Harvard psychologist Herbert Kelman (1958), are basic factors of conformity.

If Sherif's experiments were basically based on informational conformity, Asch's experiments relied on normative conformity (i.e. public compliance). Differently from Sherif's situation which was ambiguous, Solomon Asch (1951, 1955) conducted a "stimulus line experiment", based on a visual/perceptual judgment, in a totally clear situation (figure 2.9). Participants' duty was simple: it was sufficient to compare the standard line with the others, and to tell which one of the comparison lines correspond to the standard line. All the participants, except one (which was the "cavy"), were instructed to give the wrong answer. With this experiment Asch wanted to test how the social pressure influences the judgment of an individual in a certain situation from the

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[42] For a thorough study about normative and informational social influences upon individual judgment, see: Deutsch and Gerard, 1955.

informational standpoint. The average of conformity rate across the Asch's experiment was 33 per cent. A similar average (30%) was reached also by Crutchfield (1955) in an experiment conceptually similar with that of Solomon Asch. These are considerable rates if we take into account that the social life is not an exact science. But the main question that arises is: why individuals conform to the group norms?

Figure 2.9. Asch's stimulus line experiment.
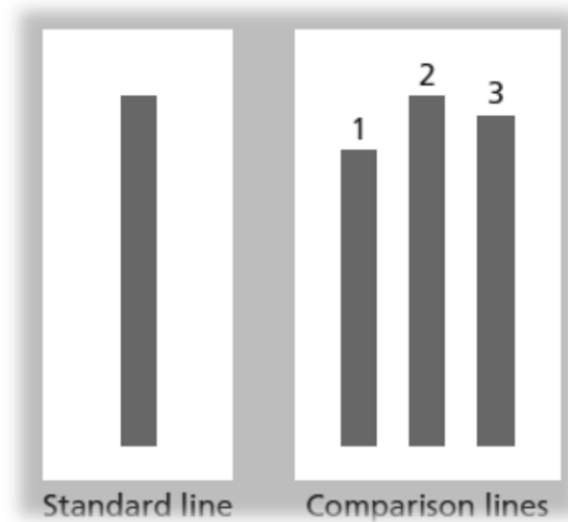
Source: Adapted from Asch, 1955.

In case of informational social influence people conform because they have the need to be informed about the right direction to follow in front of a highly uncertain situation. Instead, the normative social influence makes pressure to single individuals for social approval in front of certain situations. Therefore, individuals feel the need to be accepted by the group; they experience a social need, or the belonging and affection need (Maslow, 1954). Nobody wants to be excluded; it has an emotional cost. This is a fact supported by the biological evidence. Thus, Berns and colleagues (2005) used functional magnetic resonance imaging and a task of mental rotation in the context of peer pressure to investigate the neural basis of individualistic and conforming behavior in the face of wrong information. In accordance with the involved brain regions, perceptual and emotional processes were active during the social conformity. In substance, individuals

conform because their amygdale produces a feeling codified as a "fear of separation" caused by the coercive effect of group pressures on individuals behavior (Harvey, 1988). In other words, it looks clear that the group, as a social entity, exercises a coercive power ("I will punish you in case of disagreement") and a reward power ("I will give you rewards for compliance") toward single members.

2.5.2. The polyhedral nature of conformity

2.5.2.1. Majority vs. minority influence

The above considerations make clear that the single individual has no-power upon group members. Is this really true? What can we say regarding individuals that have changed organizational and political history? Such examples are Margaret Thatcher, Nelson Mandela, Ali Pasha of Tepelena, Michael Jordan, Henry Ford, Enzo Ferrari, etc. It is true that conformity has been defined as *yielding to majority group pressure*, but can the minority pressure upon the majority? Yes, and this may refer to all the examples of successful leadership. After that, what does majority really mean? The majority cannot be measured by the numerical components of a group, but with their influence intensity. Consequently, the definition of conformity becomes: *yielding to the relevant suprasystem's pressure*. A relevant suprasystem (i.e. a viable system or a network of viable systems like a leader, a group, a board, an organization, a district, etc) is any viable system (e.g. a team leader) that exercises pressure toward another viable system (e.g. team members) in order to fulfill its expectations. To evaluate the degree of relevance, two components must be taken into consideration: the *systemic influence* and the *criticality of resources* (Barile, Nigro, & Trunfio, 2002). In accordance with the Viable Systems Approach, a system is influent when it is able to affect the decision or the behavior of another system. Imagine a public figure who manages to persuade or manipulate the decisions or behavior of the crowd, for example during an electoral campaign, influencing at the same time the voting direction. On the other hand, a system is critical if it holds a key resource without which a certain process cannot be started. Think about a monopolistic market of a defined row material. If the supplier decides to stop providing certain producers the market goes into a tailspin.

Concluding this reasoning, it can be sustained that conformity can be achieved through the pressure exercised by a group upon single members, like there is true the opposite. In this second case the conformity is an output of the minority influence upon behaviors and beliefs of the majority (Moscovici, 1985, 1994).

2.5.2.2. Conformity between horizontal and vertical pressure

Once clarified that conformity occurs due to individual's pressure or due to the group's one, it is also interesting to set up the "geometrical origin" of pressure. The horizontal pressure generally occurs laterally between group members. But because *"conformity can be defined as a change in a person's behavior or opinions as a result of real or imagined pressure from a person or group of people"* (Aronson 2008, pp. 19), then it is difficult to define if the pressure is horizontal or vertical; it depends from individual's perception (imagination). Therefore, if an individual undergoes a pressure from another group member, it isn't said that the pressure is horizontal, though they are formally at the same hierarchical level. This depends how member (1) perceives member (2) in terms of the informal hierarchy (i.e. the power structure designed in his mind). The effect of pressure varies for different members, depending on the relevance that each member has upon others and upon the group as a whole. So, the imagined power structure is based on the suprasystem's relevance (i.e. systemic influence or/and resources' criticality). For example, in a soccer team the captain is a group member, but at the same time is a relevant suprasystem exercising influence on single members or/and on the group as a whole, and furthermore many times on the team's coach too. Whereas the coach exercises a vertical pressure due to his formal position in the hierarchy, the captain can exercises a vertical pressure too when he is perceived as a superior system. Moreover, sometimes the pressure of the captain is greater than the pressure of the coach due to his superior relevance on the group. The last one is a classical case of organizational behavior where the informal leadership happens to be more powerful than the formal leadership.

The pressure dimension (horizontal or vertical) depends on relevance, and precisely on influence and criticality. If a suprasystem gain its power from the criticality of resources, from which derives the pressure, then it is likelihood to perceive the pressure as vertical despite of the hierarchical position of the viable system from which the pressure comes. If a viable system is critical because detains some crucial resources (material-physical,

financial, cognitive, etc), the process (e.g. a teamwork) cannot start without its critical resources. In this case the suprasystem is not simply necessary, but indispensable[43]. Alternatively, when a suprasystem is influent the pressure can be perceived either as horizontal or as vertical.

It can be horizontal when viable systems/information varieties (e.g. members) research to be consonant with each other, although one of them is more influent or active[44]. This is a case when conformity manifests itself as *alignment* based both on public compliance and private acceptance. Developed stages of this type of conformity can be the identification and the internalization. The foundation of this kind of influence is the leadership *credibility*, which in turn leans on consensus, inspiration of commitment, imagination, and joy (Kouzes and Posner 2011, pp. 27; March and Weil 2005, pp. 79-92).

When the subsystems perceive the influence not so much as an effort to find the consonance as they perceive it as an order, then the pressure that derives is vertical. The verticality of pressure increases if the leadership style used by the formal leader or the informal one is authoritarian. The influence is not anymore relational (charismatic) but becomes "institutional". If the autocratic levels are high, higher will be also the emotional/empathic distance between leader and followers.

In brief, horizontal conformity refers to alignment; instead, vertical conformity is a sort of obedience to authority (Milgram, 1963, 1974), or to social roles institutionally assigned (Haney, Banks, & Zimbardo, 1973; Zimbardo, 2007).

2.5.2.3. *Continuous conformity as classical conditioning*

In the opinion of this dissertation's author, continuous conformity is a state in which an individual perceives a real or an imagined continuous pressure by the group every time

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[43] It is important to clarify that a suprasystem who is relevant due to its criticality of resources, it isn't said to be also influent (although can be, but not the vice versa). For example, a supplier (X) can be critical in a monopolistic supply market for the industrial producers, not because he has persuaded them, but because the producers cannot start their production process without the row materials of the supplier (X). Once in the market has entered another supplier (Y) with substitute row materials the producers have the freedom of choice. When competitiveness increases, criticality diminishes, and market actors must develop negotiation and persuasion skills in order to enhance their influence. Criticality and influence are like Weber's traditional authority (obtained from the throne) and charismatic authority (obtained by personal traits) (Gerth and Mills, 2009).

[44] It should be clear that a viable system conceived as an information variety is both active and passive (Barile 2009, pp. 89). The degree of its activity is measured by the levels of influence upon other systems. When an information variety exerts influence is more active; when undergoes influence is more passive (though remains active in the sense of a cognitive elaboration of the received influence).

his/her opinion is diverse from other group members, at a point that become a sort of classical conditioning that obligates the individual to conform every time his/her opinion is divergent form the group. This is a negative type of conformity because the individual lacks independence, and conformity becomes gradually an automatic subconscious mechanism due to the frequent repetition over time. The initially public compliance, caused by the normative influence, becomes gradually an internalization radically connected with the emotional state. Because the initially rational conformity turns into emotional one, this process influences negatively the individual and the group decision making.

2.5.3. The emergence of "positive conformity"

Positive conformity, a term invented by this dissertation's author, is the act of conforming toward positive attitudes of others (e.g. optimism) for a positive organizational purpose. It depends from circumstances, but the term positive in this work means a *necessary alignment* of a group member/s toward group's positive attitudes as a whole in order to achieve common (positive) goals. Thus, it refers to a *requisite conformity*. It is a state of mood that helps single members to improve their job satisfaction and group performance. The positive conformity can be individual or social, but in the last case (i.e. the social conformity) should not be confused with the concept of *groupthink* which means a psychological drive for consensus at any cost that suppresses dissent and appraisal of alternatives in cohesive decision-making groups (Janis, 1972). Although the above definition declares the positive conformity as an act, it is not a simple act but an atempt to repeat that type of behavior so that this becomes an automatic mechanism. It can be as well interpreted as a continuous conformity (in a positive sense) to other's positive attitudes. Quoting Aristotle, *"We are what we repeatedly do. Excellence then, is not an act, but a habit"*. Eventually conformity is a sort of decision making. You decide how you want to be, and *"The most important decision you make is to be in a good mood"* (quoted by Voltaire). But when an individual conform, the decision making is under pressure. It is very important for the group (or for the leader) to use the most appropriate pressure in accordance to the situation. In chapter one it was said that it is an absurd question the fact of labeling (in absolute terms) conformity as "good" or "bad" (Aronson, 2008). It is true since conformity relies on two constraints: context and scope, and as a consequence can be

either positive or negative, relatively to the kind of pressure used. Hence, the situation and the aim of leader or group must be taken into account. However, today's leaders must know that obedience is an "old fashion" concept, and the pressure derived from it is ineffective in long run. Conformity must rely essentially on a horizontal dimension (i.e. alignment/consonance). The leadership influence should be based on persuasion (Cialdini, 2007), not on orders; this is because human resources management becomes more and more a "marketing" activity (Drucker 2009, pp. 31). Leaders or groups must "sale" cognitive frames to their members. The basic leadership distinctive traits, through which leaders change their own and other's people mind, are: intelligence (emotional and multiple), visceral instinct, and moral integrity (Gardner 2007, pp. 118-122). These traits can be used to transform an obligated conformity to a voluntary conformity to group norms (Kasimati 2010, pp. 294). The most effective stimulus of a voluntary act is the leadership by example, based on work, responsibility, and deserved trust (Drucker 2002, pp. 220-222). This is exactly what positive conformity intends: conforming to other's positive attitudes (for a positive purpose).

Despite the innovation aspect (and the provocative one) regarding the defined term "positive conformity", exponent scholars as well have 'cherished' and indirectly touched the concept. For example, as mentioned also in chapter one, Deutsch and Gerard (1955, pp. 629) have defined conformity in accordance with the normative social influence, or the *"influence to conform with the positive expectations of another [...] person, group, or one's self"*. Similarly, Cialdini, Kallgren, & Reno (1991), and Kallgren, Reno, & Cialdini (2000) have developed a model of normative conduct in order to influence people to *conform toward correct and socially approved behavior*, meaning with socially approved behavior the behavior based on social norms (the rules that a society has for acceptable behaviors, values, and beliefs).

Though the *positive conformity* is a new term in the field of organizational behavior, it is hooked on scientific evidence. During the 70's Bhutan was a subject of accurate analysis made by the economists. In 1972, Bhutan's fourth Dragon King, Jigme Singye Wangchuck, coined the term "gross national happiness" as a substitute of GDP. Research has shown that the conformity of Bhutan's population to this new indicator has increased happiness and life quality (Conway 2010, pp. 199). Today this economic branch of study is called happiness economics. Other evidence comes from the field of positive

psychology. According to Seligman (2002, pp. 3), *"The field of positive psychology at the subjective level is about positive subjective experience: well-being and satisfaction (past); flow, joy, the sensual pleasures, and happiness (present); and constructive cognitions about the future—optimism, hope, and faith. At the individual level it is about positive personal traits—the capacity for love and vocation, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, high talent, and wisdom. At the group level it is about the civic virtues and the institutions that move individuals toward better citizenship: responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic"*. Thus, the positive psychology is not focused on mental illness, but on human strengths. Though the scientific movement of positive psychology has began recently (Seligman and Csikszentmihalyi, 2000), it was Abraham Maslow to coin the term in his book *Toward a Psychology of Being* (1962). Maslow dedicated a chapter to this topic (chapter 6 – "Cognition of Being in the Peak-Experiences"), saying that *"This is then a chapter in the 'positive psychology', or 'orthopsychology', of the future in that it deals with fully functioning and healthy human beings, and not alone with normally sick ones"* (pp. 85).

The scientific movement of positive psychology has been a catalyst for the positive behavior within organizations. This positive trend embraces two ramifications: the *positive organizational scholarship* (POS) – which focuses on positive outcomes and attributes such as excellence, flourishing, thriving, virtuousness, and resilience, regarding individuals, groups, and organizations – (Cameron, Dutton, & Quinn, 2003; Cameron and Spreitzer, 2012), and the *positive organizational behavior* (POB) (Luthans, 2002a, 2002b, Nelson and Cooper, 2007)[45]. POB has been defined as *"the study and application of positive oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace"* (Luthans 2002b, pp. 59); It is based on some relevant components: self-efficacy/confidence, hope, optimism, and resiliency.

> ➢ *Self-efficacy:* It is a personal conviction or belief on performing successfully or not a specific task. It is context specific and competence-based. Self-efficacy is

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[45] In this work the positive organizational scholarship is not object of study. The author (Hysa) has focused the theoretical and practical attention on the positive organizational behavior and in its main driver: the positive psychological capital (PsyCap).

influenced by contingency factors, past analogue experiences, and by the interpretation of achieved goals. The concept of self-efficacy was developed by Albert Bandura in his Social Cognitive Theory (SCT) (Bandura, 1977, 1997) and has relevant implications in the workplace. A meta-analysis of 114 studies and 21,616 subjects showed a .38 weighted average correlation between self-efficacy and task performance (Stajkovic and Luthans, 1998). Another recent study shows a significant relation of self-efficacy to work performance and job satisfaction (Luthans et al., 2007).

➢ *Hope:* Snyder, Irving, & Anderson (1991, pp. 287) define hope as *"a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) pathways (planning to meet goals)"*. Simply put, hope is based on motivational forces (agency) and strategic thought (pathways). Workplace research has found that higher-hope human resources impact more positively profits, job satisfaction, and organizational commitment (Adams et al., 2010).

➢ *Optimism:* The main exponents on the field are, in one side, Carver and Scheier, and, on the other side, Martin Seligman. For Carver and Scheier the concept of optimism is related to expectancy-value theory. In simple terms, for the authors *"Optimists are people who expect good things to happen to them; pessimists are people who expect bad things to happen to them"* (Carver and Scheier 2002, pp. 231). On the other hand, Seligman connects optimism with causal attributions (i.e. attribution theory). He makes use of the term *explanatory style* in order to indicate how people interpret personal events, pointing up that optimism is a dynamic attitude (state-like) that can be learned (Seligman, 2006). In the workplace optimists are highly motivated and feel satisfaction in their jobs; define more stressed objectives; attribute the failure to environmental factors (external causes) and do not underestimate their capabilities (Luthans 2011, pp. 214). Other research has shown optimism as an attitude positively related to employee performance, job satisfaction, and work happiness (Youssef and Luthans, 2007). Another interesting evidence shows that the more optimistic the leader, the more optimistic the followers, which reveals that optimism is contagious (Wunderley, Reddy, & Dember, 1998).

➢ *Resilience:* It is defined by positive psychology scholars as *"a class of phenomena characterized by patterns of positive adaptation in the context of significant adversity or risk"* (Masten and Reed 2002, pp. 75). Resiliency is an important component especially in times of organizational turbulence and crisis. Research on this topic has shown a positive correlation of resilience to job satisfaction, work happiness, and organizational commitment (Youssef and Luthans, 2007). Resilience has been considered also by VSA as an important tool for decision making and strategic communication (Barile and Casula, 2011). In fact, in viable systems terms, resilience coincides with the concept of flexibility which can be deliberate or innovative (Golinelli 2002, pp. 60-63). Deliberate flexibility occurs when the decision maker has predicted options-based planning (Williams 2007, pp. 140) or situational plans (Llaci 2006, pp. 150) inserted within the extended structure. Conversely, innovative flexibility emerges without a "backup plan"; it is an invention of the moment allowing the decision maker to face an intuitive and a creative task.

When the above components (self-efficacy, hope, optimism, and resilience) are combined with each other they create a powerful driver of positive organizational behavior: the psychological capital (PsyCap). PsyCap is based in the first absolute postulate of systems thinking: the whole is greater than the sum of its parts. Therefore, using synergistically self-efficacy, hope, optimism, and resiliency, is expected to have a greater impact on organizational behavior outcomes comparing it with the single impact of each component (Luthans, Youssef, & Avolio 2007, pp. 19).

In conclusion of this paragraph, the positive conformity refers to the individual's conformity toward one or more components of psychological capital, possessed by one or more group members, for a positive organizational behavior purpose (e.g. increasing performance, satisfaction and citizenship behavior, and decreasing voluntary absenteeism and turnover).

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CHAPTER III

Research methodology

SUMMARY: 3.1. The stimulus idea behind this study – Conceptual framework in action: the procedural route – 3.3. Research design – 3.4. Research questions and hypothesis – 3.5. Setting & sampling – 3.6. Procedures of data collection: methods, techniques, and instruments for qualitative and quantitative data – 3.6.1. The qualitative methodology – 3.6.2. The quantitative methodology – 3.6.2.1. First step: the Sociometric Test – 3.6.2.2. Second step: the Picture Apperception Value Test (PAVT) or the Test of Consonance – 3.6.2.3. Third step: the Life Orientation Test-Revised (LOT-R) or the Optimism Test – 3.6.2.4. Fourth step: the Positive Conformity Experiment – 3.7. Data analysis.

3.1. THE STIMULUS IDEA BEHIND THIS STUDY

"I want to know how God created this world.
I am not interested in this or that phenomenon,
in the spectrum of this or that element. I want
to know His thoughts, the rest are details."
– Einstein

The starting point of this study that generated the initial idea was the conformity experiment of judgment under social pressure of the social psychologist Solomon Asch (Asch, 1955). The author of this dissertation was inspired by the experiment and its results, and especially by the origins of Asch's intuition[46]. However, there were two points that were not exhausted from the author's perspective: **first**, the experiment was concluded on unknown individuals. Hence, rather than experimenting the conformity also in organizations where individuals know each other – within groups of individuals with an historical relationship memory (i.e. teams) – the experiment was performed on extemporaneous individuals' aggregation without any significant tie. In other words, the experiment was directed more toward citizens/'crowds' (a random grouping of society's elements) than to human resources (components of an organizational structure); **second**, the meaning given to the concept of conformity was generally negative, without

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[46] When Solomon Asch was a young boy he faced a perpetual distortion, as he recalled in the following sentences. «*I asked my uncle, who was sitting next to me, why the door was being opened. He replied, "The prophet Elijah visits this evening every Jewish home and takes a sip of wine from the cup reserved for him." I was amazed at this news and repeated, "Does he really come? Does he really take a sip?" My uncle said, "If you watch very closely, when the door is opened you will see — you watch the cup—you will see that the wine will go down a little." And that's what happened. My eyes were riveted upon the cup of wine. I was determined to see whether there would be a change. And to me it seemed . . . that indeed something was happening at the rim of the cup, and the wine did go down a little*» (Aron and Aron 1989, pp.27, as cited in Myers 2010, pp. 197).

considering the purpose and the context. But individuals, as well as their social behavior, can be considered as systems of purposeful events interacting with a certain context in a certain space-time dimension (Ackoff and Emery, 1972). Varying the context and the scope varies also the negativity/positivity degree of conformity. Although some authors consider an absurd question the fact of labeling conformity as "good" or "bad" (Aronson, 2008), the concept is generally understood as a lack of individual's independence, or as a distortion of judgment under the group pressure (Asch, 1951; 1952; 1955; 1956). In its simplest definition conformity has been defined as "yielding to group pressures" (Crutchfield, 1955, 1962; Man, 1969), so as something that we should make resistance. Nevertheless, in the author's (Hysa) perspective conformity is like the water, assumes the form of the container in which has entered.

3.2. CONCEPTUAL FRAMEWORK IN ACTION: THE PROCEDURAL ROUTE

Starting from the above general idea, the review of literature showed that experiments alike to Asch's one can be performed also within groups (and not simply within aggregations) (Deutsch and Gerard 1955, pp. 629) and conformity can be considered also a positive behavior in appropriate conditions (Cialdini, Kallgren, & Reno,1991; Kallgren, Reno, & Cialdini, 2000), even though the term "positive conformity" hasn't been used before this work.

Thus, reminding the aim of this dissertation – which was to measure and explain group cohesiveness through consonance, and to apply the positive conformity within consonant groups – the conceptual framework of this study, or the steps/procedures used to accomplish it, are as follows:

► the observation in natural environment in order to understand the "what happens" dimension of social interaction;

► the participant observation with the aim to understand the motives behind behavior and relationships;

► the utilization of a sociometric test (i.e. the *GroupDynamics software®*) in order to divide participants in groups according to their friendship preferences;

► the creation of an innovative method for measuring consonance (i.e. PAVT – *picture apperception value test*).

► the use of the Picture Apperception Value Test (PAVT) with the aim to explain group cohesiveness in relation to the members' system of values (i.e. macro-categorical values);

► the measurement of optimism's level of every participant through the Life Orientation Test-Revised (LOT-R) with the scope to define the "cavy" of the experiment internally of each participating group;

► the change – in case of appropriate circumstances, and within consonant groups – of the classical concept of (negative) conformity into positive conformity through the intervention of social influence based on positive attitudes (e.g. optimism).

3.3. RESEARCH DESIGN

The research design is a manner to categorize the different components of the research process under specific "umbrella statements", attributing to each component a specific role. In viable systems terms, the research design is the logical structure, because determines: which are the necessary information units (the data); which methods-techniques-tools are going to be used in order to collect the required data; what is the "statement" design that covers within its category the methods-techniques-instruments; for whom the data are useful; how the collected data are going to answer the research question and to test the hypothesis. Research design thus "*deals with a logical problem and not a logistical problem*" (Yin 2009, pp. 27).

Regarding the design of this dissertation, it includes both a descriptive and an explanatory research design. This is because the present work strives to give a multidimensional view of the phenomena discussed here. It is descriptive because answers the question "what is going on?"; it is explanatory because explains "why is it going on?" (de Vaus 2001, pp.1-3). Basic methods and tools used for the descriptive reason are the observation in natural environment and the sociometric test. On the other hand, in order to fulfill the explanatory (explicative) aims or the "why" dimension, it has been used the

participant observation including the Myers-Briggs Type Indicator® (MBTI) or the personality test, the Picture Apperception Value Test (PAVT) or the test of consonance, the Life Orientation Test-Revised (LOT-R) or the optimism test, and finally, the positive conformity experiment.

3.4. RESEARCH QUESTIONS AND HYPOTHESIS

Research Question 1 (RQ 1):

Can the group cohesiveness be measured and explained by consonance?

Hypothesis 1 (H 1):

Consonance explains the cohesiveness within groups by measuring the interpersonal attraction between group members in accordance to their system of values.

Research Question 2 (RQ 2):

What is the relationship between the social influence based on optimism, considered the latter as a positive component of psychological capital (PsyCap), and the conformity behavior toward it?

Hypothesis 2 (H 2):

Because the conformity might be considered as a general law, the social influence/pressure can cause conformity toward negative norms/attitudes, like there is true the opposite (at least in consonant groups).

3.5. SETTING & SAMPLING

The setting for this study was the Faculty of Economy, part of University of Tirana, located at Tirana city, the capital of Albania[47]. The Faculty of Economy is composed by 134 internal/effective academic staff. It has 6 departments (Mathematics-Statistics-Informatics; Economics; Management; Marketing; Finance; Accounting). The study branches are: business; finance; economics; and economic informatics. At the time of this

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[47] http://www.unitir.edu.al/ ; http://feut.edu.al/

study (AY − 2012-2013), according to data provided by the administrative secretariats of University of Tirana and Faculty of Economy, the whole university enrolled 37750 students, and solely the Faculty of Economy had 10515 students, from which: females = 7729 = 73.5 %, males = 2786 = 26.5 %.

Regarding the sampling procedure, the author of this dissertation has chosen a non-probability sampling, and more precisely a *convenience sampling*. According to Corbetta (1999, pp. 352), a convenience sampling is a group of persons chosen with the sole criterion that are the most easily accessible. Corbetta sustains that in general lines this type of sampling must be avoided, but it can find a justification in psychology experiments, in which the only thing that is relevant is the difference between experimental group and control group, independently of intrinsic characteristics of groups. Therefore, the convenience sampling can find a justification also in this dissertation which is based on a main psychology experiment (and some other socio-psychological tests) with a managerial and systems perspective, focusing the attention on organizational behavior (i.e. the behavior of university students within the classroom).

If the sample of this study was easy to define (in accordance with the convenience principle), it wasn't as much the definition of the population. Defining a statistical population it isn't easy, as it isn't easy as well to apply the Russell's theory of logical types in practice (Russell 2006, pp. 131-140). In other words, the population is a logical type (a category or a class). In contrast, the sample is an element of the class. Omitting for the moment the population, let's focus the attention on the statistical sample.

In this study, the sample refers to the group (student class) B.3-01 of *organizational behavior course*[48]. The "Organizational Behavior" is an obligatory study subject of business branch at Faculty of Economy, University of Tirana, executed on the third study year of Bachelor degree. There are two criteria why the author of this work has chosen the students of group B.3-01. The first refers to the principle of convenience, because the author of this study was also a lecturer of organizational behavior (AY − 2012-2013), having as a class the "Group B.3-01". The second reason is that the class members knew each other due to their three-year interaction, and this was a sufficient condition to justify the experiment criterion, according to which individuals had to know one another (one of

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[48] The meaning of B.3-01: "B" stands for business branch of studies; "3" means the third year of study; "01" means the students group "number one".

the differences with Asch's experiment). The sample size (i.e. number of participants) was n = 41 students[49] (34 female or 83 % and 7 male or 17 %). The average age was approximately 21 years old.

In accordance with the above considerations, the population can be the number of students who attended an organizational behavior course at Faculty of Economy, University of Tirana, during the academic year 2012-2013. These students were at the third year of study, and were divided in 16 groups by the administrative secretariat of the faculty with an average of around 25 students per group. Precisely, the population amounted to N = 397 students, from which: female = 323 (81.3 %), male = 74 (18.7 %).

Although the aim of this study was not to generalize the results (given the inductive method), the population can be extended also to all the students of the Faculty of Economy, as can be extended as well to all the students of University of Tirana, and so on. Because this experimental research tried to study the human behavior under certain conditions, it is preposterous to circumscribe with high precision the population, as it is, on the other side, ingenuous the claim of having discovered the magic formula of human behavior within organizations of any kind. Nevertheless, and according to Watzlawick, Weakland, & Fisch (1974, pp. 106), the exclusive membership of an element (e.g. sample) to a given class (e.g. population) is really rare or almost impossible. Retaking an example from the above authors, a cube of red wood can be considered a class member of the class of all red objects, the class of cubes, the class of wood objects, the class of toys, and so on. At the same way, a sample cannot be classified so rigidly. Therefore, it can be contemporaneously an element of different populations. Thinking deeply, it's not so difficult; it is sufficient to make a *restructuring* (*reframing*), and consequently to collocate an element within different classes (Bandler and Grinder, 1983).

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[49] The whole classroom had 42 students, but one of them did not participate.

3.6. PROCEDURES OF DATA COLLECTION: METHODS, TECHNIQUES, AND INSTRUMENTS FOR QUALITATIVE AND QUANTITATIVE DATA

As it was explained in chapter one the collected data are both qualitative and quantitative, using both the methodologies. Data are divided in secondary and primary data.

The **secondary data** are mainly gathered by articles, books, online encyclopedias and official websites, which are related to the review of the literature (chapter two). A fundamental support on data gathering was the service offered by Biblioteca Digitale Della Sapienza (BIDS), using VPN-Sapienza and the BIXY software. The main databases accessed (mainly from the EBSCO Host) were: Business Source Complete; EconLit; Education Resource Information Center (ERIC); Regional Business News; JSTOR, PsycINFO®; PsycCRITIQUES®; PsycEXTRA®; PsycARTICLES®; and FRANCIS.

The **primary data** are gathered by the research in campus, as explained below.

Starting from **qualitative methodology**, the qualitative methods used for accomplishing the dissertation objectives were as follows:

- ℘ the observation in natural environment, in which the observer/researcher was limited to look, hear and study the student dynamics in a classroom without being a stimulus of particular behaviors;

- ℘ the participant observation, in which the researcher was immersed in students' social context, interrogating them, discovering inspirations, world's conceptions, motivational factors etc, in order to comprehend students from inside. In addition, a study of personality types was realized thanks to the Myers-Briggs Type Indicator® (MBTI).

Although the qualitative methods were not the core in this work, anyhow they might be considered as supportive for the **quantitative methodology** and methods. They helped to give a multidimensional explanation of the problems.

The quantitative procedures, including methods, techniques, and instruments, used in this PhD thesis were as follows:

- ℘ the sociometric test using the GroupDynamics software®;

- ℘ the measurement of Consonance through the Picture Apperception Value Test (PAVT), using the scaling technique of Osgood's semantic differential;

- ℘ the optimism test using the Life Orientation Test-Revised (LOT-R) of Scheier, Carver, and Bridges;
- ℘ the positive conformity experiment based on the logic of Solomon Asch's conformity experiment.

As it was shown in the procedural route, the presentation in details of the research methodology can start from qualitative methodology, including everything done inside this framework, and then coming down toward quantitative methodology.

3.6.1. The qualitative methodology

In order to accomplish the purpose of this research the author has used firstly the method of **observation in natural environment**. Because the author of this dissertation was a lecture of the students which served as a sample, the most physiological initial phase was this type of observation. It can be considered as a "warm up" stage in which students behaved normally in agreement to their relationships etymology with each other. During the observation the researcher has not videotaped the students for a further analysis. The only instruments were the eyes/ears to see/listen "what happens", and a notebook to take notes about relationships and groups tendencies. According to Crobetta (1999, pp. 367), the observation in natural environment is a typical method of study of students dynamics within a classroom. The same author explains that this kind of observation is based on the positivism paradigm, or on an ingenuous reality that believes that reality is something 'real' (and not constructive), indisputable, and objective. This dissertation's author has passed the above limit relying also on the interpretative paradigm. As it was shown before, this work is both descriptive and explanatory (explicative).

Thus, the second step of the research was the intervention, where the observer was not limited only to look but also to participate. As a consequence, the simple observation was transformed in **participant observation**. The principles of this method has been delineated by Bronislaw Malinowski (1922) who summarized the objective of the method as the grasping of the indigenous standpoint in front of life with the aim to be aware of the vision about the world. So, the author of the present work tried to be immersed and involved within the students' social context. During the organizational behavior course, the lecturer (the researcher/observer) has attempted to make an inquiry about the character, personality, system of values, attitudes, and cultural background of each student in order

to comprehend what is invisible to the eyes, but visible to the heart and mind. This was really useful for the successive step or the sociometric test. Analyzing student dynamics by observation was especially helpful for the construction and the relative interpretation of the sociogram.

Furthermore, because the study of personality is part of participant observation, it was developed a personality test with the aim to understand the personality type of each student, and the combination between types. For this purpose, to the students was administered a questionnaire (see Appendix A). The personality test was based on the conceptual framework of Jung's psychological types (Jung, 2009), then developed and systematized in Myers-Briggs Type Indicator® (MBTI)[50] (Myers and Myers, 1995).

According to "The Myers & Briggs Foundation", "*the purpose of Myers-Briggs Type Indicator® (MBTI) personality inventory is to make the theory of psychological types described by C. G. Jung understandable and useful in people's lives. The essence of the theory is that much seemingly random variation in the behavior is actually quite orderly and consistent, being due to basic differences in the ways individuals prefer to use their perception and judgment. Perception involves all the ways of becoming aware of things, people, happenings, or ideas. Judgment involves all the ways of coming to conclusions about what has been perceived. If people differ systematically in what they perceive and in how they reach conclusions, then it is only reasonable for them to differ correspondingly in their interests, reactions, values, motivations, and skills*"[51]. In this dissertation, MBTI has been used exactly with the aim to understand students' perceptions (based on intuitions or senses) and judgments (based on thinking or feeling) in a relational perspective. Data was gathered in order to make an interpretation of intertype relations through a recent psychological theory, known as *socionics* (Filatova, 2006; Novichkov and Varabyova, 2007). Consequently, this important instrument was necessary (in spite of its limits) to relatively comprehend relationships between students. A scientific support for the use of MBTI within organizations in a relational perspective comes from scholars that have used MBTI for understanding team dynamics in order to increase team effectiveness, competitiveness, and performance (McCann, Heird, & Roberts, 1988; Nash, 1999; Ferrand, 2000; Ferrand, 2005; Boggs, 2004; Berens, Ernst, & Smith, 2004).

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[50] To do the personality test, students visited the following website: http://www.humanmetrics.com/

[51] For further information see: The Myers & Briggs Foundation (http://myersbriggs.org/) and the Center for Application of Psychological Types (http://www.capt.org/).

Table 3.1. Factor Analysis Rotated Component Matrix.

Item Code	Factor 1 (E–I)	Factor 2 (T–F)	Factor 3 (J–P)	Factor 4 (S–N)	Item Code	Factor 1 (E–I)	Factor 2 (T–F)	Factor 3 (J–P)	Factor 4 (S–N)
EI1	.76	.01	−.03	−.06	TF1	−.09	.47	.12	.08
EI2	.58	.05	−.02	−.05	TF2	−.11	.47	.07	.17
EI3	.56	.03	.05	−.06	TF3	−.05	.59	.06	.11
EI4	.56	−.10	.01	.10	TF4	.08	.52	.01	.12
EI5	.58	−.08	−.05	.04	TF5	−.10	.64	.10	.00
EI6	.59	.02	.04	−.06	TF6	.01	.60	.00	.05
EI7	.47	−.02	.01	.01	TF7	−.03	.62	.06	−.03
EI8	.68	−.09	−.04	−.05	TF8	−.01	.57	−.02	−.01
EI9	.59	−.02	−.06	−.08	TF9	−.07	.60	.01	−.06
EI10	.69	−.11	−.05	−.06	TF10	−.03	.41	−.07	.02
EI11	.70	−.01	−.07	−.11	TF11	.03	.37	−.02	.03
EI12	.60	.04	−.07	−.14	TF12	.12	.49	−.05	−.01
EI13	.60	−.08	−.06	−.11	TF13	−.15	.52	.05	.14
EI14	.52	−.06	−.07	−.04	TF14	−.05	.57	.04	.08
EI15	.61	−.05	−.06	.00	TF15	−.07	.64	.04	.11
EI16	.54	−.05	−.05	.03	TF16	−.07	.59	.02	.02
EI17	.75	−.03	−.05	−.03	TF17	−.08	.65	.09	−.03
EI18	.57	−.13	−.01	.05	TF18	−.05	.57	.08	.19
EI19	.66	.03	−.03	−.06	TF19	−.02	.61	.06	.00
EI20	.58	.01	.04	−.09	TF20	−.06	.53	.04	.15
EI21	.70	.01	.04	−.07	TF21	.10	.51	.01	.04
SN1	−.03	−.04	.12	.56	TF22	−.03	.56	.11	.07
SN2	−.04	.23	.14	.52	TF23	−.05	.58	.06	.07
SN3	−.03	−.05	.10	.55	TF24	.03	.32	.10	.08
SN4	−.01	−.05	.00	.45	JP1	−.01	−.01	.66	.11
SN5	−.09	.03	.16	.37	JP2	−.01	−.04	.67	.09
SN6	.00	.04	.05	.45	JP3	−.10	.05	.68	.13
SN7	−.07	−.13	.13	.40	JP4	.02	−.02	.58	.18
SN8	−.02	.15	.20	.54	JP5	.04	−.02	.50	.04
SN9	−.04	.16	.13	.61	JP6	−.07	−.12	.28	.14
SN10	.00	.01	.07	.55	JP7	.02	.03	.50	.06
SN11	−.05	.11	.10	.46	JP8	−.02	.04	.55	.09
SN12	.03	−.02	.13	.55	JP9	−.02	.05	.68	.19
SN13	.00	.12	.07	.54	JP10	−.18	.29	.49	.22
SN14	−.04	.22	.09	.60	JP11	−.08	.33	.40	.06
SN15	−.08	.08	.02	.50	JP12	−.06	.21	.45	.18
SN16	−.11	.11	.15	.44	JP13	−.03	−.02	.62	.29
SN17	−.02	.10	.06	.47	JP14	−.09	.26	.41	.14
SN18	−.04	.20	.23	.56	JP15	−.05	−.02	.70	.11
SN19	−.05	.02	.08	.53	JP16	−.06	.07	.70	.13
SN20	−.04	.24	.12	.60	JP17	.00	.04	.65	.12
SN21	.01	.08	.14	.64	JP18	−.15	.07	.67	.20
SN22	−.07	.15	.16	.44	JP19	−.01	.09	.51	.02
SN23	.04	.03	.04	.52	JP20	.00	.02	.67	.12
SN24	−.09	−.02	.11	.61	JP21	.03	.11	.53	.01
SN25	−.02	.01	.08	.56	JP22	.02	.12	.65	.17
SN26	−.02	−.30	−.03	.30					

Source: Schaubhut, Herk, & Thompson, 2009.

Regarding the reliability and the validity of qualitative instruments it is difficult to obtain confident results. About the validity, and according to American Educational Research Association, Psychological Association, & National Council on Measurement in Education (1999), in psychometrics, validity has a particular application known as test validity, or the degree to which evidence and theory support the interpretations of test scores. Referring to "The Myers & Briggs Foundation", the MBTI instrument, using a test-retest reliability method, has a reliability that varies from 75 % to 90 %. Furthermore, recent MBTI's validity assessment has been evaluated in correlation with other personality assessments – namely the *CPI 260®, FIRO-B®, Adjective Check List, Strong Interest Inventory®, Thomas-Kilmann Conflict Mode Instrument (TKI),* and *Birkman Method®* assessments – and finally an exploratory factor analysis has been concluded as shown in table 3.1 (Schaubhut, Herk, & Thompson, 2009).

3.6.2. The quantitative methodology

The present methodology was used intertwining different techniques and instruments, in different steps.

3.6.2.1. First step: the Sociometric Test

Starting the analysis from the problem statement, one of the problems was that the researcher, differently from Asch, wanted to test the conformity within groups (and not social aggregates), especially consonant groups. Because the classroom was composed by 41 students, it was convenient to create small groups within the large one. For this purpose was chosen the quantitative method of the *Sociometric Test*, developed by the psychotherapist Jacob Moreno (1953). The sociometric test has been applied in this work because it is considered by the authoritative literature an indicator of group cohesiveness (Sherif and Sherif, 1956; Forsyth 2010, pp. 126-127).

In order to accomplish the sociometric test, it was utilized a sociometric software called GroupDynamics software®[52]. The software was created by the software developer Simone Capretti, with the fundamental support of Prof. Salvatore Mastrangelo, Dr. Lawrence Sherman, and the eminent scholar of group dynamics, Dr. Donelson Forsyth.

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[52] http://www.simonecapretti.it/groupdynamics/

The software is composed by seven sections (an example is shown in figure 3.1): Questions, Subjects, Answers, Bar graph, Target graph, Sociogram, and Metrics.

Figure 3.1. Example window of GroupDynamics software®

Source: http://www.simonecapretti.it/groupdynamics/screenshot.html
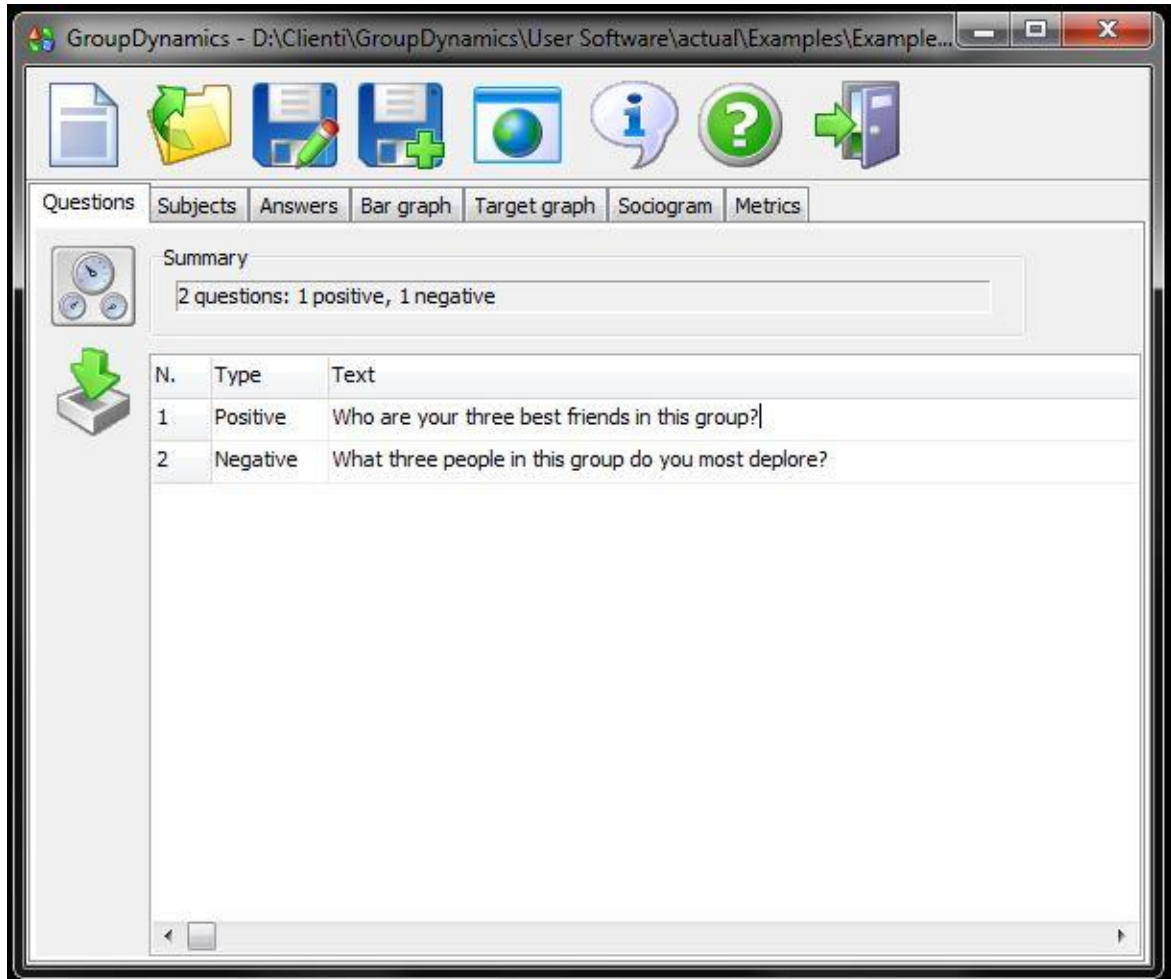
With the aim to collect data and to divide the classroom in small groups, in this dissertation the positive and negative questions has been as follows:

Positive – *What are your three best classroom friends with whom you feel more harmony?*

Negative – *What are your three classroom friends you tend to avoid the most, or to be socialized as little as you can?*

The words "positive" and "negative" are used by the program in order to show acceptances and rejections. Said with VSA's terms, the both words delimit the *specific structure* (SS); so, the components included by the viable system in its specific structure, and those excluded. This is an important decision of the viable system because it affects the future interactions with the surrounded context.

Returning to the procedure, the questions were administered to the students as a questionnaire modality including the necessary orientations (see Appendix B). The other stages of the sociometric test are part of data analysis and research findings explained later.

Referring to the reliability and validity of sociometric tests, variation of choice behavior from one test to another is not a function of test reliability but rather of relative stability of the behavior itself (Pepinsky, 1949). Respecting Pepinsky's opinion, "*a meta-analytic review was conducted of 77 studies including 93 samples and 18,339 participants that examine both the short-term and long-term stability of four continuous dimensions of sociometric status: acceptance, rejection, social preference, and peer ratings. A large mean short-term stability was found for each dimension, indicating good test-retest reliability of sociometric measurements. Weighted least square regression analysis revealed that long-term stability was influenced by four factors: children's age, gender, the length of the time interval across which stability was examined, and the year the study was published.* [This study has provided] *evidence for good reliability and high stability of continuous dimensions of peer status in childhood and adolescence*"[53] (Jiang and Cillessen, 2005).

Specifically, although there are no data available for reliability of the GroupDynamics software®, this instrument has been awarded by *brothersoft.com, filecluster.com, findmysoft.com, softepic.com, softpedia.com,* and *softpedia.com*. In this work the software resulted to be very effective for the creation of small groups.

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3.6.2.2. Second step: the Picture Apperception Value Test (PAVT) or the Test of Consonance

As it was mentioned along this work, the sociometric test is a descriptive measure ("what happens") and doesn't tell us why people are interpersonally attracted. It "designs" groups telling who the members of one group are, and who the members of another one are. Despite its limits, it has been evaluated as an indicator of group cohesiveness. Now, to give an answer to Research Question 1 (RQ 1) and Hypothesis 1 (H 1) it is necessary to make also the test of consonance. The scope of this step is to evaluate the consonance (based on macro-categorical values) within the small groups, which were created before by the sociometric test. Through the following procedure was possible to assess the classified groups in accordance to their system of values, and to define also the degree of cohesiveness within each group.

Before explaining the procedure, the author reminds that PAVT is a new method of measuring consonance, applied for the first time in this work. The PAVT combines the logical structure of 'Thematic Apperception Test', known also as the picture interpretation technique (Murray, 1943), with the logical structure of 'Value Surveys' (Ericson, 1969; Rokeach, 1973; Schwartz, 1999, 2006; Hofstede, Hofstede, & Minkov, 2010; Barile, 2011). More precisely, the general technique of picture apperception was combined with Barile's survey on categorical values (Barile, 2011).

Now, let's explain the logical structure of the test. First of all, in an *ad hoc* session it was explained to the participants the meaning of categorical values and macro-categorical values derived from them. Barile's survey showed that from a list of human categorical values, using the statistical techniques of *principal component analysis* and *factor analysis*, was possible to identify common factors which were named *macro-categorical values* (i.e. universal human values). These macro-categorical values can be expressed as a continuum between extreme states (pairs), as follows:

1. Ethical conduct (*from being abusive, to being respectful and responsible*);
2. Desire for success (*from being indolent and passive, to being supernatural and delirious*);
3. Sense of duty (*from indifference, to "self-sacrifice"*);
4. Focus on social relationships (*from egoism and individualism, to extreme altruism*);

5. Seeking consensus (*from personal image and credibility, to usefulness for the community*);

6. Opportunistic behavior (*from abusing with power/authority for personal gains, to dedicating yourself to the accomplishments of organizational goals*).

Then, it was made clear to the participants that different persons have different hierarchies of macro-categorical values, and the same person might vary the hierarchy when the interactional context changes.

It was explained also to the students (and this is the core) that each of the above values assumes a typical trend like a "Gaussian distribution", or a trend that goes from one extreme to another appointing conceptually opposing pairs of objects, subjects, concepts, events, etc (e.g. bad-good, black-white, small-big, etc) (see Appendix C). Therefore, in order to express each of the macro-categorical values as a "normal distribution", it was used Osgood's *semantic differential*, a scaling technique with a range $\{1 - 7\}$ (Osgood, 1952; Osgood, Suci, & Tannenbaum, 1957). The choice of semantic differential wasn't casual. This instrument was created by Charles Osgood and colleagues in order to measure the meaning of concepts. So, it is based on the subjective perception that individuals make inside the surrounding environment of objects, events, figures, other individuals, and so on. Hence, the semantic differential becomes a connection bridge between value surveys and picture perception/interpretation techniques, arriving to a unified point that the author of this work named Picture Apperception Value Test (PAVT). However, it is necessary to underline that the scientific basis of PAVT go beyond the semantic differential. A picture serves as a stimulus for the brain's visual cortex activating emotions. As said earlier in this work, emotions are strongly connected with values.

Once the participants understood the concepts of categorical values, macro-categorical values, and semantic differential, the procedure continued (in another *ad hoc* session) with the execution of the *picture apperception value test*.

To the participants were administered two documents: one containing only the macro-categorical values, each one of them specified by the defined pairs of semantic differential (see again Appendix C); the other containing the number of pictures projected on the screen, the list of macro-categorical values per picture, and the scale $\{1 - 7\}$ for each picture and for each macro-categorical value (see Appendix D). In other words, the first

document was consultative, and the second was the document of data collection in which participants had to give the answers. The question is: what kind of answers?

At this stage, a power point presentation was made through a projection on a large screen within the classroom. There were presented one by one 20 pictures, in a sequence of about 12 seconds each (2 seconds per macro-categorical value)[54]. The pictures were chosen in accordance to some categories such as objects, famous individuals, events (historical and actual), etc. Some pictures were a representation of the actual students' life, Albanian reality, and international one. Each one of the pictures served as a stimulus to give an answer. Thus, *pictures* played the same role that *questions* play in a questionnaire. In other words, considering context and purpose, pictures and questions can be described as functionally synonyms. In practice, for each picture the participants followed these guidelines:

a. *Ask yourself: how many macro-categorical values (one, more than one, or nothing) this picture transmits to me*?

b. *Then look directly to the document one (Appendix C) with the aim to have a brief look at all the listed values and their extremes (pairs); look them quickly one by one.*

c. *After choosing the stimulated macro-categorical values, look at the scale {1 – 7} in document 2 (Appendix D), and then circle a number within the scale next to each value chosen.*

Given that PAVT is an innovative instrument, there are no statistical data about reliability or validity. However the PAVT proved to be very effective for accomplishing the objectives of this work

3.6.2.3. Third step: the Life Orientation Test-Revised (LOT-R) or the Optimism Test

The penultimate step before concluding the experiment is the test of optimism. It is based on the Life Orientation Test-Revised (LOT-R) (Scheier, Carver, & Bridges, 1994; Carver and Scheier, 2002) (see Appendix E). The scope of using this test was to identify the "cavies" of the positive conformity experiment. Remembering that positive conformity was defined by the author of this work as *the individual's conformity toward one or more*

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[54] 12 seconds is only the time of an active remaining picture on the screen, and some other seconds (about 30 seconds) were given to the participants as a necessary time to answer/react.

components of psychological capital (i.e. self-efficacy, hope, optimism, and resiliency), possessed by one or more group members, for a positive organizational behavior purpose (e.g. increasing performance, satisfaction and citizenship behavior, and decreasing voluntary absenteeism, and turnover), then it was necessary to identify the optimism level of every potential participant to the experiment. To all the participants was delivered the questionnaire "LOT-R" prepared by Scheier, Craver, and Bridges (1994). The purpose was to identify through the LOT-R the less optimistic member of each group designed before by the GroupDynamics software® and the Picture Apperception Value Test. Although from a total of seven groups were considered only three for the final experiment (those with the highest *consonance* or with the lowest *relative standard deviation ratio*), the LOT-R was provided to all the participants so as to give no advance information about the experiment.

Data provided by the PsychiatryOnline (www.psychiatryonline.org) – a powerful web-based portal that features DSM-IV-TR®, and the most widely used psychiatric reference in the world – showed that "*the LOT-R has been found to possess adequate predictive and discriminant validity with a Cronbach's alpha of 0.78. The test-retest correlations have ranged from 0.56 to 0.79 when administered at intervals ranging from 4 to 28 months*". For the present work there are no data.

3.6.2.4. Fourth step: the Positive Conformity Experiment

The last and conclusive phase is the execution of the positive conformity experiment. The experimental design is similar with that of Asch's visual judgment (or conformity) experiment (Asch, 1955). However there are substantial differences with Asch's experiment.

First, the experiment of the present work was directed to groups, and specifically to **cohesive groups** (as resulted from the test of consonance and the sociometric test); instead, that of Asch was directed to social aggregates (Deutsch and Gerard, 1955; Hogg and Vaughan 2011, pp. 273).

Second, despite the logical structure of the experiment which is based on the social influence/pressure (like Asch's experiment), the modality of execution is based on the positive conformity (i.e. the act of conforming toward positive attitudes of others for a positive organizational purpose).

The first condition of the following experiment could encourage a debate about the experimental design. So, the question is: it is a 'real' experiment or a quasi-experiment? According to Campbell and Stanley (1963), a real experiment must fulfill three conditions:

i. the **randomization** of subjects in groups (R);

ii. the presence of an independent variable (X) – the treatment or the manipulated/controlled stimulus in terms of experimental psychology;

iii. the presence of a dependent variable (Y) – the response or the "reflex".

But in social research is almost impossible to randomize the subjects in groups, particularly in all that situations in which groups are pre-established; for example, school classes, working divisions, etc (Corbetta 1999, pp. 159). Therefore, because the following experiment was conducted on pre-established groups (i.e. school class), it is probably a quasi-experiment, an experimental category that has treatment, observations, experimental groups, and so on, but that don't utilize the procedure of randomization (Cook and Campbell 1979, pp. 6).

In synthesis, the experimental design of the next procedure is a controlled experiment that falls within the category of quasi-experiments (and this is another difference with the Asch's experiment).

Before introducing in details the experimental procedure a recall of the precedent steps is necessary. Firstly, the classroom has been divided in small groups through the sociometric test (step 1). Then, within each group was tested the consonance in order to evaluate the cohesiveness degree (step 2). After that, the most suitable groups chosen for the experiment were those with higher degree of cohesiveness as resulted from the test of consonance (PAVT). From seven groups in total, created through the GroupDynamics software®, only three has been considered appropriate for the final experiment. Even though the optimism test was addressed to all the groups, so as to give no advance information about the experiment, the experimenter was interested to know the less optimistic members for only the three groups chosen (step 3). Thus, for each one of the three groups, one member per group has been labeled as a "cavy" or a "naïve" (i.e. the less optimistic member on which to exert the group pressure), and the other members were

confederates[55] to whom instructions were given (step 4). Consequently, there were evidenced two categories: the controlled "group" composed by the confederates, and the experimental "group" composed by the cavies. The term "group" is used in brackets because these "groups" are only classes or categories. The real groups are composed both by confederates and "cavies" (one for each group). The experimental technique used is the technique *after-only with control design*, where there is present an experimental group (i.e. the naïves), an experimental action that influences one or more independent variables, and a successive measurement on the dependent variable (Barile and Metallo 1994, pp. 37). This technique is also known as a single-shot technique due to a single measurement during the experimentation.

Regarding the variables considered in this experiment, the **independent variable (X)** is represented by the (positive) *group influence/pressure based on optimism*, and the **dependent variable (Y)** is the (positive) *conformity towards optimism* (in general toward other's positive attitudes) caused by the group influence/pressure, where the influence/pressure based on optimism (or in other components of PsyCap) must be considered as a necessary positive energy (i.e. sintropy[56]) in order to accomplish effectively and efficiently organizational tasks.

Referring now to the procedures of the experiment, the main questions are:

- in what consisted exactly the experiment?
- how many groups were tested?
- how many subjects per group have participated?
- which were the necessary experimental means or instruments supplied to the participants?

Because the experiment consisted in a similar procedure with that of Asch's conformity experiment, a summary of Asch's original experiment is required in order to explain later the method of the positive conformity experiment.

The basic features of the Asch situation are: (a) a group of seven to nine young men, all college students, are assembled in a classroom for a "psychological experiment" in

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[55] In psychological experiments a *confederate* is an accomplice of the experimenter (also known as a "stooge") or an actor who participates in a psychological experiment pretending to be a subject but in actuality working for the researcher (Myers 2010, pp.164; http://en.wiktionary.org/wiki/confederate).

[56] Differently from **entropy** which refers to the tendency towards dissipation of energy, chaos, disorder and death, **syntropy** is the tendency towards positive energy, concentration, order/homeostasis, organization and life.

visual judgment; (b) in each experimental session participate only one cavy/naïve, the confederates, and the experimenter; (c) to the confederates instructions on how to participate in the perceptual experiment are given, so as to match precisely the length of a given line with one of three lines (see chapter II, figure 2.9); (d) the situation is certain (not ambiguous) and correct judgments are easy to make; (e) each participant (both confederates and naïve) has to indicate his/her judgments publicly; (f) on 12 of the 18 perceptual judgments the confederates announce wrong and unanimous judgments which are clearly erroneous; (g) the naive and the confederates are in a face-to-face relationship and have been previously acquainted with one another (Asch, 1955; Deutsch and Gerard, 1955).

Now, referring to the experiment of this work (i.e. the positive conformity experiment), three groups from seven in total participated in the experiment. The groups have been chosen to participate in accordance to their consonance or cohesiveness degree. Groups were composed by four members, from which only one of the group members for each group was the naïve. Differently from Asch's means of the experiment (i.e. the cards with lines), to the participants of the positive conformity experiment were distributed (and not showed publicly by the experimenter) pieces of papers containing smiling, sad, and neutral faces (9 pieces with 9 faces). The reason why the faces haven't been shown publicly is because those delivered to the confederates had incorporated responses. So, it was impossible for confederates to made mistakes. The smiling degree was evaluated having as a reference point the Likert scale, varying from -2 (a sad face) to +2 (a happy face) (figure 3.2).

Figure 3.2. Smiling/sad/neutral faces of the positive conformity experiment.
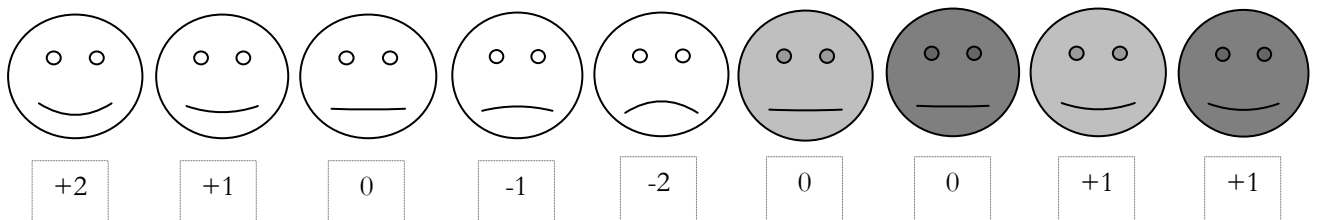
Source: *Author's elaboration.*

The faces were chosen with the aim to show how the group's assessment of a certain face influences the assessment of a single member to whom the pressure is exerted. The experiment was projected in such a way that confederates would overestimate the smiling degree. In this way, they transfer more optimism towards the naïve. The last four faces (counting from left to right) are colored with different intensity in order to fluctuate the group pressure. There are two explanations of the colored faces:

    I.   first, chromatographers (color theorists and scientists) could explain the incremental percentages of grey color as an incremental dosage of pessimism;

    II.   second, if we make a parallelism of the above faces with a water glass, it can be said that the white face is an empty glass and the grey face is a filled glass (fill level depends on the intensity of grey). When we pass from a white face (empty glass) to a grey face (filled glass) the optimism increases do to the precedent reference point. Hence, the reference point is very important. Evidence has shown that in experiments about frame selection, framing effect (Tversky and Kahneman, 1981), and reference points, individuals tended to describe a 4-ounce cup filled to the 2-ounce line as half full if it was previously empty but described it as half empty if it was previously full (McKenzie and Nelson, 2003). The same could happen with the above faces.

The experiment was organized in eight interconnected steps. In the first step were distributed the first two pictures with smile levels $(+2)$ and $(+1)$[57]. The reason is to show to the naïve since the beginning of the experiment the obvious difference between a smile $(+2)$ and a smile $(+1)$.

After the distribution of the faces, the experimenter waits some seconds and then asks for first (in the first round) to get the responses from the naïve. When the naïve answers, then the experimenter asks (one by one) the confederates. In the first turn they approve what the naïve says. This is to create some confidence and trust.

In the second turn, the third picture (smile = 0) is delivered. Now, the naïve is asked to give his/her answer after two confederates, and immediately after the naïve, another confederate responds. In this round the first confederate says "+1", the second "+1" too. After that the naïve is listened, and finally the last confederate says again "+1".

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[57] There are 9 smiling faces exposed. The exposure order is from the first picture to the ninth one, counting from left to right.

In the third round (picture number four, smile = -1) the same responding order has been followed. Following the same precedent procedure, the two first confederates say (in order, one after the other) "0". After that, the naïve is listened, and the last confederate confirms the number "0".

In the fourth turn, the naïve is asked immediately after the first confederate's answer is given. For this round the picture has a smile level (-2) (i.e. the picture number five). Confederates are instructed to say "-1". The sequence of answers is as follows: confederate, naïve, confederate, confederate.

During the fifth turn (picture number six, smile = 0) the color of the picture is changed. This influences the perception. Here, the naïve is asked after all the confederates have given their answers. The order has been decided so in a way that the group pressure and the unanimity weighs more on the naïve's opinion. After the confederates say (in order, one by one) "+1", lastly the naïve is listened.

In the sixth round (picture number seven, smile = 0), in order to test if the group pressure has made effect or not, the naïve is asked for first. Then, the other confederates respond "+1".

The seventh turn (picture number eight, smile = +1) follows the same order and logic of the fifth turn. The difference is the real smile degree (+1) and the answers of the confederates which are referred to the number "+2".

Finally, the eighth round (picture number nine, smile = +1) follows the same order and logic of the sixth step. In the last picture, the answers of the confederates (which refer to the number "+2") don't matter, because the naïve responds for first and his answer is connected with the effect (group influence) achieved in the precedent steps.

3.7. DATA ANALYSIS

This paragraph tries to explain how data are analyzed in accordance with the procedural route (see paragraph 3.2).

About the qualitative data, they were gathered by observation (natural and participant), and especially by the study of personality types through the Myers-Briggs Type Indicator® (MBTI). The qualitative data were supportive for the quantitative ones. The

researcher has not used any particular instrument for qualitative data analysis. For the observation process a notebook was necessary to write some reflections regarding students' behavior within the classroom. On the other hand, the data referring to the personality types were gathered through a questionnaire obtained from *http://www.humanmetrics.com* (see Appendix A) and were elaborated by the website's software.

About the quantitative data, there have been data acquired from the sociometric test, test of consonance, and optimism test.

The data of sociometric test are analyzed through the GroupDynamics software®. Once the subjects answered the questions, the software was able:

- to offer the number of acceptances and rejections for each subject, which were represented with a bar-graph;
- to categorize subjects in terms of their popularity through the target-graph;
- to define relationships (with some interventions of the researcher) between subjects, in accordance to their preferences, through the sociogram;
- to determine the metrics in terms of acceptances/rejections received/given based on value and density.

The most important phase of data analysis was that of the *Picture Apperception Value Test* (PAVT) or the test of consonance. Once the data were obtained from the scale of semantic differential (see Appendix D), they have been analyzed with *IBM SPSS Statistics 22* and *Microsoft Office Excel 2007*.

Firstly the data were inserted in the SPSS program, and then the format was converted into a Microsoft Excel's one. Then, for each macro-categorical value (6 in total; see Appendix C), correspondingly to each group (7 in total) and to each picture (20 in total; see Appendix D), was calculated the *Mean* (average), the *Standard Deviation* (SD) – comprising also the numerical values of the *minimum standard deviation* (SD_{min}) and the *maximum standard deviation* (SD_{max}) – the *Coefficient of Variation* (CV), and the *Relative Standard Deviation Ratio* (RSD_R)

SD_{min}, naturally, assumes always the numerical value "0".

SD_{max} for a finite set of group members represents the alternation between maximum numerical values and minimum numerical values of responses given by the group members (as shown in table 3.2). In this work, the maximum numerical value corresponds

to number "7", which is the maximum value of the semantic differential scale, or the maximum value of a response (see Appendix D). The minimum numerical value corresponds to number "0", which is a 'non-response' of a certain participant during the test.

Table 3.2. Maximum Standard Deviation for two types of groups.

Answers/Variance/SD	VAR_{max}/SD_{max} for 5 members per group	VAR_{max}/SD_{max} for 4 members per group
Non-response	0	0
Max-response	7	7
Non-response	0	0
Max-response	7	7
Non-response	0	
VARmax	14.7	16.33333333
SDmax	**3.834057903**	**4.041451884**

Source: *Author's elaboration.*

So, for each picture, participants were free to choose whether or not an answer (i.e. a number within the range of the semantic differential scale) respectively for each macro-categorical value. Obviously it depended by the stimulus degree that every exposed picture activated in participants' brain for every specific macro-categorical value. In the case of a chosen answer the variation range was from 1 to 7 (in reference to the scale). In case of a non-response the number "0" was automatically inserted within the program as a representation of the numerical value corresponding to a non-response.

Another important question to be underlined is that SD_{max} has the same numerical value for all the groups with the same quantity of members (see table 3.2). For instance, groups with four members have an $SD_{max} = 4.0414$, and groups with five members have an $SD_{max} = 3.8341$ (as shown in table 3.2 and 3.3).

As it can be deduced, the usage purpose of SD_{max} is to homogenize groups with the scope to compare them truthfully with each other. In order to compare numerically different groups with each other, and to determine correctly the most cohesive (consonant) groups, it hasn't been used simply the SD of each group, but the *relative standard deviation ratio* (RSD$_R$)[58], which has been obtained as a ratio between SD and SD_{max}, as shown in the following formula:

$$RSDR\,(i\,,n) = \frac{SD\,(i\,,n)}{SDmax\,(n)}$$

Thus, in order to have an available indicator of evidence that assumes a precise range of values and to compare groups of different size, the use of the relative standard deviation ratio, *RSD$_R$ (i , n)*, for a generic group *i* with *n* members, is preferred. It is simply obtained by dividing *SD (i , n)* for its maximum value *SD$_{max}$ (n)*, given that *SD$_{max}$ (n)* always exist and is finite for finite range of macro-categorical values' responses (those from 0 to 7 on the semantic differential scale). In this way we obtain that $0 \leq RSD_R\,(i\,,\,n) \leq 1$, ∀ *i* and ∀ *n* finite, and *L$_R$ (Θ)* can be considered as an index of experimental evidence in favor of group *i* consonance, based on the observed group range of macro-categorical values. When there is a particular set of data, the relative standard deviation ratio, *RSD$_R$ (i , n)*, provides a natural basis for assessing the plausibility of different standard deviation values, and can be interpreted as follows:

½ $< RSD_R\,(i\,,\,n) \leq 1$ ☞ consonance is not supported

$0 \leq RSD_R\,(i\,,\,n) <$ ½ ☞ consonance is supported

As a supportive statistical measure it was also used the *coefficient of variation* (CV), obtained as a fraction between standard deviation and average (mean), as showing below:

$$CV\,(i\,,n) = \frac{SD\,(i\,,n)}{Mean}$$

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[58] The present is a new and a different measure from the classical *relative standard deviation*, which (i.e. the last one) is obtained as a percentage of the division between standard deviation and mean, expressing the absolute value of coefficient of variation. The RSD$_R$ is also different from Tushar's *standard deviation ratio (SDR)*, which was developed by Chande Tushar (1992) in order to indicate the Variable Moving Average (VMA), or the Volatility Index Dynamic Average (VIDYA).

The CV shows the dispersion of data in a data series around the mean. It is a useful statistic tool for comparing the degree of variation from one data series to another, even if the means are drastically different from one another. The lower the CV, the higher the cohesiveness.

Table 3.3. Example of data analysis of the test of consonance.

Names	Member Id	Group Number (G1)	Ethics P1	Success P1	Duty P1	Relations P1	Consensus P1	Opportunism P1
Member 1	16	1	2	6	0	0	0	1
Member 2	36	1	5	7	6	3	0	4
Member 3	37	1	4	6	5	2	6	1
Member 4	39	1	4	6	7	6	5	4
Mean			**3.75**	**6.25**	**4.50**	**2.75**	**2.75**	**2.50**
SD			**1.26**	**0.50**	**3.11**	**2.50**	**3.20**	**1.73**
CV			**0.3355**	**0.08**	**0.69092**	**0.909091**	**1.16420441**	**0.69282**
SD_{min}			**0**	**0**	**0**	**0**	**0**	**0**
SD_{max}			**4.0414**	**4.0414**	**4.0414**	**4.0414**	**4.0414**	**4.0414**
RSD_R			**0.3117**	**0.1237**	**0.7695**	**0.6185**	**0.7918**	**0.4280**
Names	Member Id	Group Number (G2)	Ethics P1	Success P1	Duty P1	Relations P1	Consensus P1	Opportunism P1
Member 1	9	2	0	5	6	0	4	0
Member 2	11	2	3	5	5	3	5	3
Member 3	15	2	0	7	5	3	0	0
Member 4	19	2	4	5	4	2	3	2
Member 5	32	2	0	7	6	2	0	2
Mean			**1.40**	**5.80**	**5.20**	**2.00**	**2.40**	**1.40**
SD			**1.95**	**1.10**	**0.84**	**1.22**	**2.30**	**1.34**
CV			**1.3924**	**0.18887**	**0.1609**	**0.612372**	**0.9592387**	**0.958315**
SD_{min}			**0**	**0**	**0**	**0**	**0**	**0**
SD_{max}			**3.8341**	**3.8341**	**3.8341**	**3.8341**	**3.8341**	**3.8341**
RSD_R			**0.5085**	**0.2868**	**0.2190**	**0.3181**	**0.5998**	**0.3494**

Source: *Author's elaboration.*

As it can be realized by the table 3.3, to each group and picture correspond six macro-categorical values, or said differently, to each macro-categorical value correspond seven groups and twenty pictures. The whole table of analysis is composed by other pieces; it

continues vertically down with the other groups (G3, G4… G7), and horizontally right with the other pictures (P2, P3… P20)[59]. Every picture has served as a stimulus for students' answers, analogically as the questions of a defined questionnaire, although in a different scientific perspective. Group members gave their answers based on every picture and every macro-categorical value. After that, for each group and picture were calculated the Average, the SD, the $SD_{max,}$ the CV, and the RSD_R for group 1, group 2 … group 7 (going vertically down) and for pictures P1, P2 … P20 (going horizontally right). It means that after the answers for each picture per group there were six Averages, six SD, six SD_{max}, six CV, and six RSD_R, as far as were also macro-categorical values. Because it was 20 pictures in total, then it was necessary to calculate for each group the total values of Average, SD, $SD_{max,}$ CV, and RSD_R related to the six macro-categorical values. The total Average of each macro-categorical value was calculated as the sum of the single averages corresponding to each picture (i.e. 20 single averages for each macro-categorical value per group). The total SD of each macro-categorical value was calculated as the square root of the sum of the single squared deviations in reference to the 20 pictures per group. The total SD_{max} of each macro-categorical value was obtained as the square root of the sum of the max–squared deviations related to the 20 pictures per group. The total CV and the total RSD_R were obtained from the above total values respecting the specific formulas. Finally, in order to measure the cohesiveness of each group, it was necessary to obtain unique final values that would have been considered as comparative values for the definition of the most consonant groups. Thus, the final Average of each group was defined as the average of the six total averages corresponding to the six macro-categorical values. The final SD was calculated as the square root of the sum of the total squared deviations corresponding to the six macro-categorical values. The final SD_{max} was calculated as the square root of the sum of the total max–squared deviations related to the six macro-categorical values. Consequentially, the final values of CV and RSD_R were obtained from the above final values of Average, SD, and SD_{max} with regard to the respective formulas.

Concluding this section, the analysis proceeded with data obtained from the test of optimism (LOT-R) aiming to identify for the selected experimental groups the naïve of each group, or the individual less optimistic to be influenced. This stage was simple

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[59] For aesthetic reasons the whole table of analysis (over 30 pages in total) is not showed here. In the next chapter some tables of results will be shown.

because the questionnaire of the LOT-R (see Appendix E) contained only ten assertions to be evaluated in a Likert scale $\{0 - 4\}$. The procedure indicated that items 3, 7, and 9 had to be reversed prior to scoring (0=4) (1=3) (2=2) (3=1) (4=0). To obtain an overall score, items 1, 3, 4, 7, 9, and 10 had to be summed. The items 2, 5, 6, and 8 were excluded from the score because they were filler items only.

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CHAPTER IV

Revelation and interpretation of research findings

SUMMARY: 4.1. Qualitative research findings – 4.2. Quantitative research findings – 4.2.1. The results of the sociometric test – 4.2.2. The results of the Picture Apperception Value Test (PAVT) – 4.2.3. The results of the Revised Life Orientation Test (LOT-R) – 4.2.4. The results of the Positive Conformity Experiment.

4.1. QUALITATIVE RESEARCH FINDINGS

The qualitative results are concentrated only on the three groups who served as experimental groups. As it was said previously in this work, the groups were created through the sociometric test and the test of consonance. Precisely, from seven groups in total, there have been chosen group number three (G3), group number five (G5), and group number six (G6) because their cohesiveness degree was higher than the rest of groups[60]. For confidentiality (privacy) reasons the group members are named through a personal ID as follows:

- ✓ group three is composed by four members: G3 = {ib-el; hy-jo; do-kl; su-xho};
- ✓ group five is composed by four members: G5 = {sa-ar; pr-eu; da-ol; ka-sa};
- ✓ group six is composed by four members: G6 = {ab-an, gje-ad; ka-sa; ho-an}.

The qualitative research findings of this work are mainly based on the personality test made through the MBTI® instrument, which was the only concrete and formalized procedure that reported some evidence within the framework of qualitative methodology. Most of the observational procedure (especially the observation in natural environment) was only supportive for the rest of this work, and there is no formalized evidence to report here[61]. The author has used the notes taken during the course – notes that were fruit of the natural and participant observation – only with the scope to make a personal and profound

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[60] Considering that the cohesiveness (consonance level) was measured through the *relative standard deviation ratio* (RSD_R), and because RSD_R varies between 0 and 1, then the most consonant groups are those with $0 \leq RSD_R \leq \frac{1}{2}$. A detailed analysis is shown further.

[61] It should be clear that the personality test is used here as a part of the **participant observation** with the aim to explore the personality and the intertype relations of the participants. In this sense, only this part of the observational procedure is formalized; the rest (and the most) is only supportive for ulterior interpretations.

interpretation of student dynamics, and consequently to understand better the results of the other tests made in this dissertation.

In accordance to the results obtained from the personality test, table 4.1 shows the personality type of every group member for only the three groups mentioned above. This test was executed after the sociometric test with the scope to evaluate (from the standpoint of personality) the dyadic relations emerged from the sociogram (see paragraph 4.2.1).

Table 4.1. The psychological types of experimental groups.

Groups	Members' ID	Psychological Types
G3	ib-el	INFP
	hy-jo	IFSJ
	do-kl	ISTP
	su-xho	ETSJ
G5	sa-ar	ENTJ
	pr-eu	ITSJ
	da-ol	ENTJ
	ka-sa	ENTP
G6	ab-an	ENFJ
	gje-ad	ENTJ
	ka-sa	ENTP
	ho-an	ENTJ

Source: *Author's elaboration.*

The psychological types, as resulted from the analysis of *http://www.humanmetrics.com*, are a synthetic representation of Jungian theory about the psychological types (Jung, 2009), which was developed later by Katharine Cook Briggs

and her daughter, Isabel Briggs Myers (Myers and Myers, 1995). Briefly, the psychological functions of individuals are extended between two continuums: perception (P) and judgment (J). Each one of the continuums has two extremes: the perception has the intuition (N) and the senses (S); the judgment has the feeling (F) and the thought (T). Individuals have also different preferences about their attitudes toward the external world. Some individuals can be considered extroverts (E), or highly open systems, and some other can be described as introverts (I), or semi open systems. The combination of all the above characteristics defines sixteen personality types.

Table 4.2. Intertype relations.

	ENTp	ISFp	ESFj	INTj	ENFj	ISTj	ESTp	INFp	ESFp	INTp	ENTj	ISFj	ESTj	INFj	ENFp	ISTp
ENTp	Idn	Dlt	Act	Mrr	Bn>	Sp>	Lkl	Ill	Ego	Cnt	Qid	Cnf	Bn<	Sp<	Cmp	Sdl
ISFp	Dlt	Idn	Mrr	Act	Sp>	Bn>	Ill	Lkl	Cnt	Ego	Cnf	Qid	Sp<	Bn<	Sdl	Cmp
ESFj	Act	Mrr	Idn	Dlt	Cmp	Sdl	Bn<	Sp<	Qid	Cnf	Ego	Cnt	Lkl	Ill	Bn>	Sp>
INTj	Mrr	Act	Dlt	Idn	Sdl	Cmp	Sp<	Bn<	Cnf	Qid	Cnt	Ego	Ill	Lkl	Sp>	Bn>
ENFj	Bn<	Sp<	Cmp	Sdl	Idn	Dlt	Act	Mrr	Bn>	Sp>	Lkl	Ill	Ego	Cnt	Qid	Cnf
ISTj	Sp<	Bn<	Sdl	Cmp	Dlt	Idn	Mrr	Act	Sp>	Bn>	Ill	Lkl	Cnt	Ego	Cnf	Qid
ESTp	Lkl	Ill	Bn>	Sp>	Act	Mrr	Idn	Dlt	Cmp	Sdl	Bn<	Sp<	Qid	Cnf	Ego	Cnt
INFp	Ill	Lkl	Sp>	Bn>	Mrr	Act	Dlt	Idn	Sdl	Cmp	Sp<	Bn<	Cnf	Qid	Cnt	Ego
ESFp	Ego	Cnt	Qid	Cnf	Bn<	Sp<	Cmp	Sdl	Idn	Dlt	Act	Mrr	Bn>	Sp>	Lkl	Ill
INTp	Cnt	Ego	Cnf	Qid	Sp<	Bn<	Sdl	Cmp	Dlt	Idn	Mrr	Act	Sp>	Bn>	Ill	Lkl
ENTj	Qid	Cnf	Ego	Cnt	Lkl	Ill	Bn>	Sp>	Act	Mrr	Idn	Dlt	Cmp	Sdl	Bn<	Sp<
ISFj	Cnf	Qid	Cnt	Ego	Ill	Lkl	Sp>	Bn>	Mrr	Act	Dlt	Idn	Sdl	Cmp	Sp<	Bn<
ESTj	Bn>	Sp>	Lkl	Ill	Ego	Cnt	Qid	Cnf	Bn<	Sp<	Cmp	Sdl	Idn	Dlt	Act	Mrr
INFj	Sp>	Bn>	Ill	Lkl	Cnt	Ego	Cnf	Qid	Sp<	Bn<	Sdl	Cmp	Dlt	Idn	Mrr	Act
ENFp	Cmp	Sdl	Bn<	Sp<	Qid	Cnf	Ego	Cnt	Lkl	Ill	Bn>	Sp>	Act	Mrr	Idn	Dlt
ISTp	Sdl	Cmp	Sp<	Bn<	Cnf	Qid	Cnt	Ego	Ill	Lkl	Sp>	Bn>	Mrr	Act	Dlt	Idn

Idn - Identical	Lkl - Look-a-like	Cnt - Contrary
Dlt - Duality	Sdl - Semi-Duality	Cnf - Conflicting
Act - Activity	Cmp - Comparative	Ego - Super-Ego
Mrr - Mirror	Ill - Illusionary	Qid - Quasi-Identical
Bn - Benefit: (Bn>) - A is 'Benefactor' to B, (Bn<) - A is 'Beneficiary' to B		
Sp - Supervison: (Sp>) - A is 'Supervisor' to B, (Sp<) - A is 'Supervisee' to B		

Source: www.socionics.com

Now, in order to evaluate intertype relations, it has been used a recent psychological theory known as *socionics* (Filatova, 2006; Novichkov and Varabyova, 2007). Table 4.2 shows all the possible combinations between types and their definition. The following is a synthesis of intertype definition, taking into consideration the fourteenth intertype relations, where the first four intertypes (in descending order) are the most consonant (www.socionics.com). The following analysis is a requisite for understanding further the intertype relations of the experimental groups 3, 5, and 6.

Duality relations[****]**:** duality partners enjoy high levels of consonance. This is the 'perfect couple' in life and organizations. These subjects understand each other without saying a word. They can achieve high levels of performance because the energy is canalized on activities and not in critics and conflicts.

Identical relations[***]**:** this is a typical 'twin brothers relation'. Subjects have identical/similar categorical values, interpretation schemes, and informational background. Therefore there is a complete understanding between subjects of this dyadic relation. However the intensity of collaboration is not high.

Activity relations[**]**:** these relations start easily and quickly by the involved subjects because they possess similar synthesis schemes which are very useful for accomplishing common tasks. The relationship can be further strengthened by the mutual attraction (if exists). The success key of these relations are the interludes. In this way subjects take a rest and avoid the point of exhaustion. After that they can restart again energized.

Mirror relations[(*)]**:** mirror partners generally agree about setting near future goals, but disagree about global aims. Their relationship is based on mutual correction, because each one of the subjects sees only one side of the coin; its own. Therefore, the relationship can be productive only when the partners are complementary with each other and the dialogue is constructive.

Look-a-like relations: there is a good understanding between subjects of this relation. When the relation is accompanied by mutual attraction the collaboration can be very fruitful. Subjects of this relation are almost equal, but theirs is more a rapport of acquaintances rather than a rapport of friends.

Contrary relations: this kind of relationship depends too much on the presence of others, which in turn varies considerably the psychological distance between partners. If partners are left alone they have good chances to collaborate. If they interact in presence of others, their behavior is strongly competitive.

Semi-Duality relations: these are compatibly fluctuating relations. Between partners exists consonance in terms of information units and interpretation schemes, which means that they understand one another, but they often fail to cooperate due to the absence of the common will. However, the periods of dissonance serve to keep awake the subjects; thus, they are constructive.

Conflicting relations: initially this kind of relations seems to be harmonic. This occurs due to a pathological resonance that in short term translates into dissonance. At this point emerges the conflictual relationship which is not constructive but degenerative.

Comparative relations: these are more 'diplomatic' rather than friendship relations. Partners talk about similar things and interests, but they are not really involved in each other's problems. For the same question partners have different schemes of solution. They are divergent, especially when it comes to apply practical solutions within the organizational workplace. Subjects of this intertype relation can cohabit peacefully only when they belong to the same hierarchical level.

Super-Ego relations: this type of relation is characterized by a warm feeling between subjects, although from outside it seems a cold relationship due to a slight distance. The main categorical value that maintains healthy this relation is the mutual respect. When the interaction between the involved subjects intensifies it becomes a source of dissonance.

Illusionary relations: in this kind of relationship consonance seems to be high, but it isn't in reality. There is a divergence between interpretation schemes of the involved subjects. Although they express interests on each other's topics, they force themselves in understanding each other. So, goal achievement is nearly impossible because partners don't understand reasons and motives of each other's action.

Quasi-identical relations: subjects of this relation do not expose the weakness of each other. Nevertheless they see own self as superior being, believing that the other partner is less talented. Both partners are convinced that whatever their partner has achieved, it can be worked upon because the performance leaves much to be desired.

Benefit relations: in benefit relations there are two subjects – the beneficiary and the benefactor. The behavior of the benefactor is very influential on the beneficiary. Thus, the benefactor behaves as a suprasystem. He perceives the beneficiary as somebody who is lower in social position, or as a sub-ordinate system. Relations of this kind can have even emotional impact, but their cycle is active only as long as the benefactor has something to provide, which is needed by the beneficiary.

Supervision relations: like in the benefit relations, also here there are two subjects – the supervisor and the supervisee. In this relation the supervisor assumes the role of the "guardian angel", and the supervisee that of an "object of attention". For the supervisor, the supervisee has incomplete abilities and therefore must be advised. When the supervisee does not respond positively to the aid, the supervisor acts more than before. Thus, it starts a vicious cycle of misunderstanding, in which the supervisee doesn't understand what the supervisor wants, and the supervisor accuses the supervisee for his indifference in front of the "healthy advices".

Aiming the assessment of consonance between the psychological types of group members in table 4.1, the author (Hysa) has made use of the relationship chart between psychological ("personality") types offered by *http://www.socionics.com* (table 4.2). As it can be seen from the table 4.2, there are different possibilities of combination in order to create dyadic relations.

In the specific case of this dissertation, for every group there are six dyadic relations (table 4.3). The following table shows the intertype relations for groups 3, 5, and 6. The only possibility to measure the group cohesiveness in this case is to sum the dyadic relations of group members within each group. But it is known that the group is much

more than the sum of its parts; it is a *gestalt* (Lewin, 1951). Thus, group cohesiveness cannot be understood by singular dyadic relations.

Table 4.3. Intertype relations of groups 3, 5, and 6 of Organizational Behavior course.

Groups	Dyadic relations	Personality types	Intertype relations
G3	ib-el + hy-jo	INFP + IFSJ	Benefit
	ib-el + do-kl	INFP + ISTP	Super-Ego
	ib-el + su-xho	INFP + ETSJ	Conflicting
	hy-jo + do-kl	IFSJ + ISTP	Benefit
	hy-jo + su-xho	IFSJ + ETSJ	Semi-Duality
	do-kl + su-xho	ISTP + ETSJ	Mirror
G5	sa-ar + pr-eu	ENTJ + ITSJ	Illusionary
	sa-ar + da-ol	ENTJ + ENTJ	Identical
	sa-ar + ka-sa	ENTJ + ENTP	Quasi-Identical
	pr-eu + da-ol	ITSJ + ENTJ	Illusionary
	pr-eu + ka-sa	ITSJ + ENTP	Supervision
	da-ol + ka-sa	ENTJ + ENTP	Quasi-Identical
G6	ab-an + gje-ad	ENFJ + ENTJ	Look-a-like
	ab-an + ka-sa	ENFJ + ENTP	Benefit
	ab-an + ho-an	ENFJ + ENTJ	Look-a-like
	gje-ad + ho-an	ENTJ + ENTJ	Identical
	gje-ad + ka-sa	ENTJ + ENTP	Quasi-Identical
	ka-sa + ho-an	ENTP + ENTJ	Quasi-Identical

Source: *Author's elaboration.*

In other words, socionics theory cannot explain the group consonance, but it is limited only on the dyadic consonance (and not on the contextual one). Hence, it can be said that socionics theory can serve as a potential qualitative measure of intertype relations only when the purpose is to evaluate the dyadic consonance between two viable systems in accordance to their psychological/personality types. Therefore, the theory encounters a limit in explaining group cohesiveness.

However, understanding personality types of group members helped the author of this work during his observation process to clarify some aspects of student dynamics within the classroom. For example, understanding who is extrovert and who is introvert explains the intensity of interactionism. On the other hand, the instrument of MBTI® was useful to understand the perceptual world of the participants and their judgment tendencies. Thus, some of the participants base the perception on intuition, and some others on senses. The same with the judgment: some make emotional judgment (based on feelings), and some others make rational judgment (based on thinking). In substance, the analysis of personality types was useful for the whole observation process and especially for the construction of the sociogram. In addition, the analysis of intertype relation explains some aspects of the sociogram. For example it explains why an individual is a first choice for someone and why is a second or third choice for someone else. In order to understand the sociogram, and the intended contribution of intertype relation analysis, the following paragraph provides some details.

4.2. QUANTITATIVE RESEARCH FINDINGS

The quantitative results of this dissertation are a manifestation and a concretization of the different steps explained in the previous chapter (paragraph 3.6.2). Therefore, the revelation and the interpretation of these results will follow again the different steps of the quantitative methodology in order to give systematized answers to research questions and hypothesis aroused in this work.

4.2.1. The results of the Sociometric Test

Figure 4.1. The Bar graph of Group B.3-01 of Organizational Behavior course.

Acceptance | Subjects | Rejection
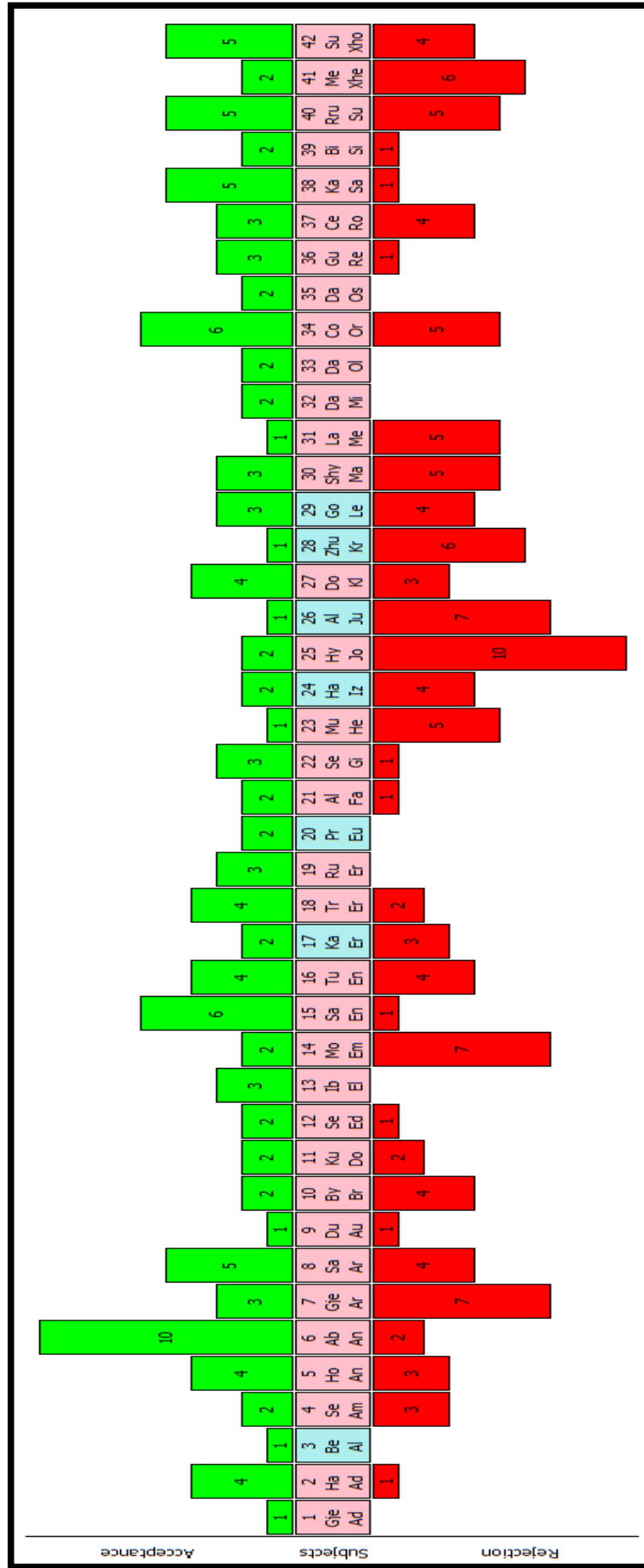
Source: Author's elaboration on GroupDynamics software®

As it is said different times in this work, in order to perform the sociometric test has been used the GroupDynamics software®. The program, after the elaboration of the friendship preferences given by the participants, created a bar graph (figure 4.1), a target graph (figure 4.2), a sociogram (figure 4.3), and the metrics (table 4.4).

The *bar graph* contains the number of subjects and the number of acceptances and rejections for each subject. Translating it with the glossary of the Viable Systems Approach, it means that every participant makes an evaluation of the environment (the class) from which extracts the context (his/her own group of friends). Therefore there is a shift from environment to context and from extended structure to specific structure.

Figure 4.2. The Target graph of Group B.3-01 of Organizational Behavior course.
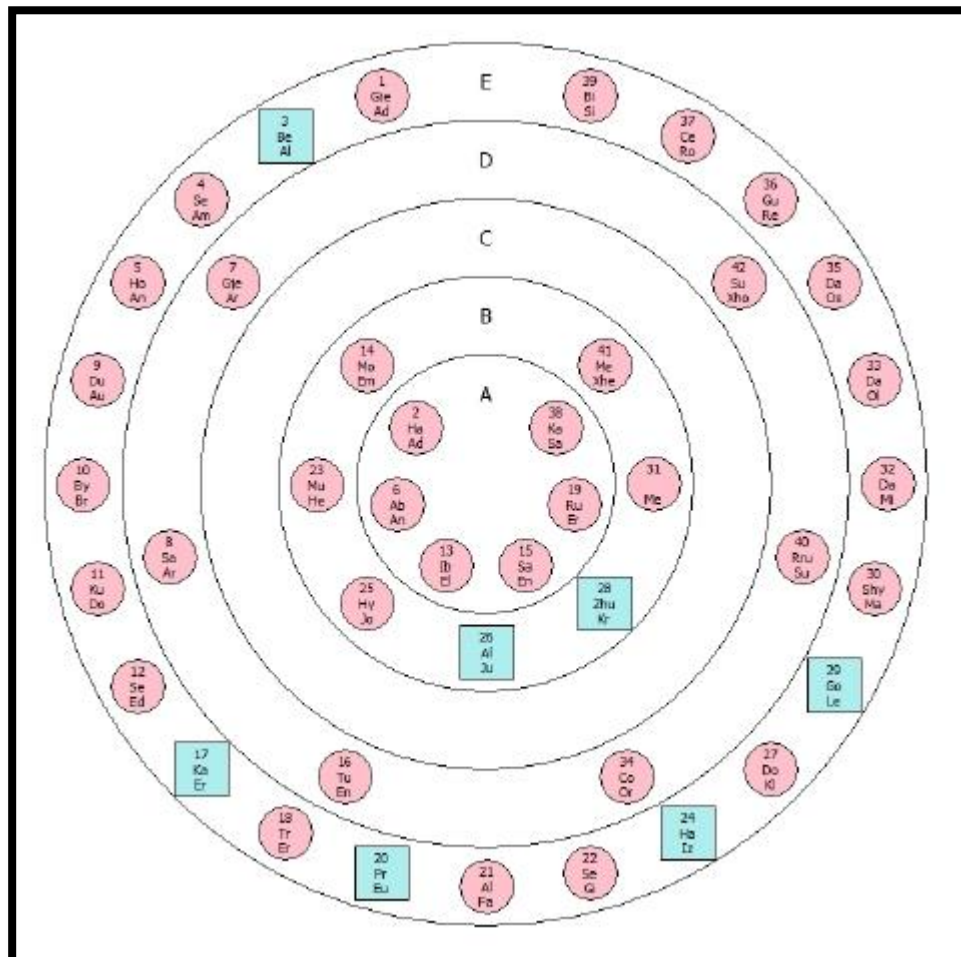
A) Popular
B) Rejected
C) Neglected
D) Controversial
E) Average

Source: Author's elaboration on GroupDynamics software®

Referring to the *target graph*, the program defines subjects in accordance to extroversion, socialization, and leadership. In specific, subjects are categorized as 'popular', 'rejected', 'neglected', 'controversial', and 'average'. Here is important to know the relevant suprasystems. Furthermore, it is also necessary to understand if the classified suprasystems (i.e. the popular subjects) are relevant because of possession of some particular resource (*criticality*), or because they have persuasive abilities (*influence*). Thus, understanding the dimensions of relevance – to wit, if relevance is increased due to the criticality of resources or due to the systemic influence – helps viable systems to found healthy relationships based on the principles of consonance and resonance.

Figure 4.3. The Sociogram of Group B.3-01 of Organizational Behavior course.
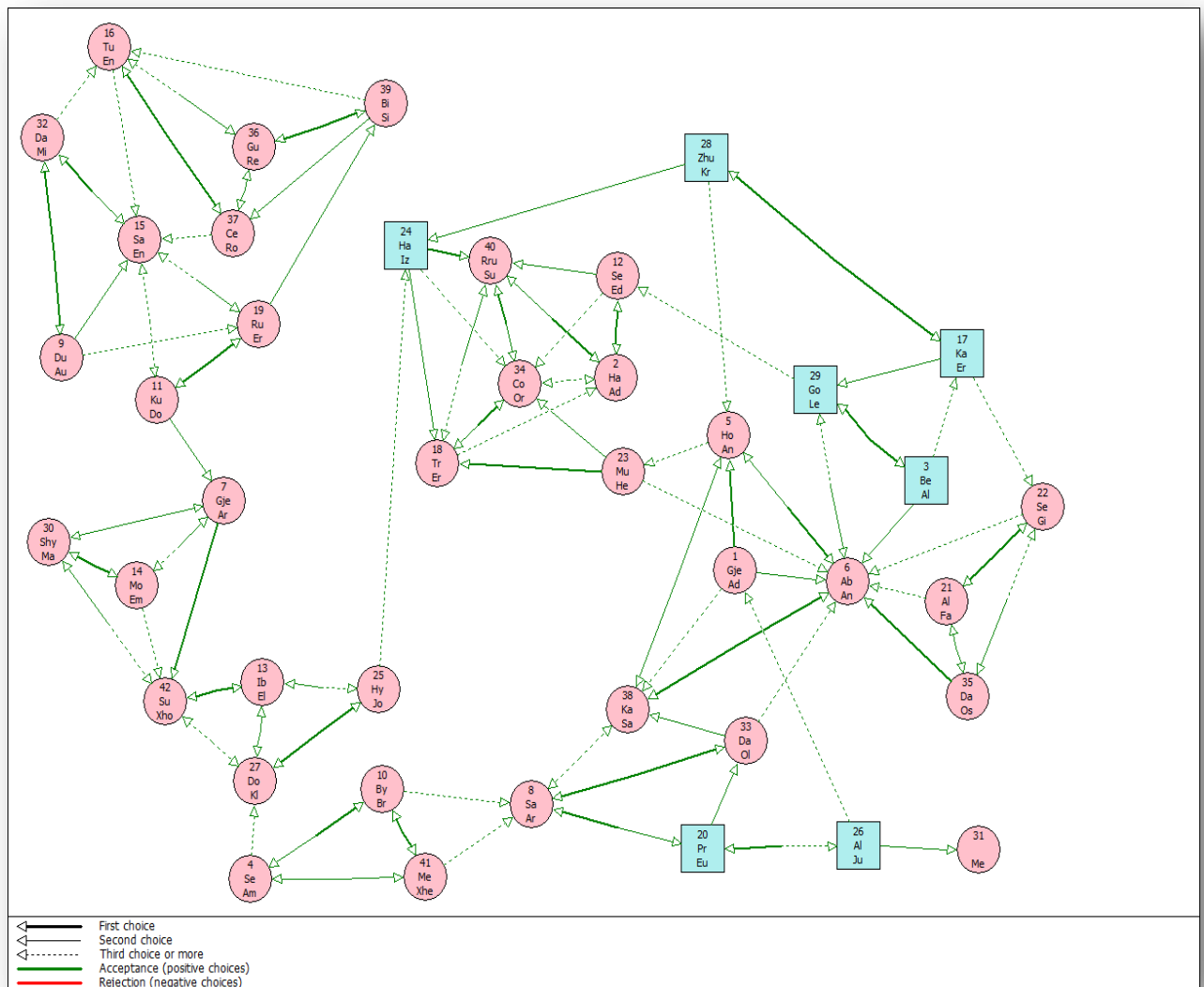
Source: Author's elaboration on GroupDynamics software®

The program offered also the possibility to configure the participants' preferences through the *sociogram*. The sociogram is a graphic representation of social relationships that served in this work to create small groups within the classroom. The social links between subjects are represented by arrows as shown in figure 4.3. There are three levels of choices for every subject: first choice, second choice, and third choice or more. Although the program made all the elaboration, its representation of social links was initially slightly chaotic. As a consequence, the researcher had to intervene in order to classify better the groups, respecting their choices[62]. In the process of group formation through the sociogram, the author was helped by the observation process and the personality test. The sociogram was one of the "tangible" points of this work because it was responsible for group formation process. It was important as well for the Picture Apperception Value Test (PAVT) because within the groups created with the sociogram was tested the consonance.

At last, the GroupDynamics software® provided also a table containing participants' metrics (table 4.4). The metrics show acceptances/rejections received/given based on value and density. Considering the above parameters, it can be said that the program ranked participants in accordance to their leadership traits and popularity. Said with VSA's words, the ranked list indicates in descending order the most active and influential information varieties.

In conclusion, the sociometric test satisfied a double perspective: one singular and one other plural. The singular or individual perspective is based on metrics. So, personal choices given and received manifest the individual's sociometric status. On the other hand, the plural or group perspective represents the group's sociometric status or its relational structure (Corbetta 1999, 278-281). The relational structure of the group is designed by the sociogram.

4.2.2. The results of the Picture Apperception Value Test (PAVT)

The results of the test of consonance, or the cohesiveness degree within every participating group, are expressed through the *relative standard deviation ration* (RSD$_R$).

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[62] Figure 4.3 is not an automatic representation of the software, but a combination of it with the human intervention (i.e. the intervention of the author). In other words, figure 4.3 is a mixture of high-tech (the machine) with high-touch (the human).

Table 4.4. The metrics of Group B.3-01 of Organizational Behavior course.

N.	Surname	Name	Acceptance Received Value	Acceptance Received Density	Acceptance Given Value	Acceptance Given Density	Rejection Received Value	Rejection Received Density	Rejection Given Value	Rejection Given Density
6	Ab	An	10	0.244	3	0.073	2	0.049	3	0.073
34	Co	Or	6	0.146	3	0.073	5	0.122	3	0.073
15	Sa	En	6	0.146	3	0.073	1	0.024	3	0.073
38	Ka	Sa	5	0.122	3	0.073	1	0.024	3	0.073
8	Sa	Ar	5	0.122	3	0.073	4	0.098	3	0.073
42	Su	Xho	5	0.122	3	0.073	4	0.098	3	0.073
40	Rru	Su	5	0.122	3	0.073	5	0.122	3	0.073
2	Ha	Ad	4	0.098	3	0.073	1	0.024	3	0.073
5	Ho	An	4	0.098	3	0.073	3	0.073	3	0.073
16	Tu	En	4	0.098	3	0.073	4	0.098	3	0.073
27	Do	Kl	4	0.098	3	0.073	3	0.073	3	0.073
18	Tr	Er	4	0.098	3	0.073	2	0.049	3	0.073
19	Ru	Er	3	0.073	3	0.073	0	0.000	3	0.073
37	Ce	Ro	3	0.073	3	0.073	4	0.098	3	0.073
22	Se	Gi	3	0.073	3	0.073	1	0.024	3	0.073
7	Gje	Ar	3	0.073	3	0.073	7	0.171	3	0.073
29	Go	Le	3	0.073	3	0.073	4	0.098	3	0.073
30	Shy	Ma	3	0.073	3	0.073	5	0.122	3	0.073
36	Gu	Re	3	0.073	3	0.073	1	0.024	3	0.073
13	Ib	El	3	0.073	3	0.073	0	0.000	3	0.073
4	Se	Am	2	0.049	3	0.073	3	0.073	3	0.073
10	By	Br	2	0.049	3	0.073	4	0.098	3	0.073
17	Ka	Er	2	0.049	3	0.073	3	0.073	3	0.073
24	Ha	Iz	2	0.049	3	0.073	4	0.098	3	0.073
21	Al	Fa	2	0.049	3	0.073	1	0.024	3	0.073
33	Da	Ol	2	0.049	3	0.073	0	0.000	3	0.073
20	Pr	Eu	2	0.049	3	0.073	0	0.000	3	0.073
35	Da	Os	2	0.049	3	0.073	0	0.000	3	0.073
25	Hy	Jo	2	0.049	3	0.073	10	0.244	3	0.073
11	Ku	Do	2	0.049	3	0.073	2	0.049	3	0.073
14	Mo	Em	2	0.049	3	0.073	7	0.171	3	0.073
39	Bi	Si	2	0.049	3	0.073	1	0.024	3	0.073
12	Se	Ed	2	0.049	3	0.073	1	0.024	3	0.073
41	Me	Xhe	2	0.049	3	0.073	6	0.146	3	0.073
32	Da	Mi	2	0.049	3	0.073	0	0.000	3	0.073
3	Be	Al	1	0.024	3	0.073	0	0.000	3	0.073
9	Du	Au	1	0.024	3	0.073	1	0.024	3	0.073
1	Gje	Ad	1	0.024	3	0.073	0	0.000	3	0.073
26	Al	Ju	1	0.024	3	0.073	7	0.171	3	0.073
28	Zhu	Kr	1	0.024	3	0.073	6	0.146	3	0.073
23	Mu	He	1	0.024	3	0.073	5	0.122	3	0.073
31		Me	1	0.024	0	0.000	5	0.122	0	0.000

Source: Author's elaboration on GroupDynamics software®

The following table contains the synthesis results of the test of consonance within groups in accordance to macro-categorical values of each group member.

Table 4.5. The results of the Test of Consonance.

		Groups						
		G1	G2	G3	G4	G5	G6	G7
Statistical Measures	**Mean**	68.25	79.3666	84.0833	74.6333	76.5416	75.4166	78.65
	SD	24.0416	22.7354	19.5320	23.5287	17.3517	20.4694	22.2934
	CV	0.3522	0.2864	**0.2322**	0.3152	**0.2266**	**0.2714**	0.2821
	SD_{min}	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SD_{max}	44.2718	42.00	44.2718	42.00	44.2718	44.2718	44.2718
	RSD_R	0.5430	0.5413	**0.4411**	0.5602	**0.3919**	**0.4623**	0.5035

Source: *Author's elaboration.*

As it can be seen by table 4.5, the table's dimensions are the participating groups and the (final) statistical measures. For each one of the groups created firstly through the sociometric test, it was measured – respecting the answers on the scale of semantic differential given by the participants during the *picture apperception value test*, in accordance to their macro-categorical values – the final mean, the final standard deviation (SD), the final coefficient of variation (CV), the final minimum standard deviation (SD_{min}), the final maximum standard deviation (SD_{max}), and the final relative standard deviation ratio (RSD_R).

The numerical values of averages of every group were useful for the successive calculation of standard deviation. In turn, the standard deviation was indispensable for measuring the consonance through the *relative standard deviation ratio* (RSD_R), which was calculated as a fraction between SD and SD_{max}. When there is a particular set of data,

the relative standard deviation ratio, $RSD_R (i , n)$, provides a natural basis for assessing the plausibility of different standard deviation values. The lower the RSD_R, the higher the consonance. Because the RSD_R varies between 0 and 1, the most consonant groups are those with $RSD_R \leq 0.5$. Specifically, there were considered as consonant only the groups with $0 \leq RSD_R (i , n) \leq \frac{1}{2}$. In addition, SD was also necessary for measuring the coefficient of variation (CV), obtained as a division between SD and Mean (average). The CV shows the dispersion of data in a data series around the mean. It is a useful statistic tool for comparing the degree of variation from one data series to another, even if the means are drastically different from one another. Lower the CV, the higher the cohesiveness. The *coefficient of variation* was supportive for the results of the *relative standard deviation ratio* (see table 4.5).

As shown in table 4.5, the most consonant groups are group number three (G3), group number five (G5), and group number six (G6), referring to the results of RSD_R (and the supportive results of CV).

The consequences of the above results, which show the consonance among groups (i.e. the group cohesiveness), are two:

1. First, they are a valid answer for the research question one (RQ1) and the hypothesis one (H1) (see paragraph 3.4). Therefore, the Viable Systems Approach (VSA), through the systemic driver of *Consonance*, measures and explains the cohesiveness between members within small groups in accordance to their system of values.

2. Second, they indicate the appropriate groups to be taken into consideration for the *positive conformity experiment*. These are the most cohesive groups, because the experiment in this work, differently from Asch's one, was ideated to be performed on groups (not social aggregates), and concretely on consonant groups.

4.2.3. The results of the Revised Life Orientation Test (LOT-R)

This is the penultimate stage of the research. The test of optimism served to identify within the consonant groups, selected before through the sociometric test and the PAVT, the most pessimistic members (one for each group) on which to exert the positive social influence in the positive conformity experiment. In table 4.6 are summarized the results of

LOT-R for the three consonant groups. The individuals with text bold and underlined text are the experimental targets or the individuals to be positively influenced in the next phase of the positive conformity experiment.

Table 4.6. The test of optimism.

Groups	Members' ID	Optimism's Score
G3	**<u>ib-el</u>**	**<u>11</u>**
	hy-jo	15
	do-kl	13
	su-xho	21
G5	**<u>sa-ar</u>**	**<u>10</u>**
	pr-eu	14
	da-ol	15
	ka-sa	19
G6	**<u>gje-ad</u>**	**<u>11</u>**
	ab-an	14
	ka-sa	19
	ho-an	14

Source: *Author's elaboration.*

4.2.4. The results of the Positive Conformity Experiment

As it was explained in the experimental procedure (see paragraph 3.6.2.4), the experiment was planned to be executed in eight phases. In every phase, to the participants were shown cards containing smiling, sad, and neutral faces, on which they had to make a judgment. One participant per group has been considered as cavy/naïve (the less optimistic person) on which to exercise the influence by the confederates (the more optimistic

persons). Table 4.7 is a summary of the results offered by the positive conformity experiment.

Table 4.7. The outcomes of the Positive Conformity Experiment.

	Naïves & Confederates	Members' ID	Conformity behavior
G3	Naïve	**ib-el**	**YES/NO**
	Confederates	hy-jo	
		do-kl	
		su-xho	
G5	Naïve	**sa-ar**	**YES**
	Confederates	pr-eu	
		da-ol	
		ka-sa	
G6	Naïve	**gje-ad**	**NO**
	Confederates	ab-an	
		ka-sa	
		ho-an	

Source: *Author's elaboration.*

In order to make an interpretation of the results of table 4.7, it is opportune to analyze groups one by one, considering again the figure 3.2.

Starting from group number three (G3), results seems to be contradictory. The influence of confederates of G3 on the naïve (with identification code "ib-el") was successful although incomplete. Up to the sixth phase of the experiment the naïve resisted to the influence of group members. At the sixth stage the naïve conformed to group's opinion (optimism). The conformity continued also with the next stage, but in the last

stage (the eighth one) the naïve changed opinion again expressing a lower degree of optimism comparing with that of confederates. Probably this situation can be explained with the theory of *Information Variety* (Barile, 2011).

Figure 3.2. Smiling/sad/neutral faces of the positive conformity experiment.

| +2 | +1 | 0 | -1 | -2 | 0 | 0 | +1 | +1 |
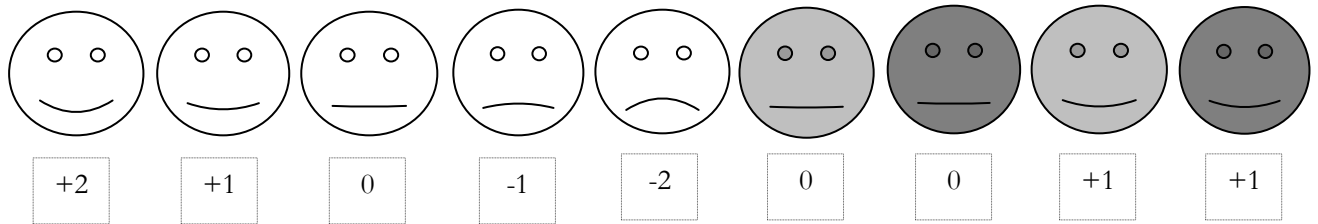
Source: *Author's elaboration.*

Every group member is a viable system or an information variety composed by information units, interpretation schemes, and categorical values. The last ones are responsible for the resistance towards change. Therefore, the categorical values cushion the social influence by returning the individual in the early state. When an individual conforms only in terms of public compliance and not in those of private acceptance (i.e. identification or internalization), then it is probable that in a second moment the individual shows a non-conformity. This happens when the belief system of an individual remains untouched owing to the resistance posed by categorical values. Nevertheless, the aim of positive conformity experiment, or in general, the aim of social influence based on positive attitudes is not to change somebody within and between few moments. The initial efforts have as a scope to "obligate" through the group pressure the individual to conform, with the hope that the conformity of the moment becomes a "subconscious" mechanism[63] of the future. Following this trend, the public compliance of the present becomes a private acceptance in the future. However, returning on the experiment with the group three, it can be sad that the conformity was achieved, even though a non-conformity act was shown again later by the naïve.

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[63] Transforming a pessimistic attitude into a positive one does not mean that individuals should never have a pessimistic view on something; otherwise it could be a pathological situation like there is for example the continuous conformity (a concept explained before).

Interesting is the post-experiment explanation of the cavy about the reasons why she conformed. She didn't admit that her conformity behavior was caused by the group pressure. In her opinion it was the color change of the smiling face the reason why she conformed. Furthermore she interpreted changes in color face like changes in water's level within a glass. So, her opinion coincides with the second variant of interpretation about the colored face (as explained in chapter III), that is the point of reference. In other words, a white face has been perceived by the naïve as an empty glass, despite of the smiling degree that was designed on the face. Passing then from a white face to a grey face, the naïve perceives an increment of optimism, because initially the glass was empty (i.e. the white face) and now is full (i.e. the grey face).

Group five (G5) shows positive results. In fact the naïve (with identification code "sa-ar") resisted until the end of the experiment and was yielded to the group pressure only in the last stage (stage number eight). However, the tendency of changes in opinion was seen since the seventh stage, when the naïve scored the smile degree of the seventh phase, which was the same with the first stage, with a different score, comparing it with the score given to the same smile degree in the first stage. In stage one the naïve scored the second smiling face with "0", and in stage seven the same face was scored with "+1". Although the group evaluated the face of stage seven with "+2", and the naïve evaluated it with "+1", the optimistic perspective of the naïve changed from the precedent perspectives, because the same face was assessed with a minor score previously and with a greater one successively. Nonetheless, at the eighth stage the naïve conformed totally with group's opinion. In synthesis, the individual of group five conformed to the group's optimistic orientation.

Finally, the cavy of group six (G6) (with identification code "gje-ad") showed a persistent resistance and didn't conformed in any case to the group's opinion. Thus, in this group the positive conformity was not recorded. It is interesting to show here that the naïve of group six who didn't conform has the same personality type (i.e. ENTJ) of the naïve of group five who conform. In other words, two individuals with the same personality type showed different kinds of conformity behavior; one conformed to the group's opinion, and the other didn't.

In conclusion, the above experiment showed that the positive conformity is possible. This is a fundamental result of this work because gives an answer to the research question two (RQ2) and hypothesis two (H2). Thus, given the appropriate conditions, the positive conformity can be stimulated by the positive attitudes (e.g. optimism) of group members, and can be achieved in consonant groups. According to the experimental results, it can be affirmed that the conformity is a general law, in the sense that the conformity behavior occurs both toward negative and positive attitudes.

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CHAPTER V

Discussion

5.1. SUMMARY OF THE RESEARCH FINDINGS

This dissertation has presented qualitative and quantitative results connected with the research questions and the hypothesis aroused by the author of this work. Therefore, it is scientifically convenient to represent a summary and an interpretation of the results as a response to the research questions and hypothesis.

Research Question 1 (RQ 1):

Can the group cohesiveness be measured and explained by consonance?

Hypothesis 1 (H 1):

Consonance explains the cohesiveness within groups by measuring the interpersonal attraction between group members in accordance to their system of values.

It is interesting here to remember that the *Consonance* represents simultaneously both a phenomenon and an indicator of social relations. During the literature review was shown that the consonance (comparatively) coincides with the group cohesiveness. This deduction was possible due to the mathematical transitive property, in grants to which A = B, B = C, and as a consequence A = C. So, because **cohesiveness** can be identified mainly with the **interpersonal attraction**, and because **consonance** is exactly the **interpersonal attraction** that occurs between viable systems conceived as information varieties (owing to categorical values, interpretation schemes, and information units), then the **consonance** refers directly to the **cohesiveness** between viable systems (individuals, groups, organizations, communities, etc). This theoretical perspective was reinforced by the results of the *picture apperception values test* (PAVT) which demonstrated that consonance can be a valid indicator of group cohesiveness. Once the groups were created through the sociometric test, the consonance was measured through the *relative standard deviation*

ratio (RSD$_R$). Because the RSD$_R$ (*i* , *n*) varies from 0 to 1 for a generic group *i* with *n* members – to wit, $0 \leq RSD_R$ (*i* , *n*) ≤ 1, $\forall$ *i* and $\forall$ *n* finite – the consonance was supported for those groups that manifested a relative standard deviation: $0 \leq RSD_R$ (i , n) $\leq \frac{1}{2}$. There were three groups from seven in total that showed supportive levels of consonance. In other words, the consonance was supported in 3 cases from 7 (.42).

The qualitative findings were useful during the sociometric test, especially for the construction of the sociogram. However, the qualitative results were limited within dyadic relations that are not sufficient to consider the group cohesiveness, which for its nature is based in many-to-many relations.

Research Question 2 (RQ 2):

What is the relationship between the social influence based on optimism, considered the latter as a positive component of psychological capital (PsyCap), and the conformity behavior toward it?

Hypothesis 2 (H 2):

Because the conformity might be considered as a general law, the social influence/pressure can cause conformity toward negative norms/attitudes, like there is true the opposite (at least in consonant groups).

The second research question (RQ2) and the second hypothesis (H2) are connected directly with the *positive conformity experiment*. The experiment showed that exists a correlation between the *positive social influence* (i.e. the influence based on optimism or other positive attitudes of psychological capital, PsyCap) and the positive conformity (i.e. the conformity towards optimism, or other positive attitudes of PsyCap). This positive correlation was possible for 2/3 of the experimental cases ($\rho_{x,y} = 0.66$). The results affirm also the H2, considering the conformity as a general law and the individual as a particle in motion, where its motion depends on the kind of forces (negative or positive) exercised on the particle, and defining consequently the orbits of particle's movement.

5.2. IMPLICATIONS: ACADEMIC AND MANAGERIAL

Academic implications for organizational behavior scholars and viable systems ones:

► To organizational behavior this work provides, taking into account context and scope, the positive perspective of the conformity concept within groups, until now seen by the consolidated literature mainly as a lack of independence of individual's behavior, or at least not defined directly (even when attempts are made) as a positive component of group dynamics;

► Next, an innovative aspect is the consideration of groups as viable systems, managing them through a systems perspective with the principles and postulates of the Viable Systems Approach;

► In addition, this study offers to the community of organizational behavior scholars a new indicator for measuring group cohesiveness (i.e. the consonance);

► Through this work is reinforced the intra-systemic focus of organizations, certifying the VSA's concepts within groups;

► To VSA's community, including also social psychologists and organizational behavior scholars, a value added is given by the new method (i.e. the PAVT) of measuring group consonance;

► Furthermore, with this study the macro-categorical values – derived from a list of categorical values in a study made by Barile and colleagues (Barile, 2009, 2011) – find their first empirical application as universal human values in general, and in the field of organizational behavior in particular.

Managerial implications for organizational behavior scholars and viable systems ones:

The theoretical and the pragmatic perspective of this work can inspire the managers of human resources in any organization to consider the compatibility between human resources and their cohesiveness in a new way: the way of the Viable Systems Approach. This dissertation opens a new horizon for team leaders that want a harmonic social cohesion based on categorical values and general interpretation schemes, and a productive task cohesion based on synthesis interpretation schemes and information units. Through the VSA's conceptual matrix a new perspective of group formation and development is given.

The pragmatic perspective is based concretely in the way managers can measure group cohesiveness; this is the intertwined way of the *picture apperception value test* with that of

the *sociometric test*. Another important aspect is that of the positive conformity. With the intervention of the positive attitudes managers can create a positive workplace where human resources can excellently perform, enhancing as well the subjective well-being.

5.3. LIMITATIONS

> *A limit is the only moment of creativity, and the only opportunity for a paradigm shift.*
>
> Imixh Asyh

When interpreting the results of this study, readers should take into account the following limitations, which may affect the generalizability of the results.

A considerable limit of this research was the number of subjects which composed the sample and the non-normal distribution between genders of participants. There were 41 students that participated in questionnaires and experiments (from a population of about 400 students), from which 7 male and 34 female.

During the execution of PAVT, LOT-R, and MBTI, situational factors, such as the individual's emotional and mood state of the moment, can make deviations from a normal state. So, the results might be affected.

Another limit connected with the conformity experiment is that only three groups from seven were evaluated eligible for the final experiment. Hence, there are few groups from which to draw reliable conclusions. In addition, it shouldn't be considered only the conformity of the moment because the individual can manifest a conformist behavior due to the pressure of the moment, but later (in a second moment) may change his mind due to the resistance posed by the categorical values. As a consequence, the non repetition of the experiment with the same group in a second moment might be assessed as a limit.

There is also present a cultural limit. All the students belonging to the sample are of Albanian origin and, as a consequence, reflect the features of Albanian culture. Therefore the results cannot be generalized without making further tests and experiments in other cultures.

During the time many people become aware (regardless of the amount) that something goes wrong with them. This is an important fact for those who aspire the continuous

improvement (the Japanese call it "*kaizen*"). It is the same with a PhD dissertation. Because the author of this work cannot identify (not for the absence of his will) other limitations at the moment, he wants to borrow other perceptions from concerned observers in order to extend the viewpoints. Therefore, readers are pleased to show limitations as much as they can with the goal to make science more effective.

5.4. CONCLUSIONS

In this work it was made an attempt to describe and interpret the dynamics of groups in a systems perspective. It was made use of the Viable Systems Approach to manage group dynamics within organizations, with particular focus on group cohesiveness and consonance, group resonance, positive conformity, etc.

The present dissertation manifested a methodological route that braided together different methods and instruments. The most important one was the *picture apperception value test* (PAVT). The test was a mixture of the thematic test of personality with the value survey based on macro-categorical values. It showed a new and innovative way of measuring consonance and group cohesiveness. Its combination with the sociometric test was really potent on creating groups within which to study the interpersonal attraction.

The second most important aspect of this work was the new perspective given to the concept of conformity. With the intervention of the independent variable "positive social influence" was possible to modify the conformity behavior of some participants, and consequently achieving the "positive conformity" as an effect.

In synthesis, considering also the literature review, it is almost obligatory to study the dynamics of groups in a systems perspective. The Viable Systems Approach (VSA) was a solution in this sense, but taking into account the theory of equifinality other systems approaches can be useful too.

The consonance, as one of the most powerful drivers of VSA, has proven to be simultaneously a phenomenon in itself (i.e. a "gravity law" of interpersonal attraction) and also a valid indicator of group cohesiveness.

Finally, human resources can help each other, by the subjective power of positive influence, to conform towards positive attitudes in order to have a greater performance and satisfaction in the workplace.

5.5. RECCOMENDATIONS FOR FUTURE RESEARCH

This work, as can be easily understood, cannot exhaust all the aspects of group dynamics. Nonetheless, it can be a spark of ulterior ideas and ulterior horizons to be explored. The following are some recommendations for future research.

1. Applying the PAVT for measuring social cohesion in terms both of categorical values (know why) and general interpretation schemes (Meta-know how);

2. Applying PAVT for measuring task cohesion in terms of synthesis interpretation schemes (know how) and information units (know what);

3. Using the *picture apperception value test* (PAVT) as an instrument of strategic marketing for clustering customers in accordance to their system of values, and thus defining the market segmentation;

4. Understanding macroeconomics consumer trends by classifying consumers through their categorical values utilizing the PAVT in order to manage better the impact that the national culture (based on the system of values) has on the marginal propensity to consume, with respect to the disposable income;

5. Accomplishing the positive conformity experiment also with the intervention of the experimenter which can play the role of the formal leader, whom influence can serve as a moderate variable;

6. Measuring the positive conformity for other components of PsyCap and for all them together;

7. Repeating the positive conformity experiment in other cultures;

8. Repeating the PAVT and the positive conformity experiment with a larger sample;

9. Understanding how the dyadic consonance between an individual and different group members influences the individual's organizational commitment. Understanding also how the individual's consonance with the group as a whole influence his organizational commitment;

10. Measuring the correlation between Maslow's third scale of his hierarchy of human needs (i.e. the social/belonging needs) and the conformity behavior of individuals with unsatisfied social needs.

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APPENDIX A: **The personality type questionnaire**

(Source: www.humanmetrics.com)

Jung Typology Test™

This free test is based on Carl Jung's and Isabel Briggs Myers' typological approach to personality *****.

Upon completion of the questionnaire, you will:

- Obtain your 4-letter type formula according to Carl Jung's and Isabel Briggs Myers' typology, along with the strengths of preferences and the description of your personality type
- Discover careers and occupations most suitable for your personality type along with examples of educational institutions where you can get a relevant degree or training
- See which famous personalities share your type
- Access free career development resources and learn about premium ones
- Be able to use the results of this test as an input into the Jung Marriage Test™ and the Demo of the Marriage Test™, to assess your compatibility with your long-term romantic partner

Instructions: When responding to the statements, of the two responses please choose the one you agree with most. If you are not sure how to answer, make your choice based on your most typical response or feeling in the given situation. To get a reliable result, please respond to all questions. When you are done with answering, press the "Score It!" button at the bottom of the screen. **Scroll down to the questionnaire!**

* Humanmetrics Jung Typology Test™ instrument uses methodology, questionnaire, scoring and software that are proprietary to Humanmetrics, and shall not be confused with the MBTI®, Myers-Briggs® and/or Myers-Briggs Type Indicator® instrument offered by CPP, Inc. Humanmetrics is not affiliated with CPP, Inc.

1. You are almost never late for your appointments
   ○ YES ○ NO
2. You like to be engaged in an active and fast-paced job
   ○ YES ○ NO
3. You enjoy having a wide circle of acquaintances
   ○ YES ○ NO
4. You feel involved when watching TV soaps
   ○ YES ○ NO
5. You are usually the first to react to a sudden event, such as the telephone ringing or unexpected question
   ○ YES ○ NO
6. You are more interested in a general idea than in the details of its realization
   ○ YES ○ NO

7. You tend to be unbiased even if this might endanger
   your good relations with people

   ○ YES ○ NO

8. Strict observance of the established rules is likely to prevent a good outcome

   ○ YES ○ NO

9. It's difficult to get you excited

   ○ YES ○ NO

10. It is in your nature to assume responsibility

    ○ YES ○ NO

11. You often think about humankind and its destiny

    ○ YES ○ NO

12. You believe the best decision is one that can be easily changed

    ○ YES ○ NO

13. Objective criticism is always useful in any activity

    ○ YES ○ NO

14. You prefer to act immediately rather than speculate
    about various options

    ○ YES ○ NO

15. You trust reason rather than feelings

    ○ YES ○ NO

16. You are inclined to rely more on improvisation
    than on prior planning

    ○ YES ○ NO

17. You spend your leisure time actively socializing
    with a group of people, attending parties, shopping, etc.

    ○ YES ○ NO

18. You usually plan your actions in advance

    ○ YES ○ NO

19. Your actions are frequently influenced by emotions

    ○ YES ○ NO

20. You are a person somewhat reserved and distant in communication

    ○ YES ○ NO

21. You know how to put every minute of your
    time to good purpose

    ○ YES ○ NO

22. You readily help people while asking nothing in return

    ○ YES ○ NO

23. You often contemplate the complexity of life

    ○ YES ○ NO

24. After prolonged socializing you feel you need
    to get away and be alone

    ○ YES ○ NO

25. You often do jobs in a hurry

    ○ YES   ○ NO

26. You easily see the general principle behind specific occurrences

    ○ YES   ○ NO

27. You frequently and easily express your feelings and emotions

    ○ YES   ○ NO

28. You find it difficult to speak loudly

    ○ YES   ○ NO

29. You get bored if you have to read theoretical books

    ○ YES   ○ NO

30. You tend to sympathize with other people

    ○ YES   ○ NO

31. You value justice higher than mercy

    ○ YES   ○ NO

32. You rapidly get involved in the social life of a new workplace

    ○ YES   ○ NO

33. The more people with whom you speak, the better you feel

    ○ YES   ○ NO

34. You tend to rely on your experience rather than on theoretical alternatives

    ○ YES   ○ NO

35. You like to keep a check on how things are progressing

    ○ YES   ○ NO

36. You easily empathize with the concerns of other people

    ○ YES   ○ NO

37. You often prefer to read a book than go to a party

    ○ YES   ○ NO

38. You enjoy being at the center of events in which other people are directly involved

    ○ YES   ○ NO

39. You are more inclined to experiment than to follow familiar approaches

    ○ YES   ○ NO

40. You avoid being bound by obligations

    ○ YES   ○ NO

41. You are strongly touched by stories about people's troubles

    ○ YES   ○ NO

42. Deadlines seem to you to be of relative, rather than absolute, importance

    ○ YES   ○ NO

43. You prefer to isolate yourself from outside noises

   ○ YES   ○ NO

44. It's essential for you to try things with your own hands

   ○ YES   ○ NO

45. You think that almost everything can be analyzed

   ○ YES   ○ NO

46. Failing to complete your task on time makes you rather uncomfortable

   ○ YES   ○ NO

47. You take pleasure in putting things in order

   ○ YES   ○ NO

48. You feel at ease in a crowd

   ○ YES   ○ NO

49. You have good control over your desires and temptations

   ○ YES   ○ NO

50. You easily understand new theoretical principles

   ○ YES   ○ NO

51. The process of searching for a solution is more important to you than the solution itself

   ○ YES   ○ NO

52. You usually place yourself nearer to the side than in the center of a room

   ○ YES   ○ NO

53. When solving a problem you would rather follow a familiar approach than seek a new one

   ○ YES   ○ NO

54. You try to stand firmly by your principles

   ○ YES   ○ NO

55. A thirst for adventure is close to your heart

   ○ YES   ○ NO

56. You prefer meeting in small groups over interaction with lots of people

   ○ YES   ○ NO

57. When considering a situation you pay more attention to the current situation and less to a possible sequence of events

   ○ YES   ○ NO

58. When solving a problem you consider the rational approach to be the best

   ○ YES   ○ NO

59. You find it difficult to talk about your feelings

   ○ YES   ○ NO

60. You often spend time thinking of how things could be improved

   ○ YES   ○ NO

61. Your decisions are based more on the feelings
of a moment than on the thorough planning

○ YES ○ NO

62. You prefer to spend your leisure time alone
or relaxing in a tranquil atmosphere

○ YES ○ NO

63. You feel more comfortable sticking to
conventional ways

○ YES ○ NO

64. You are easily affected by strong emotions

○ YES ○ NO

65. You are always looking for opportunities

○ YES ○ NO

66. Your desk, workbench, etc. is usually neat and orderly

○ YES ○ NO

67. As a rule, current preoccupations worry
you more than your future plans

○ YES ○ NO

68. You get pleasure from solitary walks

○ YES ○ NO

69. It is easy for you to communicate in social situations

○ YES ○ NO

70. You are consistent in your habits

○ YES ○ NO

71. You willingly involve yourself in matters
which engage your sympathies

○ YES ○ NO

72. You easily perceive various ways
in which events could develop

○ YES ○ NO

Your age: Gender:

[▼]   [▼]

[Score It!]

APPENDIX B: **The questionnaire of the Sociometric Test**

Serial number	Name + Surname
1	Member #
2	Member #
3	Member #
4	Member #
5	Member #
6	Member #
7	Member #
8	Member #
9	Member #
10	Member #
11	Member #
12	Member #
13	Member #
14	Member #
15	Member #
16	Member #
17	Member #
18	Member #
19	Member #
20	Member #
21	Member #
22	Member #
23	Member #
24	Member #
25	Member #
26	Member #
27	Member #
28	Member #
29	Member #
30	Member #
31	Member #
32	Member #
33	Member #
34	Member #
35	Member #
36	Member #
37	Member #
38	Member #
39	Member #
40	Member #
41	Member #

Guidelines for the sociometric test
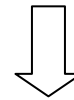
!!! In page number 1 you will find the naming list of Group B.3-01.

!!! The serial number will be used to codify further the subjects in order to maintain their privacy.

!!! In page number 2 there are two sessions: one for the questions and the other for the answers. You must read page number 2 in order to understand the logic of work. Read it carefully and then start the work.

!!! This is a sociometric test in accordance to its creator, Jacob Moreno. It is a simple and useful test. Furthermore it is not time consuming.

!!! Anyone of you is a value added for the science; therefore my thanks are personal for each one of the participants.

Sincerely,

Xhimi Hysa, *PhD Candidate*

Answer to the following questions making your free choices respecting a hierarchy of preferences. After each question read the instructions and then give your answer in the respective session.

SESSION OF QUESTIONS

Question – 1 :

What are your three best classroom friends with whom you feel more harmony?

- chose your friends in a hierarchic order in base of your personal preferences;

- you must chose three friends in an order a, b, c;

- where: a = first order preference; b = second order preference; c = third order preference.

Question – 2 :

What are your three classroom friends you tend to avoid the most, or to be socialized as little you can?

- chose your friends in a hierarchic order starting from them you prefer to avoid the most;

- you must chose three friends in an order a, b, c;

- where: a = first order preference; b = second order preference; c = third order preference.

SESSION OF ANSWERS

Answer – 1 :	**Answer – 2 :**
a) Name Surname _____	a) Name Surname _____
b) Name Surname _____	b) Name Surname _____
c) Name Surname _____	c) Name Surname _____

APPENDIX C: **The macro-categorical values**

ETHICAL CONDUCT		
from being abusive…	1 2 3 4 5 6 7	*…to being respectful and responsible*

DESIRE FOR SUCCESS		
from being indolent and passive…	1 2 3 4 5 6 7	*…to being supernatural and delirious*

SENSE OF DUTY		
from indifference…	1 2 3 4 5 6 7	*…to "self-sacrifice"*

FOCUS ON SOCIAL RELATIONSHIPS		
from egoism and individualism…	1 2 3 4 5 6 7	*…to extreme altruism*

SEEKING CONSENSUS		
from personal image and credibility…	1 2 3 4 5 6 7	*…to usefulness for the community*

OPPORTUNISTIC BEHAVIOR		
from abusing with power/authority for personal gains…	1 2 3 4 5 6 7	*…to dedicating yourself to the accomplishments of organizational goals*

APPENDIX D: **The Picture Apperception Value Test (PAVT)**

PICTURES	MACRO-CATEGORICAL VALUES	SCALE (Answers)						
1	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
2	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
3	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
4	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
5	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7

6	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7
	SENSE OF DUTY	1 2 3 4 5 6 7
	FOCUS ON SOCIAL RELATIONSHIPS	1 2 3 4 5 6 7
	SEEKING CONSENSUS	1 2 3 4 5 6 7
	OPPORTUNISTIC BEHAVIOR	1 2 3 4 5 6 7
7	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7
	SENSE OF DUTY	1 2 3 4 5 6 7
	FOCUS ON SOCIAL RELATIONSHIPS	1 2 3 4 5 6 7
	SEEKING CONSENSUS	1 2 3 4 5 6 7
	OPPORTUNISTIC BEHAVIOR	1 2 3 4 5 6 7
8	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7
	SENSE OF DUTY	1 2 3 4 5 6 7
	FOCUS ON SOCIAL RELATIONSHIPS	1 2 3 4 5 6 7
	SEEKING CONSENSUS	1 2 3 4 5 6 7
	OPPORTUNISTIC BEHAVIOR	1 2 3 4 5 6 7
9	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7
	SENSE OF DUTY	1 2 3 4 5 6 7
	FOCUS ON SOCIAL RELATIONSHIPS	1 2 3 4 5 6 7
	SEEKING CONSENSUS	1 2 3 4 5 6 7
	OPPORTUNISTIC BEHAVIOR	1 2 3 4 5 6 7
10	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7
	SENSE OF DUTY	1 2 3 4 5 6 7
	FOCUS ON SOCIAL RELATIONSHIPS	1 2 3 4 5 6 7
	SEEKING CONSENSUS	1 2 3 4 5 6 7
	OPPORTUNISTIC BEHAVIOR	1 2 3 4 5 6 7
11	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7
	SENSE OF DUTY	1 2 3 4 5 6 7
	FOCUS ON SOCIAL RELATIONSHIPS	1 2 3 4 5 6 7
	SEEKING CONSENSUS	1 2 3 4 5 6 7
	OPPORTUNISTIC BEHAVIOR	1 2 3 4 5 6 7
	ETHICAL CONDUCT	1 2 3 4 5 6 7
	DESIRE FOR SUCCESS	1 2 3 4 5 6 7

12	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
13	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
14	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
15	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
16	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
17	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
18	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7

	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
19	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7
20	ETHICAL CONDUCT	1	2	3	4	5	6	7
	DESIRE FOR SUCCESS	1	2	3	4	5	6	7
	SENSE OF DUTY	1	2	3	4	5	6	7
	FOCUS ON SOCIAL RELATIONSHIPS	1	2	3	4	5	6	7
	SEEKING CONSENSUS	1	2	3	4	5	6	7
	OPPORTUNISTIC BEHAVIOR	1	2	3	4	5	6	7

NAME   SURNAME_____

APPENDIX E: **Revised Life Orientation Test (LOT-R)**

Instructions:

Please answer the following questions about yourself by indicating the extent of your agreement using the following scale:

0 = strongly disagree
1 = disagree
2 = neutral
3 = agree
4 = strongly agree

Be as honest as you can throughout, and try not to let your responses to one question influence your response to other questions. There are no right or wrong answers.

1. In uncertain times, I usually expect the best. _____

2. It's easy for me to relax.] _____

3. If something can go wrong for me, it will. _____

4. I'm always optimistic about my future. _____

5. I enjoy my friends a lot.] _____

6. It's important for me to keep busy.] _____

7. I hardly ever expect things to go my way. _____

8. I don't get upset too easily.] _____

9. I rarely count on good things happening to me. _____

10. Overall, I expect more good things to happen to me than bad. _____

Scoring:

Reverse code items 3, 7, and 9 prior to scoring (0=4) (1=3) (2=2) (3=1) (4=0).
Sum items 1, 3, 4, 7, 9, and 10 to obtain an overall score.
Note: Items 2, 5, 6, and 8 are filler items only. They are not scored as part of the revised scale.

The revised scale was constructed in order to eliminate items from the original scale, which dealt more with coping style than with positive expectations for future outcomes. The correlation between the revised scale and the originals scale is .95.

Source: Scheier, M. F., Carver, C. S., Bridges, M. W. (1994). "Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test". *Journal of Personality and Social Psychology*, 67, pp. 1063–1078.

APPENDIX F: **Permission to use GroupDynamics software**

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************************************************************
   ONLINE ORDER - PAYMENT DETAILS (PAYMENT RECEIPT)
************************************************************
```

Website: http://www.simonecapretti.it
Order reference no.: 14697690
Payment method: Visa/MasterCard/Eurocard
Date/time: 2012-12-15 19:24:29
Order General Total: 20.00 EUR

Product ID: 4549385
Product name: GroupDynamics Quantity: 1
Price/unit: 20.00 EUR
Taxes (VAT): 0.00 EUR
Total: 20.00 EUR

Order subtotal: 20.00 EUR
Order total: 20.00 EUR

Billing information is:

Xhimi Hysa
Rruga Bul. Bajram Curri
1001, Tirana, Albania
Albania

Email address: xhimihysa@yahoo.com

```
************************************************************
```

APPENDIX G: **License information for IBM SPSS Statistics 22 trial**

License information for IBM SPSS Statistics 22 installed in C:\Program
Files\IBM\SPSS\Statistics\22 Lock Code for this machine is: 4-1AA74.

- Feature 1200 - IBM SPSS Statistics:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1202 - IBM SPSS Regression:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1203 - IBM SPSS Advanced Statistics:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1205 - IBM SPSS Exact Tests:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1206 - IBM SPSS Categories:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1207 - IBM SPSS Missing Values:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1208 - IBM SPSS Conjoint:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1210 - IBM SPSS Custom Tables:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1211 - IBM SPSS Complex Samples:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1212 - IBM SPSS Decision Trees:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1213 - IBM SPSS Data Preparation:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1215 - IBM SPSS Advanced Visualization:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1216 - IBM SPSS Forecasting:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1218 - IBM SPSS Neural Networks:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1219 - IBM SPSS Direct Marketing:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1220 - IBM SPSS Bootstrapping:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013
- Feature 1221 - IBM SPSS Statistics Base:
  Local license for version 22.0 - Temporary
  Expires on: 25-Sep-2013