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**THE IMPACT OF SPORT ACTIVITY ON WORKERS' ATTITUDES:
THE CASE OF KARATE-DO**

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Firma dello studente

千里の道も一歩から

Sen ri no michi mo ippo kara

Even a road of thousand Ri begins with a step

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Table of contents

INTRODUCTION	11
1 WORK AND NON-WORK ACTIVITIES	13
1.1 Introduction	13
1.2 The current situation	13
1.3 Overworking consequences	21
1.4 Conclusion	25
2 NON-WORK ACTIVITY “SPORT”	27
2.1 Introduction	27
2.2 Sport history	30
2.3 Benefits on physique	32
2.3.1 Cardiovascular diseases	35
2.3.1.1 Hypertension	35
2.3.1.2 Lipids	35
2.3.1.3 Inflammation	36
2.3.2 Diabetes mellitus	37
2.3.3 Obesity	37
2.3.4 Osteoporosis	38
2.3.5 Cancer	38
2.4 Benefits on mind	39
2.4.1. Anxiety	41
2.4.2 Depression	43
2.4.3 Stress responsivity	45
2.5 Sport drawbacks	47
2.5.1 Excessive exercise and overtraining syndrome	48
2.5.2 Muscle dysmorphia	49
2.5.3 Use of anabolic-androgenic steroids	50
2.6 Sport and management	50

3 FOCUS ON KARATE-DO	57
3.1 Karate-do: a way of life	57
3.1.1 Introduction	57
3.1.2 History	58
3.1.3 Philosophy and values	60
3.1.4 Effects on body	70
3.2 Aim of the study	71
3.2.1 Underlying concepts	71
3.2.2 Method and sample	74
3.2.3 Analysis	78
3.2.3.1 Question #3	79
Preliminary operations	79
Final result: 1 st order concepts	81
2 nd order concepts	83
2 nd order concepts schema	86
3.2.3.2 Question #5	86
1 st order concepts	88
2 nd order concepts	90
3.2.3.3 Questions #3 and #5 correlation	92
3.2.4 Results	94
3.2.4.1 Result #1: attitudes-behaviors relationship	95
3.2.4.2 Result #2: statistical correlation	103
3.2.4.3 Andrea Di Lenna interview – Performando srl	106
3.2.5 Conclusions	108
Appendix	112
References	125

INTRODUCTION

This thesis focuses on the equilibrium between work activities and non-working ones and how much the latter are important as well as the former to live a fulfilled life and to do the best in every life area. In particular, this work aims to understand if and how much activities run during spare time have an impact on the working context. Among them, sport is in particular considered. Which are the benefits of physical activity on both body and mind? Does sport have an impact also on the working context? If yes, which are these impacts? Is there any difference between someone who practices sport and someone who does not at an organizational level? These are all questions that find an answer in this elaboration. Also, we decided to focus on a particular sport: karate-do. Its philosophy and values are analyzed and a relationship between attitudes developed practicing this sport and practitioners' behaviors at an organizational level is searched. Is karate practice a useful predictor of behaviors? Is it a valid support to the selection process and to the performance monitoring process by which better evaluate people? This exploration represents the central point of the dissertation.

The first chapter introduces working and non-working activities; also, it analyzes the current working situation in Italy and if and how these two areas are balanced considering the Italian workers. A focus on the overworking consequences is exposed.

In the second chapter, the non-work activity sport is taken into consideration: first of all, a brief summary of the sport history takes place. Then, its benefits on both body and mind are considered. In particular, the thesis shows the effects of the physical activity concerning cardiovascular diseases (hypertension, level of lipids and inflammation), diabetes mellitus, obesity, osteoporosis and cancer. Also, sport benefits on mind are considered: in particular, anxiety, depression and stress responsivity. After that, some sport drawbacks: excessive exercise and overtraining syndrome, muscle dysmorphia, use of anabolic-androgenic steroids.

The second chapter closes with the part that connects sport and management. Specifically, the existent literature about the impact of sport at an organizational level is analyzed and exposed. This represents the bridge between physical activity and the main purpose of this dissertation.

The third chapter represents the core of the composition: a specific sport, karate-do, is considered. A brief introduction of this discipline is done in the first part of this last chapter. Its history is the first topic, then its philosophy and values follow this first paragraph. After that, the exploration takes place: the central point is whether attitudes formed by the practice of this sport influence practitioners' behaviors in an everyday life context and in particular in an organizational background. After an explanation of the underlying concepts, the method

and sample used in the thesis, a qualitative analysis takes place. The results and conclusions close our work. Also, some considerations about the limits of the study and hints regarding further analyses are made.

1 WORK AND NON-WORK ACTIVITIES

1.1 Introduction

Work activities versus non-work activities and after-work life topics are pretty discussed issues. They have always been an important field of interest as, as it is normal, working is a significant part of everyday life of all of us. As it is well-known, a job usually covers the majority of a workweek typical day and absorbs the majority of the energy of every worker. More and more employers and policy makers in western industrial societies care these days more about this topic (Sok, Blomme & Tromp, 2014) as it is pretty logical that the more the employees are able to find an equilibrium between work and non-work activities, the lower are the strain and the possibility of burnout. Also, the greater is the work engagement and consequently the performance. A work-life balance is not only important, but fundamental as well if a worker does not want to be stressed, depressed or incur health problems. Despite this reasoning appears linear, it is not applied yet by all the workers. As we will better see in the next paragraph, we can currently observe that on the one hand more workers are caring more about this equilibrium, on the other hand, still lots of employees are like binged working. Therefore, which is the prevalent current trend? How is the present situation?

1.2 The current situation

As said at the end of the previous paragraph, the current situation basically shows two ambiguous trends. Just to depict a general overview, we can say that on the one hand we see an increase of non-work activities rather than work activities, on the other hand we can observe the opposite situation. Then, some people tend to dedicate more time to leisure activities (such as watching TV, sport, arts and so on) than in the past. That means there has been, and it is still happening, a sort of lifestyle changing: people dedicate more time to leisure activities and to hobbies. Other people instead prefer to use more time to work and to related work activities, therefore we can categorize them as “workaholic fans”. The two opposite tendencies are described in the next paragraphs through the analysis of ISTAT and OECD data and some newspaper articles.

Starting with some news items, we can read that some workers have the tendency to overwork and to never stop, neither after a whole work day. People even work so many hours that some of them are even dead, as happened for example to Mita Diran, Li Yuan or still, Moritz Ehrardt (Sullivan, 2014, NBC News). Mita was a 24-years-old copywriter; she worked non-stop for 30 hours straight. Li, instead, was a writer. She died because of a cardiac arrest after a similar workload. In the end, Moritz was a 21-years-old trainee employee at Bank of America's Merrill Lynch office in London. He died after three days of binge working. Clearly, these are extreme cases (and fortunately they represent isolated incidents), but it should be clear how these habits could lead to strain, burnout, disengagement and a sick workforce in the long period (Fritz & Ellis, 2015).

By observing some data, we can take a look at the Italian situation. Analyzing Figure 1.1, we can observe the use of time for people ranging from 15 years of age and older and it considers both men and women. Here, a 24-hours day has been divided into 10-minutes intervals and through a diary, it has been possible to establish how much time (then, how many 10-minutes intervals during the day) people dedicate to work activities and how much to non-work ones. The time is expressed as the percentage dedicated to the activity. Looking at the chart, the on-job activities trend is slightly increasing in the period 2002-2008, but significantly decreasing in the period 2008-2013.

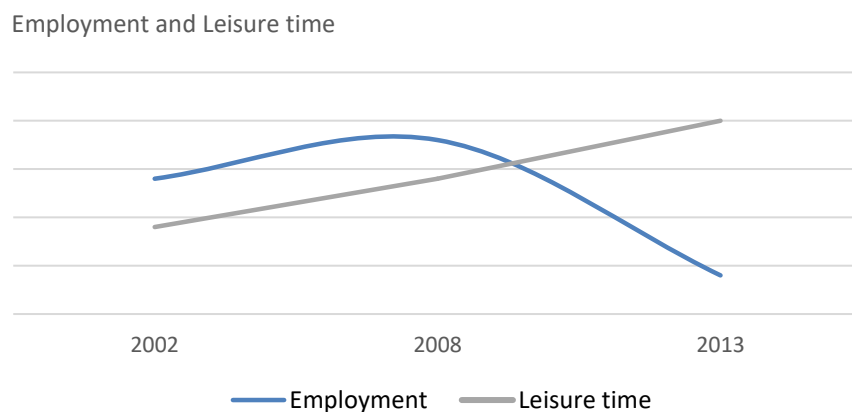


Figure 1.1 – *Time dedicated to work activities and leisure time (ISTAT, 2002-2013)*

Conversely, the leisure time line shows an increasing trend for the whole period 2002-2013. The two measures confirm the first hypothesis that sees a lifestyle changing in comparison with the past, therefore less time dedicated to work-related tasks and more time used in leisure activities.

In addition, Figure 1.2 depicts the same situation too. It shows the time use for the years 2002, 2008 and 2013 and as before it is expressed as a percentage dedicated to the activity. Again, 24 hours have been divided into 10-minutes intervals and time dedicated to every group of activity (so that, how many intervals) has been established through the use of a diary. However, differently from the previous charts, it just considers the workers' category, then not considering non-working people. The time has been divided into six categories, respectively "Sleeping, eating and personal care", "Employment", "Household activities", "Leisure time", "Travel to/from work" and "Other". As it is simple to understand, the first category refers to all the personal care activities; the second one refers to a paid job; "household activities" instead suggests house stuff such as tidy up the rooms and reorganizing home; "leisure time" indicates the free available time, beyond the working time; "travel to/from work" is quite clear: it refers to all the time spent to reach the working place and to come back home; ultimately, the item "other" gathers together all the remaining activities. Although the main quantity did not change significantly over the years, we can observe a slight decrement in employment activities. Similarly, travel to/from work decreased too.

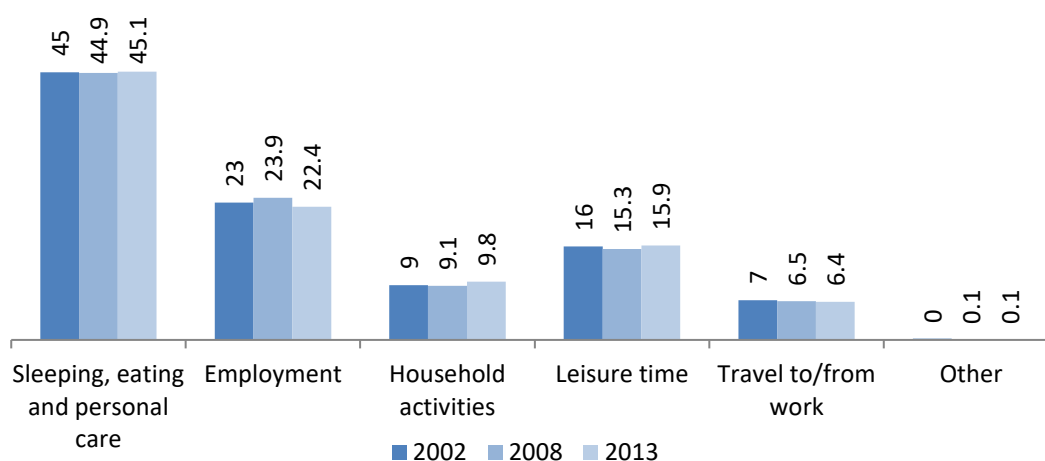


Figure 1.2 - Use of time (ISTAT Elab., 2002-2013)

However, at the same time we can also observe the trend for single activities rather than the categories of activities as we have previously done. We took into consideration some of the most common leisure activities and we observed the trend in the last years, as before.

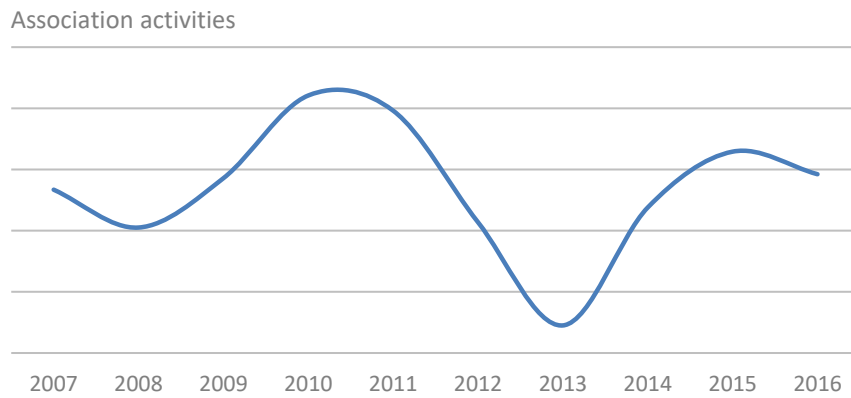


Figure 1.3 – *N° of people who dedicate time to association activities (ISTAT Elab., 2007-2016)*

Starting from Figure 1.3, association activities are expressed as the number of people who dedicate time to this activity every year (persons ranging from 14 years and over, men and women). As we can observe, the line is continually increasing and decreasing. Then the trend is fluctuating, and it does not depict a uniform tendency. It seems that recently (see years 2015-2016) it is decreasing.

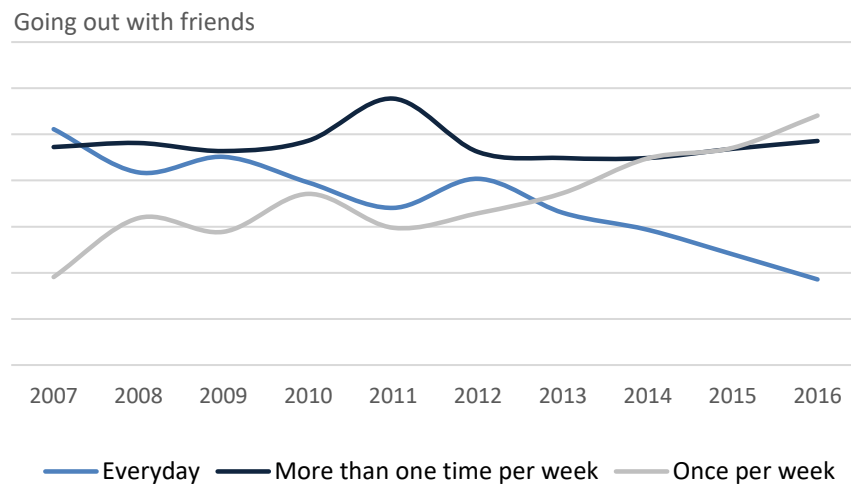


Figure 1.4 – *N° of people who goes out with friends once per week (ISTAT Elab.,2007-2016)*

Switching the focus from “Association activities” to times per week of going out with friends, we can observe Figure 1.4. This analysis takes into consideration persons ranging from 15 years old to 64 years old and as before, both the sexes are considered. It shows three lines, specifically the trend showing the number of people who go out with friends every day, more than one time per week and once per week. Although the last one shows a significant increment, not the same is for the other two lines. As a matter of fact, the second one (representing the number of people who usually go out with friends more than once per week)

draws a peak around 2010-2011, then a significant reduction and in the recent years a slight increment. The first one instead (people who go out with friends every day) is visibly reducing.

Another singular activity taken into consideration regards TV, radio and reading (Figure 1.5). Here we are observing the time spent watching TV, listening to the radio and reading books. People in this analysis ranges from 15 years old and over (both men and women are considered). The measuring system is represented by the percentage of time dedicated to these three activities during the day. Looking at the chart, the line increases in the period 2002-2008, but in the next period (2008-2013) it decreases. These activities, as the previous ones, show a decrement in some specific off-job activities.

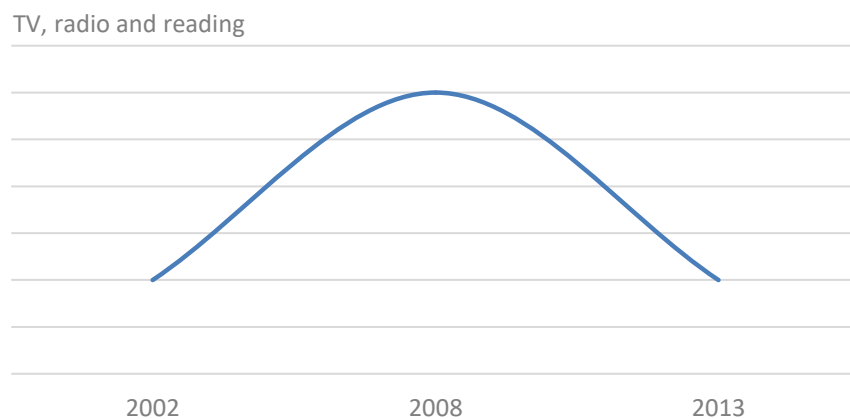


Figure 1.5 – Time dedicated to TV, radio and reading (ISTAT, 2002-2013)

Then, although the general trend (remember Figure 1.1) suggests an increment of non-work activities at the expense of work ones, going into details suggests the opposite course. In fact, the analysis of the single activities points out the decrement of leisure activities and even between them there are conflicting results. Think for example about the measure “Going out with friends”: the “everyday” line shows a decreasing trend, but the other two (“Going out more than one time per week” and “Going out once per week”) are increasing. Therefore, we can see that the actual situation is made of conflicting trends.

Additionally, there are other forces that push toward the decrement of leisure activities (and show the increment of the work-related ones). For example, we can read in some newspaper articles that the way of working is radically changed in the last years. Employees have the tendency to work more hours during the workweek and the work-life balance is often underestimated (Anon., 2011, Il Sole 24 Ore). This situation is due to the financial crisis, the

globalization phenomenon and the high-level of unemployment (Anon., 2014, Il Sole 24 Ore). All of this requires the employees more commitment. Moreover, companies invest less resources in welfare issues and hire less workers. Then, employed people work two-three times than the normal workload (Anon., 2011, Il Sole 24 Ore). It has also to be said that what aforementioned is also partly caused by the organizational cultures. As a matter of fact, implicit business rules draw the more deserving and trustworthy worker as the one who remains longer in the work place doing work tasks (Sullivan, 2014, NBC News). For this reason, some employees inevitably tend to use more time in work activities rather than in non-work ones (Anon., 2014, 2011, Il Sole 24 Ore). Recently, the sensibility toward work-life balance increased but Italy has still a long way to go. Italian companies should develop an organizational culture that really cares about the topic and that permits to understand the relationship work-family of every employee analyzing how the two fields influence each other. Developing a system that just fosters working time flexibility is not enough. A deeper and more widespread business policy is necessary. In this way, the personnel are supported regarding all the aspects of the life. Moreover, reading the annual paper of ISTAT, we can explicitly read that leisure time is decreased in favor of work-related tasks, domestic work and personal care time (Rapporto Annuale ISTAT, 2017, p. 115). In the end, another source that suggests an inefficient work-life balance is a survey published on a newspaper (Anon., 2016, Corriere della Sera): the respondents were 322, both men and women, mostly aged between 35 and 60. The aim of the study was to understand the relationship of Italian people with leisure time and the perception of it, as well as the daily stress level. Only 3% of the interviewed said not to be stressed, whereas the majority has a medium or high level of stress. The reasons of this result have been the stress due to work deadlines (43% of people), inefficient work-life balance (40%) and not enough leisure time (39%).

Moving the focus on the European and the global situation, the time use paper of OECD (updated in 2016) gives us an overview of the issue. Data has been considered for people ranging from 15 years old and over. The unit of measurement is the percentage allocated to the activity during a 24-hours day. Looking at Figure 1.6, we can see that time has been divided into six categories, specifically “Work-related activities”, “Unpaid work”, “Care work”, “Personal care”, “Leisure” and “Unspecified time”. The first category comprises time spent on paid work and studying. Time spent searching for a job is also included. “Unpaid work” refers to household chores such as cleaning, washing, repair work, caring for pets and so on. In this field, caring for childcare or another person is not considered. Other non-paid activities like volunteer work and shopping are instead part of this amount. The third category

refers to caring for a child or another adult. Some examples are kids' supervision, education of a child, reading and talking with children, transporting them. "Personal care" indicates activities like sleeping, eating, drinking and in general personal services (hygiene, visits to the doctor, hairdresser and so on). The fifth classification includes quite a wide range of activities, such as walking, hiking, sport, arts and cultures, volunteering (that is different from work volunteer, represented in the second category), social activities, watching television, playing games. In the end, "unspecified time" covers all the activities not included elsewhere, e.g. use of government services, religious and spiritual activities, sexual activities.

As we can see from the figure, all the considered nations show a main use of time in personal care activities. The country which reveals the maximum value is France with a 52.3% of the time allocated in this category, instead the minimum is registered by Mexico (with an amount equal to 42.8%). In comparisons with them, Italy registers a value equal to 48.8%. Concerning the work-related activities, Mexico holds the highest amount (21.1%). The minimum one instead is covered by Italy, with an amount of 11.1%. Talking about unpaid work activities, we can observe that the difference between the maximum value and the minimum one is quite significant. As a matter of fact, the former is equal to 16.2% (registered by Bulgaria), the latter to 3.2% (Turkey). Italy is quite near to the highest value, with an amount of 14.6%. Care work evolves in the same way: Japan records the lower value with 1.2%, instead the greater one is registered by Turkey. Differently from the previous category, Italy shows a value of 1.8%, then quite near to the minimum one. Moving on the "leisure" field, the difference between the greater and the lower value decreases. The first one is 25.1% (Norway), the second one 15.9% (Mexico). Italy's amount is equal to 22.4%. In the end, "unspecified" is equal to 1.3% for Italy, 5.5% for Turkey (the highest value) and to 0.3% for Bulgaria (the lowest one). To be noted is that men and women have been both considered in this analysis. Although the differences were particularly significant between the two genders and showed a quite important gender difference, we considered the average of the two sexes for the sake of simplicity.

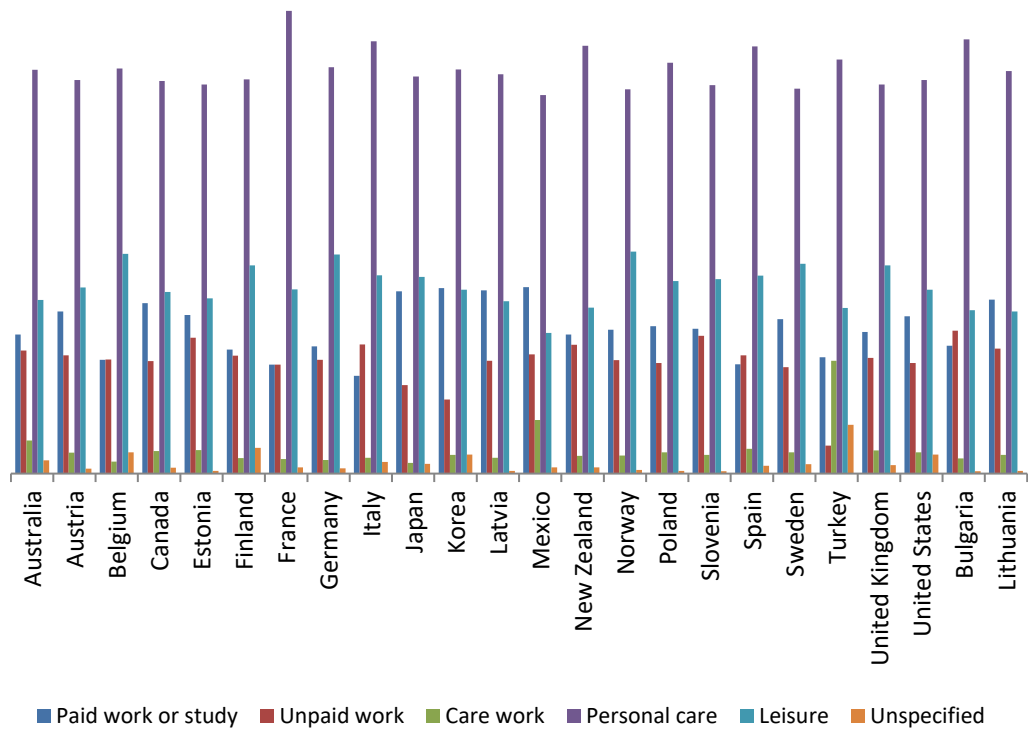


Figure 1.6 – Use of time in the EU and in the world (OECD, 1999-2013)

At this stage, the ambiguity of the situation should be even clearer. Moreover, an additional significant factor need to be considered: the technology. We can assert it covers a particular position in the situation just depicted. As a matter of fact, the electronic devices do not permit people to unplug (Sullivan, 2014, NBC News; Anon., 2011, Il Sole 24 Ore): everybody is always connected these days. Think for example about a worker who is at home after a whole working day and who is continually checking the work e-mail: should we say he is recovering or enjoying his break after work, or should we better think his mind is still at work? Or still, think about a worker who is on vacation. He receives some calls on his cell phone every day from his colleagues: should we say he really enjoyed the holidays? Also, should we say he had the possibility to unplug and recharge his batteries? As we can understand, technology even increases the ambiguity and make workers' life harsher. At this point, what are the negative consequences for a worker who does not have an equilibrium between work and non-work activities? We have already mentioned some overworking drawbacks, such as burnout, disengagement and in the worst cases the death. But a deeper analysis is necessary. Furthermore, what are the positive consequences of a balanced life regarding work and non-work activities?

1.3 Overworking consequences

First of all, overworking is never a good idea. Equilibrium will be the key word of this thesis: clearly, people must work and they should be happy with themselves and the colleagues and feel satisfied. But at the same time, they should not live exclusively for the job. Personal life, non-work activities, recovery and family are as important as it. Overworking, as the term suggests, indicates the condition by which an employee works too hard. In other words, it means that the employee remains physically and/or mentally connected to the job beyond the normal working hours. For example, he stays in the office continuing working after the office hours and/or once at home he is psychologically still working as he thinks about the job and checks the work e-mail. This situation could damage the worker in the long time, and the company too because the employee will decrease his productivity and engagement. Also, it can cause health problems in the employees (Fitz & Ellis, 2015). Several studies (Fitz & Ellis, 2015; Oerlemans & Bakker, 2014; Brummelhuis & Bakker, 2012) proved that overworking is dangerous. Long working hours is proved to be the cause of cardiovascular and immunologic reactions, reduced sleep duration, unhealthy lifestyle, diabetes, fatigue and depression (Sullivan, 2014, NBC News).

Therefore, resting and recovery cover a fundamental role. Resting is particularly important to maintain motivation, mood and performance at a high level: research suggests that workers benefit from improved well-being and enhanced performance capacity when they are able to recover from work demands (Fritz & Ellis, 2015). It usually can occur in four circumstances: vacations, weekends, evenings after work and breaks at work (Fritz & Ellis, 2015; Fritz, Ellis, Demsky, Lin & Guros, 2013). Vacations are the situations where employees may better recover as they represent a quite long period away from the work place. However, resting depends on the activities done during holidays and on if the worker has been able to disconnect his mind from work tasks. Also, it is proved that unfortunately vacations-positive-mood disappears quickly (in few days) after the employee goes back to work. Weekends represent the second circumstance for recovering: obviously vacations time is limited, then weekends represent the second longest period in which working men are able to recuperate. If a worker does not recover during weekends over time, he may suffer from depressive symptoms, fatigue, energy loss and cardiovascular problems. Distinct activities increment the rest process.

Moving on, evenings after work permit to rest as well: they are quite important because recovering is necessary on a daily basis. Every worker should use them to rest after a whole work week and to unplug from work. In this case as well as in the previous ones, specific

activities can help boosting the recovery process, such as low effort activities, social activities and physical activities. Moreover, research has demonstrated that rest during evenings after weekly working hours is able not only to boost rest (then the engagement and performance), but it also helps colleagues having more proactive behaviors the day after work. Anyway, sleeping is particular important too.

In the end, some other situations in the work place can help in this sense. Here we are talking about breaks during working hours. If a worker does not unplug during the whole work day, he will probably be stressed out in the evening. The term break refers to 10-15-minutes breaks and the lunch breaks (the longest one during the work day). It is proved that a coffee with the colleagues or a simple “chit-chat” may push the engagement and the workers’ mood as well. Additionally, socializing and mapping during the lunch break increase the positive emotions of workers.

People who have the habit to recover when it is necessary, more difficultly incur in all the negative consequences of overworking. Instead, if a worker continues to work even after working hours and this situation carries on over an extended period of time, the risk of burnout and of all the repercussions aforementioned increases (Fritz & Ellis, 2015; Fritz, Ellis, Demsky, Lin & Guros, 2013). Long-term exposure to job demands will exhaust workers’ resources, both the cognitive and the physical ones, especially if they do not rest. Several studies have analyzed the situation of burned out people and the activities that can help them feeling better. Specifically, Oerlemans and Bakker (2014) studied the effects of low-effort activities, social activities and physical activities on physical vigor, state cognitive liveliness and state recovery in both high-level burnout workers and low-level burnout ones. Physical vigor means being physically strong; cognitive liveliness refers to feeling alert, being creative and thinking fast. State recovery instead, simply indicates the level of recovery during a particular day. Regarding high-level burnout employees, the authors found that low-effort activities (e.g. resting, doing nothing or watching TV) are positively related to state physical vigor and cognitive liveliness. Concerning social activities (e.g. going out with friends, talking to family and so on), they are positive related to physical vigor, cognitive liveliness and state recovery. Physical activities instead, were not related to three variables; it means burnout did not moderate the effects of physical activities on high-level burnout people: sport is beneficial for everybody. As we can see, these three categories of non-work activities help employees high in stress recovering after work. However, they are therapeutic for low-level burnout employees as well. In particular, social activities are positive related to physical vigor, cognitive liveliness and state recovery. Regarding physical activities, instead, we have already said it is beneficial for everyone.

Then, it is limpid how non-work activities increases the recovery of the workers. Therefore, an equilibrium between the two fields is necessary. Other than that, the quality of leisure time and not only the quantity is important too. It means that according to specific off-job activities done during leisure time, the worker will experience specific positive consequences (Fritz, Ellis, Demsky, Lin & Guros, 2013).

Furthermore, every off-job activity will influence differently the recovery process. Brummelhuis and Bakker (2012) analyzed the recovery process by observing the next morning vigor and next day work engagement connected to specific non-work activities done in the evening after work. The recovery process is expressed by psychological detachment and relaxation. They supposed that daily work-related, household and childcare off-job activities are negatively related to next morning vigor though decreased psychological detachment, whereas daily social, low-effort and physical off-job activities are positively related to next morning vigor through increased psychological detachment. The two hypotheses were fully confirmed. Moreover, they suggested that daily work-related, household and childcare off-job activities are negatively connected to next morning vigor through diminished relaxation, while daily social, low-effort and physical off-job activities are negatively related through increased relaxation. The hypotheses were confirmed in this case too, except for childcare (in the first assumption) and sport (in the second assumption). Childcare tasks cannot be considered as an unpleasant chore because caring about children lead to emotional fulfillment. Sport, instead, could also lead to diminished relaxation as it is clear that intensive exercising does not push into being more relaxed. However, it increases the recovery since it helps to forget about work. In the end, the authors also suggested that daily work-related, household and childcare off-job activities are negatively related to next day work engagement through reduced vigor in the morning, differently from daily social, low-effort and physical off-job activities that are positively related to next day work engagement through increased vigor in the morning. The last hypothesis was fully confirmed; instead the first one was partially supported because household activities was positively related to next day work engagement. Apparently, doing household tasks has some positive effects. It could be that workers who engage in this type of activities feel more efficient and more self-confident.

To be noted is that we implicitly have associated non-work activities and leisure time as just the circumstances in which workers replenish their resources after a work day. But this definition is reductive. In fact, leisure time and non-work activities permit to acquire new resources as well. As Brummelhuis and Bakker say, “*optimal recovery seems to occur when employees use their leisure time for replenishing and collecting new resources*” (2012, p. 8).

That permits not only to feel engaged and vigorous, but to be enthusiast and resilient too. Therefore, non-work activities are not only fundamental to restore energies but to acquire new resources too. The recovery process and leisure time activities are not only important in order to increase the worker's engagement and performance (and to avoid the negative consequences of overworking phenomenon), but they are also useful to permit the employee to acquire new skills and capabilities. Moreover, according to specific off-job activity, the worker will develop some attitudes rather than others. We define an attitude as a relatively stable and enduring collection of beliefs, feelings and thoughts toward specific ideas, situations and other people (Griffin, Moorhead 2013; p. 72). The term "relatively" was used because attitudes are not as stable as personality characteristics. However, particularly rooted ones are more difficult to change (Griffin, Moorhead 2013; p. 73). Attitudes are the result of various and different forces, such as our personal values, experiences and personality. They have a key role regarding the influence on workers' behaviors. Then, some off-job activities encourage some attitudes and consequently some behaviors rather than others. For example, if someone loves reading literary fiction he will improve his ToM (Theory of Mind) rather than who read nonliterary fiction, popular fiction or nothing at all (Kidd & Castano, 2013). The acronym ToM indicates the ability to understand others' beliefs, emotions, intentions, desires and knowledge and to predict how this person will behave. Then, being into this hobby helps in better reading people and in understanding other people's emotions. Another example is represented by travelling. When someone deals with different cultures during travels, he enhances his innovative thinking and boost his creativity.

However, remember that equilibrium is the key word of this thesis. As it is true that people should not live exclusively for the job, the opposite is true as well. Off-job activities and the need of recovery should not be an excuse to behave as a slacker individual, nor to putting insufficient effort in on-the-job tasks. Also, we have mainly highlighted the work to non-work activities relationship as a linear relation, going from the first element to the second one. Then, how the first field has an impact on the non-working arena and how individuals may recover from work demands. Instead, how it should be clear reading Brummelhuis and Bakker's paper (2012), the opposite relation is true as well. Exactly how time and energies spent on work-related tasks can influence the non-work area, in the same way the latter can have an impact on the former. The spillover theory (Staines, 1980) argues this point and explains how this influence can be both negative and positive. Just to make an example, think about a worker who has had family hassles during the weekend. He probably will not start the workweek completely recovered. He also will not be entirely focused on the job, then his

performance will decrease. Likewise, think of an individual who volunteers in an organization for disabled people. The emotional connection with these persons will probably not disappear once the employee has gone back to work. That could explain the inattention of the worker (negative consequence), or the increased care about the colleagues at the same time (positive consequence). Working and non-working domains constantly influence each other, and the relation is bidirectional. Time, energy and money are necessary to perform at a high level in a working context; the resources are scarce (every one of us has access to a fixed sum of resources), then the two fields are mutually exclusive. If a worker invests too much resources in work-related tasks, then not a lot can be invested in leisure activities because not a lot is left. In the long period, this situation will lead to the problems and repercussions aforementioned. In the same way, if too much resources are allocated in leisure time and activities, then insufficient resources are available for the job (Staines, 1980). The two areas are situated along the continuum of each of us' life and most of the times the complete separation between them is impossible. Equilibrium is then fundamental. If an individual feels satisfied in both of the fields, he will be highly able to operate in work-related tasks as well as non-work ones, increasing his engagement and performance. *“When you are enthusiastic about what you do, you feel this positive energy. It's very simple”*, Paulo Coelho says. Therefore, let's better explore this relationship.

1.4 Conclusion

At this point of the discussion, it should be clear why this field needs a deeper analysis. It should be also clear the potentiality of non-work activities both regarding the recovery process and the acquisition of resources. In particular, we want to better analyze the positive consequences of having a balanced work-life relationship and the impact of doing some specific off-job activities, regarding both the recovery and the obtainment of new resources. As said in the introduction, physical activities will represent the main focus of the thesis, and specifically karate as a sport. We suppose that this discipline has a lot of values that practitioners adopt in everyday life, in a family context as well as in a working context. We want to analyze if this hypothesis is supported or not, in particular focusing on the organizational environment, then studying working people and their organizational behaviors.

2 NON-WORK ACTIVITY “SPORT”

2.1 Introduction

As the final part of the previous chapter says, a balanced work-life relationship is fundamental to feel well and satisfied in both work-related area and non-work related one. Non-work area permits the employees to recover and to acquire new resources. As a consequence of the well-being, the worker will be engaged and performing in both the fields. However, leisure time is not enough per se in order to guarantee these results. In fact, as previously said, the type of activity leads to one outcome rather than another one and determines certain attitudes of the worker. The explanation of this concept can be better understood looking at Figure 2.1:

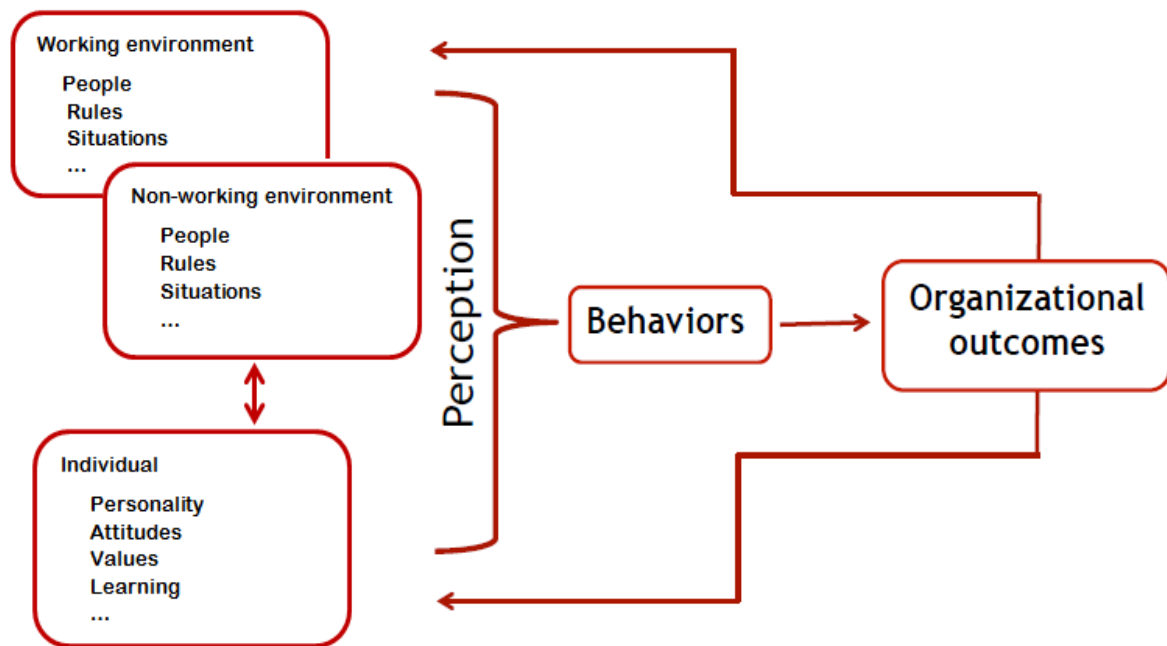


Figure 2.1 – Personal elaboration

The behaviors of the individuals, and consequently the organizational outcomes, are determined by several factors grouped into two big macro-categories: Individual factors and Environmental ones (divided then into working environment factors and non-working environment ones). The first group concerns all the individual’s issues such as personality, attitudes, values, learning. Every human being has his own personality, (determined by his nature and nurture), attitudes, values and learning. Therefore, it should be pretty clear that different individual characteristics lead to different behaviors (mediated by the perceptive process). The second category includes all the elements external to the human being,

concerning the environment and the background. This area influences people's behaviors as well because as previously, different people, rules, situations may lead to different outcomes. For example, if I am used to be an extrovert person (personality) but I am talking to an unpleasant person (people), I will have the tendency to be reserved and not to be friendly. At this stage, we need to make a distinction between working environment and non-working one. As the Figure 2.1 depicts, the environment is split into two groups (indeed, working and non-working context) that are connected to each other. Each one of the two contains the same elements (that are people, rules, situations, ...), and they both have an impact on the individual and his characteristics (then on the personality, attitudes, values, learning, ...). Not only. The relation between the two categories is bidirectional, that means not only the background (both the working and non-working one) has an influence on the individual, but the individual has an impact on the environment as well. More precisely, let's consider firstly the non-working background. In this context, the individual runs different non-work activities. As already said, different non-work activities will lead to certain results rather than others. In fact, when a certain off-job activity is run, then a bidirectional relation is created between the activity and the individuals' factors. That is to say, the activity will influence the attitudes, values, learning and in turn, these elements will have an impact on how it is carried on. It's then obvious that different non-work activities will lead to different attitudes, values, learning. They also will conduct to certain behaviors due to the influence of the personality, the environment characteristics, the perception process. For this reason, it seems reasonable to consider the non-working environment as an influencer of the process that leads to the organizational outcomes. At the same time, the working environment follows the same path. Different working contexts will differently influence the individual and his characteristics and through the perception process and the sway of the ambience, they will lead to certain behaviors, then to certain organizational outcomes. It should be noted that we have just said that the activity has an influence on the attitudes, values and learning. We cannot say the same for the personality (depicted in the picture too) as this element is basically stable in the long-time.

We can understand now how both the in-work activities and the out-of-work ones have an influence on the human being and how the two environments (working and non-working) and the individual factors are interconnected. At this stage, the combined effect of environmental and individual's characteristics are then mediated by the perceptive process (that indicates the process by which individuals select, organize and interpret the input from their senses to give meaning and order to the world around them). The unification of these elements give rise to

people's behaviors. Clearly, the human beings' responses will lead to certain outcomes, that in turn will have again an impact on the individual and the environment features. Then the circle starts anew.

Thinking about the purpose of my thesis, we are interested in studying how non-work activities give rise to certain outcomes rather than others. In particular, we are talking about organizational outcomes, in the sense that we want to study the workers' reactions in the organizational context. However, we will not talk about non-work activities in general, but we will refer to a particular one of them: sport. This is what the second chapter will talk about. Precisely, I will start explaining the benefits of physical activity both on the body taking into consideration some specific illnesses. Then I will explore the benefits on the mind, in particular the effects of sport regarding anxiety and depression problems. I will also consider how sport helps in dealing with stressful situations. After that, I am going to study how physical activity has an impact on people's personality and attitudes, in particular focusing on the organizational context. Therefore, not only talking about the daily context, but the work-related one. Before the examination of the influence of sport on managerial issues, I will also explain how sport can be beneficial as well as having some negative consequences (excessive exercise and overtraining syndrome, muscle dysmorphia, use of anabolic-androgenic steroids). Just remember I said that equilibrium will be the key-word of the thesis: as it is true that physical activity is fundamental to stay healthy, too much sport may lead to the opposite results. Then, a special focus will be done regarding the drawbacks of excessive training. The furthest part will account for some data regarding the physical activity in the EU and in Italy.

The third and last chapter will focus on a specific sport and how its values influence the people's attitudes (I am referring to karate-do). Anyway, we will talk about it later.

It should be noted that usually a distinction between the terms "exercise" and "physical activity" is made. In fact, the latter is defined by WHO (World Health Organization) as "any body movement produced by skeletal muscles that requires energy expenditure, including activities undertaken while working, playing, carrying out household chores, travelling and engaging in recreational pursuits". Instead, the term "exercise" has a different meaning. Pate et al (1995) refers to exercise as a subset of physical activity that is planned, structured and includes repetitive bodily movement done to improve or maintain one or more components of physical fitness. In turn, physical fitness is defined as a set of attributes that people have or achieve that relates to the ability to perform physical activity (Pate et al, 1995). In the present

chapter, the terms are used interchangeably. Also, sport is used as a synonym of exercise and physical activity.

Before starting with the sport benefits on the physique and on the mind, let's briefly explore the history of sport.

2.2 Sport history

We are now going to talk about the history of sport. The whole paragraph is a summary elaborated by the online material of the book "Facciamo sport insieme" (Passariello & Priarione, 2007).

Physical activity and sport have a long history. Talking about the Mediterranean area and the Europe, it all began with the Assyrian and the Egyptian. In that time, people did physical activity just in order to hunt, then sport had a survival function. Hunting was so important in the Egyptian culture that it was seen like a war victory. After these cultures, sport saw its gold period with the Greek. In fact, Greek people believed in the perfection of the body, it represented the beauty and it was considered fundamental to improve mental health too. Therefore, sport really covered an important role in the Greek society and this importance gave rise to the Olympic games. The first time was in 776 B.C. and they have been held every four years until 393 A.D. Disciplines like running, endurance race, boxing, wrestling, pankration, horse racing and pentathlon were the competitions in which athletes matched against each other. Then, with the Romans, sport became quite unpopular among the population and the concept of sport faded. Romans' way of thinking was based on entertainment and idleness and sport was done only by slaves to keep amused people and by nobles to being prepared in case of war. After these periods, physical activity started progressively to rise in popularity. During the Dark Ages, knights needed to be exercised to handle swords and to resist long war battles. In that period, also some new popular game was born such as ball games, running and jumping competitions, horse running competitions and archery. However, the benefits of physical activity has been widely recognized only during the Renaissance in which people started to see sport as fundamental to the good health and as a tool to make young people disciplined.

In the American area, sport covered an important role as the one it covered in the Mediterranean area and in the Europe. In this area, physical activities were seen as mostly

connected to the religion, war issues and persons' amusement. For example, local tribes were used to make ritual games in the South America. Amazonian people made ritual games and religious dances too; moreover, they knew ball games and they did archery activities, wrestling and war games. In the Central America, Aztec and Maya populations did ball games and religious dances as well. Aztec also practiced a game similar to our "Gioco dell'oca". In the North America, sport was mostly connected to hunting and war activities. In fact, Red Indian played battle simulations, archery competitions, wrestling and swimming championships. Moreover, they did ball games and ritual dances like the other American populations.

Ultimately, sport was practiced in the Asian area as well. Here the first physical activities had a survival function, like it has been throughout the world. Thus, hunting and fishing were considered the first Asian sports. Then athletic disciplines evolved and they became quite different than the European and American ones. In fact, India was famous for its yoga discipline whose aim was (and currently is) to conduct the individual through a series of mystic experiences by using respiratory exercises. In China, very famous were equilibrium and acrobatic exercises and the Chinese boxing. Regarding Japan instead, the most practiced sport was kyujutsu, the archery that required a big dose of discipline and concentration. Kendo was another common Japanese physical activity. Moreover, this country is really famous for some historical martial arts, like sumo and jujitsu.

As time went on, sport became progressively more important. The seventeenth century was a period in which it started to cover a significant position in people's life. Sport assumed the role of leisure activity even though it was only a privilege of richer people. Since this period, the former sport associations were founded and more and more sports grew up.

In 1896 the modern Olympic games were born. That fact signed the contemporary birth of sport: competitions and sport events increased more and more, and their organization and regulations improved through the years. These episodes led to the birth of professional athletes, as money was the prize for the winners of competitions. In this way, even poor people could think about a sport career.

After the Second World War, the difference between professional and amateur athletes became clearer. In fact, we can say two sport branches were born. The first one sees sport as a profession, in which the practitioner need to reach the scheduled result. Sport represents his job, then the individual necessarily has to win the competitions. Sadly, sometimes that leads to use of doping, a practice that is really unsportsmanlike. However, we hope it is going to

decrease. The second branch instead, still represents the original values of sport. Here we are talking about amateurs who practice sport to stay healthy, socialize, to learn how to be disciplined. However, even if this distinction is pretty clear, physical activity has several benefits in both the cases. Its benefits are widely recognized and they regard both the physique and the mind.

2.3 Benefits on physique

Sport as I said has several positive consequences. Since many years almost every study recognizes its beneficial effects. Physical exercise has an important function in preventing and treating a set of medical conditions (Scully, Kremer, Meade, Graham & Dudgeon, 1998). Research (Pate et al, 1995) reports that fit persons tend to have higher levels of physical fitness rather than sedentary people. Also, they see a decreased risk for several chronic diseases, such as coronary heart disease (CHD), hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, colon cancer, anxiety and depression. Conversely, a low level of physical activity is positively related to an increased all-cause mortality rate (Dangardt, McKenna, Lüscher & Deanfield, 2013; Pate et al, 1995). Moreover, it has been proved that inactivity increases the possibility of the following diseases: coronary artery disease, stroke, hypertension, colon cancer, breast cancer, type 2 diabetes (mellitus) and osteoporosis (Warburton, Charlesworth, Ivey, Nettlefold & Bredin, 2010). It has been estimated that all-cause mortality can be reduced by 20-30% if people consumed 1.000 kcal per week of exercise (Dangardt, McKenna, Lüscher & Deanfield, 2013). Specifically, these authors report that doing 50-60 minutes of physical activity per day permits to have a reduction of all-cause mortality by 40 % if the exercise is done at a vigorous level and by 32 % if the sport level is moderate. In this case, the results have been adjusted considering the age, sex, education, physical labor at work, smoking, alcohol intake, fasting blood glucose level, systolic blood pressure, total-cholesterol level, BMI, diagnosed diabetes mellitus or hypertension and history of cancer. In this study, it has been proved that the mortality decreases as long as the exercise is more intense, but low levels of exercise help as well in decreasing all-cause mortality (Figure 2.2).

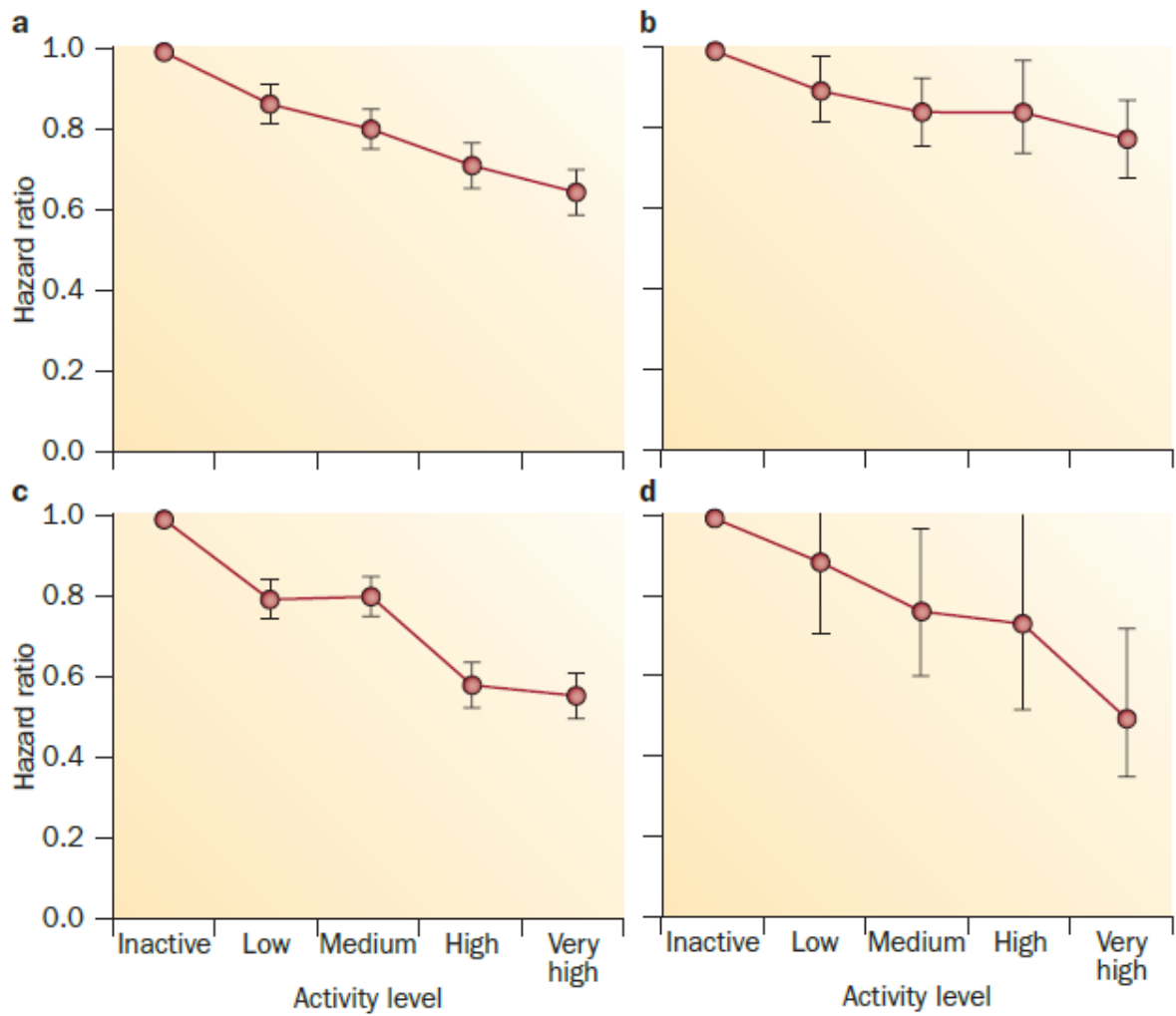


Figure 2.2 - Relationship between level of physical activity and reduction in mortality from various causes. Increased physical activity is associated with an incremental reduction in a) all-cause mortality, as well as death from b) cancer, c) cardiovascular diseases, and d) diabetes mellitus. Reprinted from Wen, C. P. et al. Minimum amount of physical activity for reduced mortality and extended life expectancy: a prospective cohort study. *Lancet* 378, 1244-1253 (2011).

Also, it has been proved that duration influences the reduction of all-cause mortality too (Figure 2.3).

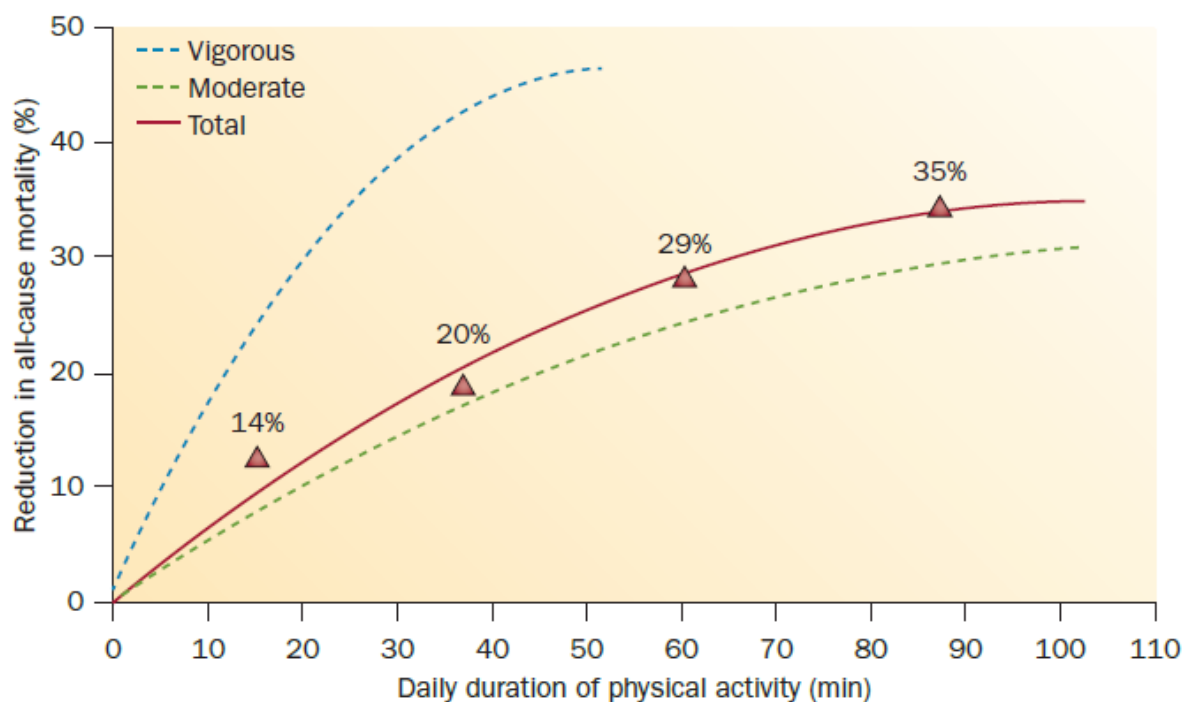


Figure 2.3 Relationship between daily duration of physical and reduction in all-cause mortality. Reprinted from Wen, C. P. et al. Minimum amount of physical activity for reduced mortality and extended life expectancy: a prospective cohort study. *Lancet* 378, 1244-1253 (2011).

Dangardt and colleagues (2013) reported also a second study by which a moderate level of physical activity leads to a reduction of 24% all-cause mortality in men and 31% in women. Instead, vigorous level of activity leads to a 35% reduction of all-cause mortality in men and 44% reduction in women. These outcomes resulted from a meta-analysis of 38 studies, which have included more than 271.000 individuals.

According to WHO data, 1 in 4 adults is insufficiently physically active. More than 80% of the adolescents in the world is not enough physically active. Inactivity is one of the most important reason responsible for worldwide death. Also, a moderate level of physical activity has been found to improve blood lipid profile, resting blood pressure in borderline hypertensives, body composition, glucose tolerance and insulin sensitivity, bone density, immune function and psychological function (Pate et al, 1995). According to these authors, moderate physical activity is the one performed at an intensity of 3 to 6 METs (work metabolic rate/resting metabolic rate). Other authors (Kokkinos & Myers, 2010) found that the maximum benefit against all-cause mortality is reached around 6 to 8 METs, and it continues to increase until 9 METs for men and 10 METs for women. By the way, the major health organizations generally recommend to range the physical activity between 3 to 6 METs

per week and to spend at least 1000 kcal/wk (Kokkinos & Myers, 2010). This estimate is based on the reduction of all-cause mortality by 20-40 % in the middle-aged persons.

2.3.1 Cardiovascular diseases

Being more specific, let's analyze the effects of sport regarding cardiovascular diseases. As already said, physical activity has great benefits on cardiovascular system and that is pretty clear since long time ago. The first scientists who published these results have been Morris and colleagues who recognized the reduction of coronary heart disease due to the benefits of physical (Dangardt, McKenna, Lüscher & Deanfield, 2013). Since then, several and various studies in this field have been conducted and all of them proved the potentiality of sport against cardiovascular diseases (Li & Siegrist, 2012; Shiroma & Lee, 2010; Church, Earnest, Skinner & Blair, 2007; Ignarro, Balestieri & Napoli, 2007; Mora, Lee, Buring & Ridker, 2006; Raitakan et al, 1994). In particular, the decreased cardiovascular disease risk has to be observed in decreased blood pressure, decreased levels of LDL cholesterol and triglycerides, increased level of HDL cholesterol, decreased level of inflammatory markers (C-reactive protein) and improved insulin resistance (Kokkinos & Myers, 2010; Woo et al, 2004).

2.3.1.1 Hypertension

Going into the details, the hypertension represents one of the major risks concerning cardiovascular diseases (Kokkinos & Myers, 2010). According to these authors, aerobic physical exercise decreases blood pressure in stage 1 hypertension persons by 3.4 to 10.5 mm Hg for systolic blood pressure and 2.4 to 7.6 mm Hg for diastolic blood pressure. Similar results have been found regarding stage 2 hypertension middle-aged and older human beings, after 16 and 32 weeks of physical activity. Therefore, the combined effects of sport and weight loss are necessary to lower blood pressure and to monitor it. They are such significant that more physical exercise is recommended even by the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and by European Society of Hypertension/European Society of Cardiology guidelines (Kokkinos & Myers, 2010). Hypertensive persons see a decrement in mortality if they increase the physical activity (Kokkinos et al, 2009).

2.3.1.2 Lipids

Regarding lipids, as we said physical activity leads to increased high-density lipoprotein cholesterol (HDL). It also leads to a reduction of total cholesterol, triglycerides and low-density lipoprotein cholesterol concentrations (even though with less consistency)

(Larrydurstin & Haskell, 1994). The beneficial effects have been found significant in combination with a dietary change, as it has been proved that this combination can lead to greater results than those obtained by exercise or a specific diet took separately (Stefanick et al, 1998). Curiously, the major improvements are related not to the intensity of the physical activity but to the amount of it (Kraus et al, 2002). The recommended quantity of exercises is placed around 1000-1500 kcal/wk, in order to achieve important HDL cholesterol reduction (Drygas, Jegler & Kunski, 1988). Another study (Kokkinos et al, 1995) pertains the optimal level of kcal/wk for runners. Specifically, we are talking about 1245 kcal for people who run from 7 to 10 miles per week and 1688 kcal for those who run 11 to 14 kcal per week. Clearly, also other types of physical activity would lead to the same results; the important thing is that people should expend at least from 1200 to 1600 kilocalories per week.

2.3.1.3 Inflammation

Moving on, we can talk about inflammation. The most widely studied inflammatory blood marker is CRP (remember we wrote that exercise permits to decrease level of inflammatory markers, the C-reactive protein). It has been proved (Yeh & Willerson, 2003) that elevated levels of CRP are associated with a higher risk of myocardial infarction, stroke, and mortality and that is common in both healthy subjects and patients with cardiovascular diseases. Research has proven that active people and individuals with a normal weight have a lower level of CRP than inactive people and overweight human beings (Kokkinos & Myers, 2010). For example, a study (Church et al, 2002) found that among 722 men, CRP level was lower (with a reduction peak by 80%) in the most fit people rather than the least fit one. Another research (Aronson et al, 2004) led to the same strong inverse relationship between sport and CRP. In fact, among 1640 men who did exercise because they joined a preventive medicine evaluation, the CRP level was lower. Additionally, among 2722 Japanese adults, CRP was found inversely correlated to VO₂ level (Ichihara et al, 2002). Then, how we can see, research is highly consistent in supporting an inverse relationship between physical activity and the level of CRP.

How it is possible to see, physical activity is found to have some potentiality regarding cardiovascular diseases. In meta-analyses of 49 studies (that include more than 700.000 subjects), it has been found a reduction by 25-50% in adverse cardiovascular events in those individuals who routinely do physical activity rather than sedentary people (Warburton, Charlesworth, Ivey, Nettlefold & Bredin, 2010). Also, in a study involving 28.345 women the results have shown a linearly decrement of cardiovascular events with the increment of levels of physical activity. Specifically, this outcome is due to the risk reduction of the following

causes: inflammatory and haemostatic biomarkers (32.6%), blood pressure (27.1%), LDL-cholesterol and HDL-cholesterol levels (19.1%), apolipoprotein level (15.5%), BMI (10.1%) and hemoglobin A1c or diabetes (8.9%) (Dangardt, McKenna, Lüscher & Deanfield, 2013).

2.3.2 Diabetes mellitus

Now let's move on the diabetes mellitus. In this case as the previous ones, sport is found to delay or prevent the development of this disease. Moreover, mortality risk in diabetic people has been found diminished because of physical activity (Kokkinos & Myers, 2010). Mentioning some research, we can take a look at Hu et al, (1999). Here, 70.102 nurses have been involved and the outcome clearly shows an inverse relationship between the risk of diabetes mellitus and level of exercise, fitness volume and intensity of it. Another study (Tuomilehto et al, 2001), led to the same results. Here 522 middle-aged overweight individuals (both men and women) have been split up into a control group and an intervention one. The latter has been subjected to weight reduction, increment of physical activity and following of a healthy diet. After 3.2 years of follow-up, the outcomes showed a 11% cumulative incidence of diabetes mellitus in the intervention group and 23% in the control group. Also, the overall risk for diabetes mellitus saw a reduction by 58% in the intervention group. According to the Diabetes Prevention Program Research Group Study (Knowler et al, 2003), treatment with metformin in diabetics were less effective than diet modification and increment of exercise. In fact, the group subjected to the metformin treatment showed a 31% incidence of diabetes, whereas the intervention group showed 58% of the same indicator (they have been encouraged to walk 150 min/wk). Ultimately, research also shows a double all-cause mortality risk in diabetics who do not exercise or are sedentary, rather than physically active diabetics men and women (Kokkinos & Myers, 2010).

2.3.3 Obesity

Obesity and overweight are other important issues regarding the health of human being. As a matter of fact, they can be responsible for an increased risk concerning diabetes mellitus, hypertension, CHD and premature mortality. Not only obesity may directly increase the cardiovascular events risk, but this condition can indirectly increase it also through other health factors such as an increased insulin resistance and hypertension (Kokkinos & Myers,

2010). Clearly, this health condition is caused by several complex factors but it has been proved (King et al, 2001) that physical inactivity is certainly a cause of it. Sedentary people is found to be more likely obese than people who is sportively involved. Then a weight reduction leads to a diminished obesity level. By the way, research (Wei et al, 1999) showed that is not the overweight per se that leads to a higher mortality risk, rather it is the level of physical activity. In fact, a large follow-up showed that among 25.174 individuals, higher physical activity level leads to a lower mortality risk in normal-weight, overweight and obese men. Therefore, when we are talking about overweight and obese individuals, we always need to evaluate their blood pressure, smoking habits, fasting plasma glucose level and lipids level. Fitness strongly predicts mortality independently of body measures.

2.3.4 Osteoporosis

Osteoporosis is another health disease which sport has an influence on. Physical activity is found to reduce the risk of this condition, then it can be considered as a preventive solution (Warburton, Nicol & Bredin, 2006). As the authors say, it seems that exercise helps in preventing the loss of bone mass due to the age effect, and that it enhances the bone density independently of age or sex (Dangardt, McKenna, Lüscher & Deanfield, 2013). Research (Warburton, Nicol & Bredin, 2006) shows that almost 1% of bone loss per year in the lumbar spine and femoral neck in both pre-and postmenopausal women is reduced because of routine exercises. Also, it seems that high-impact sports lead to a higher bone mineral density than low-impact sports, as the same authors report. Moreover, we can find evidence by which the consequences of an increased level of physical activity are the lower risk and incidence of fractures. In fact, the hip fracture ratio is found to be diminished among 3262 healthy men (aged 44 years on average).

2.3.5 Cancer

The last health condition we are going to analyze is cancer. In this case, as in all the previous ones, physical activity covers a significant role. As a matter of fact, sport reduces the risk of various types of cancer. Conversely, physical inactivity is found to contribute to 10% of breast and colon cancer (Dangardt, McKenna, Lüscher & Deanfield, 2013). Moreover, sport has a significant impact on cancer survivors. Exercise permits to reduce all-cause mortality by

up to 60% (this outcome has been extracted from a review of 27 studies regarding cancer survivors) (Ballard-Barbash et al, 2012). Also, breast or colon cancer survivors have seen a reduced risk of death from cancer by up to 51% and 61% respectively (Ballard-Barbash et al, 2012). The same authors report beneficial effects on various biomarkers in cancer survivors, due to the exercising activity. Specifically, the biomarkers are a decreased level of circulating insulin, improved insulin-related pathways, reduced inflammation. Also, an improved cardiorespiratory fitness and reduced symptoms of cancer have been found (Speck, Courneya, Mâsse, Duval & Schmitz, 2010).

2.4 Benefits on mind

The previous paragraphs referred to the benefits of sport regarding the physique. As we have seen, physical activity has a big positive influence regarding cardiovascular diseases, diabetes mellitus, obesity, osteoporosis and cancer. It also helps in decreasing the all-cause mortality risk. Now we are going to focus on the exercise effects on the mind.

Other than positive effects on the body, sport has been found to have also a significant effect on the psychological well-being and on mental diseases such as anxiety and depression (Scully, Kremer, Meade, Graham & Dudgeon, 1998). Aerobic exercise has anxiolytic and antidepressant effects, and it also protects against the stress consequences (Salmon, 2001). Also, physical inactivity has been associated with higher risk for mental diseases, such as anxiety and depression (Wegner et al, 2014). Despite the fact that benefits of sport on mental well-being and health are pretty clear, still lot of people is not physically active enough. The importance that sport covers is because of the recognition of sport positive effects on the mood (Salmon, 2001).

Reading Salmon's paper (2001), mood has been found improved in regular exercisers who undertook physical activity at the level they are familiar with. Even if the outcome changes whether the exercise is competitive or not (here the degree of success will lead either to a mood improvement or to a decrement of it), the general mood and well-being improved (Yeung, 1996). According to other research, (Dua & Hargreaves, 1992), a mood improvement has been found in individuals without psychiatric symptoms who engage in regular exercise rather than people who do not. Also, other life aspects are positively influenced by sport: a

higher self-esteem, vitality, general well-being and satisfaction with physical appearance have been observed (Peluso & Andrade, 2005).

The mood improvement has been explained by three mechanisms (Peluso & Andrade, 2005): 1. Distraction; 2. Self-efficacy; 3. Social interaction. The first theory explains a greater mood after and during physical activity given the fact that sport helps in distracting from unfavorable stimuli. The second hypothesis leads to a better mood and a greater self-confidence; in fact, being involved in a regular activity like sport favors and increases the personal self-efficacy. In the end, the third theory (social interaction) has a positive effect on mood because of the social relationships developed during sport activities. Moreover, physiological hypotheses have been found as well to explain the psychic effects of the physical activity. The most famous ones are based on 1. Monoamines and 2. Endorphins. The first theory is explained by the fact that sport increases the monoamines transmission, that act as antidepressive drugs (Ransford, 1982) even if the hypothesis is oversimplified. The second hypothesis instead argues that sport releases endorphins (endogenous opioids) (Nicoloff & Schwenk, 1995). They have a restful effect on the central nervous system and improve the mood after exercise. An endorphin abstinence has been found in individuals in a withdrawn state from exercise; these people registered also higher levels of irritability, restlessness, nervousness and feeling of frustration.

Both the psychological and the physiological hypotheses cover an important role in explaining the relationship between the mood improvement and physical activity. However, there is still no consensus about the importance of the aforementioned theories. For this reason, the researchers (Peluso & Andrade, 2005) argue that all of these factors should converge in a unique model. A psycho-biological model would better explain the association between these two factors, since the effects of the physical activity would be better explained by the combination and the interaction between psychological and physiological factors. Also, this combination should take into consideration environmental stimuli and the psychological and physiological characteristics of each individual.

As we can understand, the absence of physical activity leads to an increased risk form mental disorders, like anxiety and depression. Hence, sport promotes well-being and enhances the mood. Also, it has a positive effect on stress responsivity.

Now, let's explore the relationship between sport and anxiety, depression and stress responsivity.

2.4.1. Anxiety

Anxiety is one of the most important issue that sport deals with. This mental disorder is defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) and is it described as “an unpleasant emotional state or condition with experiential, physiological and behavioral components that serves as a warning mechanism for the individual” (Wegner et al, 2014, p. 1003). Just to have an idea of how much anxiety disorders are common diseases, it has been estimated that anxiety represents 26% of the European people’s mental health disturbances. In the USA, this disorder affects 8% of the population; 25% of the American individuals report at least one episode during their lifetime of anxiety disorder, and 6% and 13% of respectively men and women have a diagnosed anxiety disturb (Wegner et al, 2014).

According to Liebert and Morris (Liebert & Morris, 1967) anxiety is characterized by two components: the first one is the cognitive component, the second is the emotional one. The cognitive mainly refers to a state of worry and of negative expectations and concerns. The emotional trait instead, is mainly about the perception of the physiological and affective elements of the anxiety experience. According instead to Spielberger (Wegner et al, 2014), anxiety is better split into state and trait anxiety. In the first case the anxiety condition leads to being tense, nervous and worried. The person is conscious of this situation, the automatic nervous system is activated. In the second case, the mental disease is more likely to lead to dispositional tendencies to perceive situations as dangerous. In any case, according to Diagnostic and Statistical Manual of Mental Disorders anxiety includes some more symptoms, disorders and conditions such as panic disorder, agoraphobia, generalized anxiety disorder, posttraumatic stress disorder (PTSD), social phobia, acute stress disorder, obsessive compulsive disorder, and disorders due to medical conditions and substance use (Wegner et al, 2014). However, despite the various definitions, all the anxious states lead to similar symptoms: sweating, chills, trembling, increased heart rate, up to hyperventilation, agonal states.

Several studies have focused on the relationship and effects of sport against the anxiety disorder. The link between these two elements have been found to be consistent, physical activity really helps against anxiety disorders. As Scully and colleagues (1998) say, “the effect does appear to be real and substantial” (Scully, Kremer, Meade, Graham & Dudgeon, 1998, p. 113).

However, we need to make a distinction between aerobic and non-aerobic exercise. Just to give a definition, in the first case we are referring to cardio exercises, that require pumping of oxygenated blood by the heart to deliver oxygen to working muscles. Then, it includes any physical activity that stimulates the heart rate and the breathing (as a matter of fact, aerobic means “with oxygen”). Examples of aerobic exercise are cardio machines, running, swimming, walking, hiking and aerobic classes (Salmon, 2001). On the other hand, the word anaerobic signifies “without oxygen”. Then it implies any physical exercise that does not involve oxygen and that is empowered primarily by metabolic pathways. Examples of anaerobic exercises are sprinting and weight lifting (Salmon, 2001; Yeung, 1996). The research (Scully, Kremer, Meade, Graham & Dudgeon, 1998) tends to consider more beneficial aerobic exercises than the anaerobic ones. Reading Salmon (2001), various meta-analysis showed that aerobic exercise training reduced the anxiolytic effect of people. However, a more general relationship between sport and anxiety rate reduction is proved: exercise training reduces anxious mood both in people high on anxiety disorder and in normal people (individual with normal level of anxiety). This relationship is even greater for more disturbed subjects. In fact, clinically anxious adolescents and young adults who practice sport on a regular basis report lower anxiety levels (Wegner et al, 2014). Also, we need to make clear that severe anxiety not only indicates people who suffer from high trait-anxiety but also individual who panic. In this latter case, the positive sport benefits against this mental condition has been compared to the placebo drug treatment. Anxiety disorder could also be observed taking into consideration the relation between this mental condition and patients with different illnesses. For example, a decreased level of anxiety has been found in patients with fibromyalgia, coronary heart disease, chronic obstructive pulmonary disease who practice sport (Wegner et al, 2014).

Interesting should be the comparisons between physical activity benefits and other therapies. Wegner and colleagues (2014) considered several studies by which exercise has been considered a valid alternative to pharmacotherapy and cognitive behavioral therapy against light to moderate anxiety conditions. That is to say, sport activity has the same positive effects of these solutions to anxiety problems. Physical activity can be equally compared to anxiety traditional treatments.

Also, exercise program length, frequency of sessions and session duration are important variables in studying how sport improves the individuals’ anxious mood. Talking about program length, there is not a unique consensus. Some authors (Petruzzello) found that the largest effects come from at least 10-12 or more than 15 weeks. Others (Wipfli and his team)

found the largest effect between 4 and 9 weeks. Herring indicated the greatest effect for interventions which last 3-12 weeks (Wegner et al, 2014).

The authors aforementioned reviewed also the studies that deal with the frequency of the sessions. As previously, there is not a unique consensus. However, all of the researchers found that the greatest effect of exercise comes between 3 and 5 sessions per week. Finally, regarding the session duration, some authors said that the greatest effects are in between 20-30 minutes since the beginning of exercise. Others argued that the exercise should last at least 40 minutes, instead some others think that the session duration should be at least 60-90 minutes in order to register the best results against anxiety.

2.4.2 Depression

Depression is the second important mental disease that sport deals with. Like anxiety, depression is quite a common disturb. In fact, 37% of the European people's mental health diseases are represented by depressive illnesses. In a wider study (which involves the industrial nations), it has been found that more than 6% of the population suffers from depressive conditions and only the 40% of them are nursed. Additionally, a valuation of the World Health Organization discovered that over the 10% of men and over the 20% of women suffer from depression during their lifetime (Wegner et al, 2014).

Exactly like anxiety, also depression has various and different symptoms. A typical depressive episode includes "depressed mood, helplessness and self-devaluation (emotional), loss of interest or pleasure (motivational), increased tiredness, abnormalities in appetite and sleep (somatic), psychomotor retardation and mimic stiffness (motor behavior), and withdrawal from social interaction as well as sexual inactivity (interactional)" (Wegner et al, 2014, p. 1003). Martinsen (Martinsen, 1990) also found that depressed people tend to be more physically sedentary and to have less work capacity than non-depressed individuals. Then depression is characterized by various symptoms, both emotional, motivational, somatic, motor-behavioral and interactive.

As well as anxiety, depression is recognized as a mental disease by the Diagnostic and Statistical Manual of Mental Disorders. Precisely, DSM-1V recognizes depression as a pathology when at least five of the aforementioned symptoms are present for a period of at

least two weeks long. In this situation, depressed mood and loss of interest are necessary criteria to define a pathology as a depression disorder.

As it is simple to understand, depression easily ruins people's quality of life. This condition is mainly determined by stressful life events, but also by endocrine abnormalities such as hypercortisolism. Moreover, research has found that the risk of depression is up to 50% genetically determined (Wegner et al, 2014).

Research strongly focused on the relationship between sport and depression and the benefits of physical activity on depressed people. Here, research usually tends to make a difference between aerobic exercise and non-aerobic one, exactly as in the case of anxiety disorders.

The majority of the research have pushed toward the importance of aerobic exercise in helping against depressive symptoms (LaFontaine et al, 1992). Rejesky (1994) suggested that aerobic exercise at low to moderate levels is more effective than demanding (anaerobic) one. What his research and analysis enlighten is that the former has a greater effect regarding mood improvement and psychological functions enhancement. Reading Salmon (2001), the depression rate has been found decreased in people who engage in aerobic exercises. Specifically, they have been involved into 10-11 weeks of walking and running programs. A follow-up study (3 months later) showed a maintained effect of these physical activities. Instead, a non-significant effect has been proved at two months. Again, aerobic exercise conducted at 60-70% of maximal heart rate for 30-40 minutes twice to five times per week, has been recommended by ACSM (American College of Sports Medicine). This program should represent a valid support to other form of psychotherapy (Scully, Kremer, Meade, Graham & Dudgeon, 1998).

However, anaerobic exercise has been found supportive against depression as well. More recent research (Scully, Kremer, Meade, Graham & Dudgeon, 1998) support the hypothesis by which anaerobic exercises are as effective as aerobic ones against the depressive condition. North et al (Scully, Kremer, Meade, Graham & Dudgeon, 1998) reviewed and conducted a meta-analysis of 80 studies by including 290 effect sizes in their analysis. The outcome was that both aerobic and non-aerobic exercises lead to decreased clinical depression. All the participants involved in these studies have benefitted the positive effects of physical activity regardless of gender, age, health status.

Then, sport strongly provides valuable assistance in helping people with depressive disorders. Moreover, it has been found that people who experienced medical or psychological care

experienced more positive benefits than people who did not (Scully, Kremer, Meade, Graham & Dudgeon, 1998). The same conclusion has been found by Wegner et al (2014): more benefits have been registered by people with depressive disorders rather than normal participants, then people with no depressive conditions. Also, the same authors focused on the comparisons of sport benefits against other therapies. The result was that “exercise is not less effective than traditional and highly effective treatments commonly used”, the paper says (Wegner et al, 2014, p. 1007). To be noted is that we cannot prove that depression treatment with physical exercises is more effective than other interventions. But at least, the contrary cannot be proved as well. Then, at least it has not been proved that physical exercise is less effective than other interventions such as psychotherapy or antidepressant pills and medications.

It is also interesting to understand which type of physical activity helps in this process, but also the length, frequency, duration of exercises. Still Wegner and his colleagues (2014) found that the exercise session should last at least 21 weeks because the greatest positive effects starts to appear after the 21th week. However, the results are quite conflicting. As a matter of fact, Herring and colleagues showed that the largest effect is shown after 26 weeks or under 12 weeks. Brown et al instead showed that the largest effect is registered after 12 weeks. Rethorts and colleagues argued that the most significant effect is registered in 10-16 weeks (Wegner at el, 2014).

Talking about the frequency of exercise sessions, a medium frequency of exercise 3 or 4 times per week is preferred by some authors. The duration is 20-30 minutes per session, as it has been registered as the most effective one. But the same results have been registered with 45 minutes-sessions.

2.4.3 Stress responsivity

Stress represents another mental condition that sport has an influence on. The research (Scully, Kremer, Meade, Graham & Dudgeon, 1998) has proved that sport positively influences people who suffer from stress-related problems. In particular, it boosts the individuals' capacity in dealing with it by improving the people's physical condition and the fitness level.

In this case as the previous ones, a distinction between aerobic and anaerobic exercise is made. Reading Scully and colleagues (1998), all of the studies reviewed by the team made a comparison between aerobic exercises and non-aerobic strength training, considering individuals who practice at least three times per week at moderate intensity for 12 weeks. The outcome was that aerobic exercises positively influence stress responses. That is to say, people who engage in aerobic exercises show a decreased psychosocial stress response. However, it seems that sport has a preventive role rather than a corrective one. Then, more than correct the stress condition, sport deals with the prevention of this mental condition.

Also, we need to make a distinction between studies that are being done cross-sectionally and experimentally. The distinction could also be made between real life stress against the one modeled in the laboratory and between the various types of stress and stress responses. Salmon (2001) made a deep research about these topics. If we are talking about cross-sectional studies of controlled laboratory stressors, we are referring to research that takes into consideration people with preexisting stress disorders that have been amplified by a contrived stressor. The outcomes have been measured by using cardiovascular ratios. Even though in general a small stress response can be associated with sport, still incongruences exist. Specifically, this is caused by the comparisons between physiological responses (such as heart rate and systolic and diastolic blood pressure) to mental arithmetic or psychomotor tasks between fit and unfit human beings.

Talking about experimental studies of controlled laboratory stressors, we are dealing with research in which physical activity (exercise training) has been controlled. As in the previous case, the results have been measured by using cardiovascular ratios. Here the outcomes have been both positive and negative: earlier studies have shown positive findings, but the following did not. Also, it should be noted that the differences in response to stress is usually obfuscated by the fact that sport normally decreases the heart rate and blood pressure. Then the results are biased. Moreover, the positive results have been mainly registered in studies in which the participants have been selected for cardiovascular sensitivity to stress. For example, in a study considering a 12-weeks jogging and walking program, the heart rate and the blood pressure have been found reduced rather than the ones measured with a strength and flexibility control.

As we can see, the differences aforementioned are quite significant. In fact, even if it can be concluded that physical activity leads to a better dealing with stress, this effect depends on subject variables and on procedural details. First of all, “stress is not unitary, any different

demands have different physiological effects” as Salmon says (Salmon, 2001, p. 44). In fact, in general tasks that have a high effort requirement are more likely to stimulate noradrenergic responses, while novelty, lack of control or the need for adaptation are more likely to activate the pituitary-adrenal system. These distinctions have not been explicitly related to exercise. However, generally the well-known tasks are more likely to permit greater fitness effects on cardiovascular or sympathoadrenal responses. Also, the validity of cardiovascular measures should be reconsidered. In fact, they are based on the assumption by which physical activity reduces both the cardiovascular responses to physical stress and psychological stress. This is not true because different physical and psychological challenges lead to certain cardiovascular outcomes due to different physiological mechanisms. Moreover, we cannot equal the laboratory stressors and ambulatory conditions.

Still Salmon (2001) focuses on both the cross-sectional studies of real-life stress responses and experimental studies of real-life stress. In the first case the results are more unequivocal than in the previous studies. In fact, several researchers have found that low level of physical activity leads to a higher perceived life stress (Aldana, Sutton, Jacobson, & Quirk, 1996); Brown and his team argued that fit subjects register a lower relationship of life event scores to illness rather than unfit individuals; Steptoe and colleagues found that the daily basis stress is perceived as lower in people who exercise against people who do not. In the second case (then experimental studies of real-life stress), a study which took into consideration a 6-week walking program saw a reduction of reported daily hassles in people who participated rather than people who did not. The same results have been obtained in men with HIV pathology, who saw a decreased stress level after a 5 week of aerobic training.

2.5 Sport drawbacks

Until now, we have referred to the positive benefits of sport on the physique and on the mind. We have seen that it represents a significant and efficient weapon against coronary heart disease (CHD), hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, colon cancer, anxiety and depression. It also helps in dealing with stressful situations and increases the mood and the general well-being (if sport is taken at a moderate intensity level). However, sport has also some negative consequences. Particularly athletes should pay attention at

pathologies such as excessive training, muscle dysmorphia and use of anabolic-androgenic steroids.

It should be noted that since the previous paragraphs we have said that generally sport leads to a mood improvement. Here a clarification is necessary: physical activity positively influences the mood if it is taken at a moderate intensity level, as I specifically wrote some sentences above. That is to say, athletes incur a better feeling only if they are engaged in a moderate level of sport. When we are referring to high level-intensity exercises, the mood may also worsen (Peluso & Andrade, 2005). In fact, research (Peluso & Andrade, 2005; Verde, Thomas & Shephard, 1992; Morgan et al, 1987) found a decreased mood in people who exercise from 10 days to some weeks at a high-intensity level. This condition is typical of elite athletes, in particular players involved in sports which require a high degree of aerobic fitness (e.g. running, swimming, canoeing, rowing). In these cases, the typical training program last 4-8 months and consists of three phases: the first one is placed at the beginning of the season; here the athlete increases the quantity of submaximal endurance training. The second phase is characterized by a not complete recovery as the player interchanges submaximal endurance training and high-intensity interval training. In the last step is placed near to the competitions. Here, training sessions are fewer and the exercises are characterized by lower intensity level (in this way, the athlete can rest and consequently reach his maximum potential at the competitions). Studies (Peluso & Andrade, 2005) have proved that generally the mood decreases from the first and the second phase, instead it increases from the latter to the third period.

Let's now observe the other sport drawbacks (overtraining syndrome, muscle dysmorphia, use of anabolic-androgenic steroids).

2.5.1 Excessive exercise and overtraining syndrome

Excessive exercise is the first sport drawback we are going to talk about. In the literature, it has been associated to almost an obsession, as it represents the condition by which individuals are excessively worried about the workout and the exercise training, even if there are some medical counter indications (Greenspan, Fitzsimmons, & Biddle, 1991). The condition has analogously been compared to a sort of anorexia nervosa (Yates, Leehey, & Shisslak, 1983). It leads to a sort of life distortion, by which sport and physical activity become more

important of what they should be, leading to neglecting of occupational and personal relationships (Greenspan, Fitzsimmons, & Biddle, 1991).

Since each athlete obtains the best results only if he reaches the limits of physical capacity, excessive training is not an uncommon phenomenon. An estimation shows that its incidence is around 10% to 20% athletes per season (Budgett et al, 2000) and in particular who plays endurance sports (MacKinnon, 2000). Also, this value is quite high in elite athletes because of their extensive training programs. Research has found that the prevalence of the overtraining condition is more than 60% along the career for elite runners and 38% for lower-level runners (Peluso & Andrade, 2005). According to MacKinnon (MacKinnon, 2000), the overtraining condition is characterized by poor performance in competition, inability to maintain training loads, persistent fatigue, reduced catecholamine excretion, frequent illness, disturbed sleep and alterations in mood state (apathy, irritability and depression). Moreover, Peluso and Andrade (Peluso & Andrade, 2005) argued that reduced sensation of sensitive or painful musculature and reduced libido and appetite are overtraining symptoms as well. It should be noted the similarities between this disturbance and the depression condition. As a matter of fact, Eichner defines the overtraining syndrome as “a depression with a new face” (Peluso & Andrade, 2005, p. 65). The same author also suggested the use of antidepressant drugs to recover from this condition. However, athletes who suffer from this pathology complete recover after weeks and/or months of complete rest (then, no other activities than resting). Here the principal problem is the fact that sport players are in this way obliged to stop from training and from the competitions as well. Considering that the workout and the competitions represent the work of athletes, overtraining condition may lead to an economic damage for these people. In turn, it can cause the loss of motivation, loss of sponsorship or even the retirement (Peluso & Andrade, 2005). Therefore, the best solution should not be the treatment of this condition, rather than the prevention of this. Regarding this issue, a quite effective method to early recognize the overtraining condition is the determination of the athletes' mood states. Here some studies have shown the effectiveness of this remedy.

2.5.2 Muscle dysmorphia

Muscle dysmorphia represents another drawback of sport. Especially common among some weightlifters and bodybuilders, it is the condition in which the large and muscular athlete finds himself weak and skinny. For this reason, it has also been called “reverse anorexia”.

Pope and his colleagues (1997) used the definitions given by the DSM-IV to better delineate this pathology. In fact, the Diagnostic and Statistical Manual of Mental Disorders gives three criteria by which recognize this condition: 1. The athlete is excessively worried about his body, he thinks it is not sufficiently muscular; 2. This condition of worrying causes a discomfort state in the athlete which impairs also his social relationships; 3. Any other psychiatric disease cannot explain this condition. It should be noted that reverse anorexia is associated with also a mood history and not only with the physical activity. That is, the athlete also shows mood disturbances such as anxiety, eating disorder and anabolic-androgenic steroids use.

2.5.3 Use of anabolic-androgenic steroids

The use of anabolic-androgenic steroids represents the third impaired mental health connected to sport, as they are used especially by physically active people (Peluso & Andrade, 2005). These substances cause irritability and aggressive behaviors in people who use them. Also, it is responsible for manic-like and psychotic symptoms (Corrigan, 1996; Perry, Yates & Andersen, 1990). Perry and his team compared 20 male weightlifters who use steroids with other 20 male weightlifters who have never used these substances. The outcome was that the first group registers somatic, depressive, anxiety, hostility and paranoid complaints when using the steroids. Moreover, they can be compared to drugs, then they also lead to depressive symptoms in athletes who are in an abstinence situation. Research have also proved that the continuous use of these substances may lead to the dependence (Corrigan, 1996).

2.6 Sport and management

After the explanation of benefits of sport on the physique and mind, and the drawbacks which physical activity can cause, we are going to enter the hearth of the thesis. Here we are going to talk about the relationship between sport and management. Remember that primary scope of the dissertation is to understand if and how physical activity influences the daily and work life of participants. In particular, how karate-do as a sport impacts the workers' behaviors (which will be discussed in the third chapter). Then, it should be plausible to wanting to know

more about exercises and daily and working life. In this paragraph, we are going to focus on the impact of sport on people and their attitudes, particularly focusing on the working context. How Keidel says, “the world of sports mirrors the world of work” (Keidel, 1987; 591). Then an attempt to connect these two areas will follow.

Starting from what the study of Zabarras and Woods says, the activities run during individuals’ lifetime will pave their present behaviors, and the ones of the future too (Zabarras & Woods, 2010). That is to say, they will persist into the future and will have a positive influence and they will be also positively correlated with the outcomes and performance of the successful employees. This thought creates a bridge between the existent literature and the purpose of this thesis. In other words, the scope of the dissertation is to prove that sport in general and karate in particular have a direct influence on people’s working behaviors. Then, if some authors have already proved that every activity run during lifetime impresses people’s attitudes, then there is a reason to think that sport (and my sport too, therefore karate) “leaves the mark” as well. Indeed, Stevenson (2010) found that people who have been sportively educated generally earn more than individuals who did not play any sport. Also, exercise and physical activity have other advantages that have an impact on the workers’ performance and outcomes. In the first chapter we said that sport is beneficial for everybody: it reduces job stress and boosts the recovery process. Additionally, it increases job satisfaction and helps the transition from a working condition to the retirement (Kniffin, Wansink & Shimizu, 2015). Therefore, sport represents a significant variable both as a support in the hiring process and as a tool to better understand workers’ behaviors, performance and outcomes.

Even more significant have been the considerations reported by Kniffin and colleagues who explored the relationship between the participation in competitive youth sports and the early-career job expectancies and late-in-life outcomes (Kniffin, Wansink & Shimizu, 2015). According to the authors, biodata such as sport and championships participation during the people’s youth has not been sufficiently considered when hiring people and more in general in studying the performance and outcomes of employees. Instead, this biographical information could represent a valid point with which consider a potential worker. Being more specific, biodata have been indicated as indexes that pertain historical events which may have shaped behaviors and identities of the individuals (Breugh, 2009). Past experiences and historical events are generally related to the interests, personality, values, knowledge, skills and abilities (KSAs) of the individuals; in fact, these elements usually conduct to live certain experiences and situations (collected afterward by biodata) which in turn have an influence on the interests, values and KSAs of the individuals (Breugh, 2009). In other words, the relation

between the two groups is bidirectional: according to specific individual characteristics, human beings tend to live certain experiences and in turn, living certain experiences develops certain interests, values and KSAs of the persons. Past events lead then to certain behaviors in different contexts: in a work context, regarding educational settings, the family environment, the community one, other domains (Breugh, 2009). That is exactly the line of reasoning that Figure 2.1 (situated at the beginning of the chapter) depicts and this is why biodata (in particular the one portraying the participation in competitive youth sports) represent a valid starting point to prove the purpose of this dissertation.

Going back to the study of Kniffin and colleagues, we have said they focused on sport and in particular on the relationship between competitive youth sport participation and early-career job prospects and late-in-life outcomes. The researchers did that for several reasons. Firstly, they think that sport favors the development of significant skills when the kids are subject to the organizational leaders. In this context, the latter is depicted as the coach or the trainer. Therefore, we are not referring to whether or not the kid is the leader of the group, rather than the influence that the adult coach has on the children. This background works on the leadership skills of the young participants, focusing in particular on prosocial traits like respect, trust and confidence. These experiences and the acquired values are likely to be persistent all lifelong. Also, kids learn how to behave regarding the group goals and the other team members. The latter aspect leads to a second reason by which the researchers have focused on the physical activity. The cause is that any sport that includes balls, pucks or batons considers an intense and significant amount of exchange between the players. In turn, it encourages the camaraderie and the relationships among the teammates. Organizationally speaking, this aspect is quite important because people who behave in this way, have a propensity for the team work and for predicting a sense of fairness and inside the organization (Kniffin, Wansink & Shimizu, 2015).

All the aforementioned reasons made the authors formulate some hypotheses, that specifically refer to the influence of sport on the workers' outcomes and performance. Starting from the first one, it refers to the beneficial traits that sport may help the development of. Specifically, we are referring to higher outcomes, greater concentration, higher self-esteem, self-monitoring and internal locus of control. Then the researchers suggested that people who have sports experience are likely to display organizationally beneficial traits that people without this experience do not show.

The second expectation is about the leadership. Here some studies have already shown that prior sport participation is a predictor of leadership in 5 or fewer years among military cadets. Kniffin and his team want to prove that sportive education leads to higher self-respect, higher self-confidence and a greater level of leadership skills. Then the second hypothesis is that competitive youth sport participation influences the leadership skills and boosts self-confidence and self-respect.

Moving on the third hypothesis, it is about prosociality and prosocial behaviors. After the debating of organizationally beneficial traits (Hypothesis 1) and leadership skills (Hypothesis 2), hypothesis 3 regards prosocial attitudes. Specifically, the authors think that the competitive youth sport participation has a correlation with prosocial, community-oriented behaviors. Then hypothesis number 3 is that prosociality skills and community-oriented behaviors are correlated with the participation in sport competitions during the youth. This third expectation is directly connected to a second issue. As a matter of fact, the authors expect also that the former student-athletes have the capacity to mediate the differences of prosocial behaviors in people who engaged in youth sport competition versus people who did not. Furthermore, these behaviors are expected to “spill over” outside the sport context too, then they are not only some characteristics of sport but of the whole participants’ life. The fourth hypothesis can be formulated by saying that a mediation of the relationship between prosocial behaviors and community-oriented ones and participation in sport competitions is expected due to the leadership skills and the organizationally beneficial traits (self-confidence and self-respect) typical of people who have been sportively educated.

Finally, the hypothesis number 5 is founded on the career success. In fact, a success regarding the workers’ career (as the authors say, “greater career success across a person’s full of working life”, p. 4) and higher revenues are expected. These outcomes are because of the leadership skills and the behavioral traits developed by the employees who participated at sport competitions during their youth. Therefore, the hypothesis number 5 expects that sport participation is correlated to the career achievement.

According to the analysis that the researchers have made, all of the five hypotheses have been positively demonstrated. The results that have been obtained by the analysis just mentioned, are presented in Table 2.1.

	Hypothesis	Result
1	People with sports experience will be expected to demonstrate organizationally beneficial traits when compared with others	Confirmed
2	Participation in competitive youth sports is a correlate of leadership skills as well as organizationally beneficial traits such as self-confidence and self-respect across decades.	Confirmed
3	Participation in competitive youth sports is a correlate of prosocial, community-oriented behaviors.	Confirmed
4	Leadership skills and organizationally beneficial traits that are specific to former student-athletes will mediate the relationship between participation in competitive youth sports and prosocial, community-oriented behaviors.	Confirmed
5	Participation in high school sports is a persistent correlate of career achievement.	Confirmed

Table 2.1 – Results of the hypotheses (Kniffin, Wanskin & Shimizu, 2015)

The previous outcomes can be strengthened by the study of McDowell-Larsen and colleagues (2002). The research consisted in the exploration of various leadership indices (like visionary thinking, adaptability, industry knowledge and seasoned judgment) by asking 600 senior level executives to rate themselves about these indicators. To obtain the most consistent information as possible, the executives have been rated also by their bosses, peers and subordinates. The outcome was that who were physically active in a regular way, then who played regular sport, has been rated more positively than who were not. Also, the average obtained by the results of all the scales of the Executive Success Profile and Campbell Leadership showed a higher score for individuals who played sport than people who did not (2002). Therefore, these people have better leadership skills in comparisons with those individuals who are not physically active, and they are rated as better leaders than inactive people.

Until now, we have seen how sport influences the workers' organizational behaviors and outcomes. The term sport has to be intended not as a particular sport (e.g. soccer, karate-do, volleyball and so on), rather as the concept of sport in general. Moreover, it has been mainly analyzed the physical activity at an individual level (through the five hypotheses abovementioned). This choice has been made because in the third chapter we are going to talk about martial arts and in particular about karate, that essentially is a sport carried on at an individual level. However, literature regarding how sport teams have a managerial impact is increasingly being explored (Kniffin, Wansink & Shimizu, 2015) and has been considered as well to write this dissertation. Between them, different papers and articles have been read but afterwards not considered. Therefore, they were not taken into account, because not directly correlated to the purpose of the elaboration. However, just to give an idea, we can cite

Burnett, Bishop, Ashford, Williams & Kinrade, (2017); Roca, Williams, (2017); Wolfe et al, (2005); Baker, Cote, & Abernethy, (2003); Audas, Dobson & Goddard, (2002).

Instead, few other papers should be mentioned in this paragraph and have been positively considered to connect sport activities to the management. Even if they focus on the group point of view, some features of the teams can be transferred also to the individual point of view. Among the existent literature, Nancy Katz should be surely mentioned (2001). She focused on the sport teams to learn how to build a winning team, taking example from the world of sport. In particular, she explained seven lessons that derive directly from sport teams but that can be also used by managers to increase the motivation of the work teams. These seven lessons are 1. Integrate cooperation and competition; 2. Orchestrate some early wins; 3. Break out of losing streaks; 4. Carve out time for practice; 5. Call half time; 6. Keep team membership stable; 7. Study the game video. If we think, these concepts can be also viewed in an individual way: the managers can use these principles to increase the motivation of the singular individuals as well. In this context, every manager works as a leader, an anchor point also in individualistic sports (e.g. a sensei of a martial art, a personal trainer, a fencing master, a ski instructor). By following these suggestions, a manager can obtain a high-performance team and high-performance individuals by taking inspirational advices from the sport teams. Other studies refer for example to cohesion in sport groups (Pescosolido & Saavedra, 2012; Carron, Colman, Wheeler & Stevens, 2002). According to what Pescosolido and Saavedra (2012) wrote in their publication, cohesion can be defined as a field of binding social forces that push the teammates to remain in the group. Then, the groups that have a strong unifying force usually become more and more cohesive over time, instead groups that have not usually disintegrate in the long period. More in general, cohesion means bonds of interpersonal attraction, group spirit and attraction to the group. The authors focused on how and why the sport teams' behaviors are influenced by the cohesion phenomenon and why and how this influence has an impact a different way on other types of groups. The result was that even though cohesion was a common feature between different groups, sport teams behave in a different way rather than other types of groups. The explanation of this outcome is that groups in a sportive context must follow certain rules, the goals are extremely clear as well as the procedures and the available resources and the members' role are well defined. Then, sport teams work in more extremely well-defined backgrounds than the other types of groups (e.g. a business work team) (Pescosolido & Saavedra, 2012). What is really important from this analysis for this dissertation is not the outcomes of the study per se (that refer to a group point of view and not to an individualistic one), rather the implication that the background has in

determining those outcomes. In fact, as the authors say, the different groups have certain performance (then, the team members have different behaviors) because of the different context in which every team works. Going back to the beginning of the chapter, Figure 2.1 depicts this concept: group behaviors lead to certain results also because of the environment. Then, the environment does have a significant role in determining the outcomes both of the groups and also of the individuals. Again, it does not matter if we are talking about sport or non-sport teams or the working environment versus the non-working one: every team as well as every individual behave in a certain way according to the internal dynamisms (that is, the individuals' one and the ones of the teammates and between the team members) and to the background. Therefore, there is a bidirectional relationship between the individual, teams and the background. The result of this interdependence (and through the perception process) leads to certain behaviors, then to certain outcomes.

By concluding, we have seen how sport and physical activities influence the workers' performance, behaviors and organizational outcomes both at the individual and at the team level. Sport really represents a mediating variable between the workers and the organizational results. Therefore, it deserves a deeper analysis with the focus of a particular sport.

3 FOCUS ON KARATE-DO

3.1 Karate-do: a way of life

花は桜木人は武士 - *Hana wa sakuragi hito wa bushi*
Among the flowers the cherry tree, among the men the warrior

3.1.1 Introduction

This third chapter is the last one and it represents the hearth of the thesis. In this context, we are going to enter the nitty-gritty of the work, that takes into consideration the sport I practice since I was 7 years old. In particular, in this introduction I am going to introduce karate-do; then its history will be addressed, as well as philosophy, values and its effects on body. After that, I will focus on our qualitative analysis. But first of all, let's briefly explain what karate is about.

Karate is one of the most popular martial arts that is practiced all over the world (Koropanoski & al, 2011). It involves three elements: kihon, kata and kumite. The first refers to basic techniques that are preparatory to karate practice; kata is a prescribed sequence that comprises both defensive and offensive techniques and kumite stands for karate fights in which two opponents freely execute both defensive and offensive techniques (Koropanoski & al, 2011).

This discipline comprises both a physical and a philosophical part: "its true essence is to train body, mind and spirit together in order to realize the fullness of human potential" (Mor-Stabilini, 2013; p. 46). Karate is a practice that teaches about discipline, respect, courtesy, sincere practice and also about self-defense. Practicing this discipline boosts a well-balanced life and a more stable psycho-physical existence.

The general view among practitioners sees (or at least, should see) karate as a way of life: not only as a mere sport or a discipline to experience in the dojo, but also as a set of precious teachings and a lifestyle that improve our daily life. Certainly, this discipline was westernized

and transformed into a competitive sport, which rules are in contrast with the etiquette of the traditional practice, formality, ritual courtesy, respect and search for a harmonious internal and external life. Also, we are living in a mechanized and automated society, where our spare time becomes less and less and the generally way of thinking has changed. However, the real essence of karate has not been modified: its teachings are (or at least, should be) still passed down from masters to students and every karateist should primarily see it as a lifestyle rather than as a mere sport. “*Spirit first, technique second*”, as Gichin Funakoshi (the Shotokan style founder) said.

3.1.2 History

The history of karate is explained in this paragraph. It is a summary of the following elaborations: Braglia (2015), La Marca (2014), Toschi (2014), Funakoshi (2010) and Omori (2003).

Okinawan islands were part of Ryukyu archipelago (Japan), located between Japan and Taiwan. Its biggest island was Okinawa, the place where according to the history karate was born. In this territory, the inhabitants were used to survive thanks to the products of agriculture and fishing and they were a quite peaceful population.

The main impulse that pushed toward karate development was the contact between Okinawa and China, commanded by Ming dynasty. From 1372 to 1873 the China state was used to collect an annual tribute from Okinawans. In the year 1393, a group of Chinese people settled in the island and established the Kume village. Thanks to these people, the inhabitants were educated to arts, literature and craftsmanship and the island became a key commercial point where numerous commercial trades and cultural exchanges took place. In the same time, the most promising inhabitants were pushed to move to China, where they had the possibility to study customs, traditions and the Chinese culture thanks to study grants. In particular, they had the possibility to deepen the arts, science and Chinese martial arts and of the other populations. This represents the way Okinawans came into contact with kempo, a Chinese martial art born in the Shaolin monastery.

In 1429, Sho Hashi (the king of Chuzan region) unified the three kingdoms of the island: Hokuzan in the north, Chuzan in the center, Nanzan in the south. Later, king Sho Shin (1477-

1526) banned any type of arms to contrast the rival enemies who were trying to seize power. Any type of weapon was withdrawn, and nobody was allowed anymore to use, transport or commercialize them.

In 1609, the Shimazu clan (which governed Satsuma feud, in the Kyushu island) occupied the Ryukyu islands: 3000 samurai won the battle without resistance from Okinawans. In this condition, the inhabitants were forced to pay another tribute to Chinese people. Moreover, all the weapons were banned again. Even farming and fishing tools (sickles, sticks, scythes and so on) were not allowed because they represented potential weapons. In this situation, the Te (手) philosophy was born. Literally, Te means the martial art of the hand therefore the martial art without weapons. The body became the only arm the martial artist was allowed to use, and it had to be trained to permit the self-defense of the practitioner.

The early stages of the Te-way were a sort of primitive form of self-defense formed partly due to the necessity to defend the island and successively improved because of the influence of the cultures the population commercialized with. Te was substantially practiced by on one hand the samurai who were the noble class of the island (they were the emperor's soldiers), on the other hand by the farmers and the fishermen. The first group was used to study and embrace the Te philosophy, instead the second one was for the most part specialized in a combat art by using improvised weapons, mostly farming and fishing tools. This fact led to the birth of three different combat styles. The first one was the combat style practiced by the samurai, who founded the Shuri-Te style. This current was strongly influenced by the Shaolin combat style and philosophy which were followed by the samurai. The second one was represented by the Naha-Te mainly characterized by soft techniques and breathing exercises. This way of thinking was typical of the Taoist philosophy. The last one (called Tomari-Te) was a mix between the two previous ones.

Around the nineteenth centuries, these styles created the Shorin-Ryu and the Goju-Ryu currents. In fact, the Shuri-Te and the Tomari-Te melted creating the Shorin-Ryu (少林流); the Naha-Te instead gave birth to the Goju-Ryu style (剛柔流). In the year 1936, several masters of different styles discussed about the name of the new discipline. Together, they opted for the name Karate-Do (Braglia, 2015). This expression is composed by the word kara (空) that stands for "empty", the word te (手) which indicates the hand, and by the word do (道) which meaning is "way/path". Therefore, Karate-Do stands for the "way of the empty hand" (空手道) (Omori, 2003).

The first karate master of Okinawa was Kanga Sakugawa (1733-1815); he combined the Chinese kempo with Okinawan martial arts. One of his student, Sokon Matsumura, lived for a long period in China. In there, he studied and developed the Shuri-te style. He was master of Anko/Yasutsune Azato (1827-1906), who in turn was Funakoshi's master. Funakoshi had also a second master, Anko/Yasutsune Itosu (1830-1916), who was one of Matsumura's students. He introduced the Te philosophy and teachings in the Okinawan schools. Kanryo Higaonna (1853-1917) deepened the kempo martial arts and gave birth to Naha-Te style. The first Okinawan master who went to Japan to spread karate teachings was Choki Motobu (1871-1944), who was a student of Itosu. He did not succeed because he did not know the Japanese language, but only the Okinawan dialect. The first master who took karate abroad was Funakoshi. Therefore, karate spread first in Japan, later all around the world and happened thanks to this master. Thanks to him, modern karate was born.

Funakoshi was the founder of Shotokan style, and author of the 20 Principles of Shotokan Karate book. This work is a reference point for all the karate students and contains the whole set of karate values. They are exposed in the next paragraph.

3.1.3 Philosophy and values

As said at the end of the previous paragraph, Funakoshi's 20 principles are the reference values of any karate student (Funakoshi, 2010). The master wrote them to give his students a guide to deeper explore the spiritual part of karate. In fact, as said in the introduction, karate is formed both by technical aspects and spiritual ones. These two elements need to coexist because the real karate-do spirit combines both body and mind. They permit to make deeper the knowledge of the Way intended as not only a sport, but better as a way of life.

As the master said, these principles may be used in the everyday life and not only in the dojo. Therefore, they are the cardinal rules of both karate masters and students in the dojo and in the daily situations. The 20 principles aim to teach karate students about the most significant aspects of the Art, therefore about the honesty, perseverance, courage and humility, expressed through respect and courtesy. They permit the practitioners to improve their quality of life, teaching them about the internal equilibrium and pushing toward a continuous process of self-improvement. Martial arts represent a way of living rather than techniques and ways to win.

1. 空手道は礼に始まり礼に終る事を忘るな

Karate-dō wa rei ni hajimari, rei ni owaru koto wo wasuruna

The first principle of karate is that it begins and ends with rei. Rei represents the way of greetings before and after a karate training (and in general, before and after any other martial art). More widely, it is interpreted as respect, but when we are talking about martial arts this definition is still quite reductive. In fact, the rei should be intended as the attitude of respect toward the other people but also toward himself because if there is no respect toward the self, an individual may not be able to respect the others. According to the master, a martial art without rei is not a martial art; rather, it is a discipline which has the only aim to fight and that has no meaning for the human being: it is just brute force. Instead, every martial artist should act respectfully. Moreover, behaving correctly is not enough: a honest soul is fundamental.

2. 空手に先手なし

Karate ni sente nashi

Literally, the second principle stands for “There is no first strike in karate”. Despite what it is generally believed, the Way does not profess the attack rather the defense. Also, it does not profess the violence and the impulsiveness; rather it collocates the physical confrontation as the last possibility to undertake. This moral maxim sees its origin directly in the bushidō philosophy, the one of the ancient samurai. There, the rule was that the honorable warrior should have stood on a daily basis the hassles beyond any limit and only at that point he could have been allowed to react. Exactly as the swords were for the samurai, hands and feet for the karateist could be mortal weapons. For this reason, as the samurai should have not responded unless necessary, the karate expert should use the body arms only if no other possibility is available. Then, the martial artist should be tolerant and patient. Also, even in an emergency situation, he should avoid mortal techniques. However, if the physical confrontation is not avoidable or if the situation could not be solved without the confrontation, then the warrior (karateist) should bravely fight by using all his martial arts abilities and trying to win the dispute.

3. 空手は義の補け

Karate wa gi no tasuke

“Karate stands on the side of justice”: this is what the third Funakoshi’s rule says. In this context, justice is intended as everything that is upright and that stands on the side

of honesty. When a warrior knows to be on the right side, he is more confident in his abilities and sees the force increasing. As we have already said, karateist's hands and feet are mortal weapons like swords therefore he should not use them in an inappropriate way. Instead, he should use them only when he knows to be right.

4. 先づ自己を知れ而して他を知れ

Mazu jiko wo shire, shikoshite tao wo shire

“First know yourself, then know others”. Here we are talking about the next karate principle. As the sentence says, every warrior should firstly know himself, then his enemies. Recalling what the Chinese general Sun Tzu teaches in the book “The art of war” in the 6th century, if you know yourself and your enemy, you should not fear anybody because you will not be in dangerous situations; if you know yourself but not your enemy, then you can win as well as lose (that is, your winning and losing possibilities are the same); instead, if you do not know neither yourself nor the rival then you will be in dangerous situations and you will probably lose. This concept strongly influenced (and it still does) every martial art. In fact, if we transpose it in a karate dojo, the results are the same. Thinking about a kumite (fighting) match, every martial artist has some favorite techniques and he will be used to combat against the opponent with those techniques. In the same way, he knows his weaknesses. But knowing itself may not be enough. As a matter of fact, every karateist should also know the strengths and the weaknesses of the opponent: only in this way he has more winning possibilities rather than the losing ones and the danger will be minimized. In this situation, it is then fundamental to avoid egoistical and conceited behaviors. Only in this way, the individual will be able to act in an equilibrate way. These concepts can also be transposed in a daily context, in the working environment as well as in the non-working background. In both the situations, knowing itself and the others is fundamental to act with equilibrium and to take the best decision and behave as well as possible.

5. 技術より心術

Gijutsu yori shinjutsu

“Mentality over technique”. This is the principle number five which I would like to explain by narrating it. The narrative is the following: a famous 16th century Japanese swordsman (named Tsukahara Bokuden) had three sons, Hikoshiro, Hikogoro and Hikoroku. One day, he decided to test their abilities. Then, he called his first son into

his room. Hikoshiro tried to open the door but it turned out it was heavier than the usual. So, the guy patiently pushes the door and realized there was a headrest which was closing off the entry. With the same patience, he removed the obstacle, entered the room and moved again the headrest in the same position as it was placed before he entered the room. Then Bokuden called Hikogoro. The second son, without knowing about the obstacle, opened the door but the headrest fell down. The guy grabbed it and moved it into its original place. Last, the swordsman called the third son. Hikoroku opened the door and the object fell on his head. As the technical ability of the third son was greater than the one of his brothers, he unsheathes the sword without thinking and cut the headrest before it fell down on the tatami. At that point the father said to the first son: “Hikoshiro, you will be the one whose I hand down my sword technique”. Then he went to the second son and told him: “Hikogoro, you will train more and more and patiently you will reach Hikoshiro’s technical abilities”. To the third son, Bokuden said: “Hikoroku, you will certainly ruin my name in the future, you will be a failure. Go away, I do not want to have an impulsive son”. And he disowned him.

The moral of the narrative, is quite clear: in every martial art, the mentality is more important than the technical ability. The former has to control the latter because karate as any other martial art, teaches to be meditative rather than impulsive.

6. 心は放たん事を要す

Kokoro wa hanatan koto wo yosu

The principle number six says that “The heart (extensively intended as the mentality) must be set free”. This idea could seem inconsistent with what we have said until now, but it is not like this. Reading the book of Takuan (a Zen master), “The unfettered mind”, we can find an explanation of this principle. The Confucian philosopher Meng Tzu was used to say that the mind must be searched once it has been lost. He argued that if we lose for example a dog, we would be worry about it and we would search it to bring it home. Then, why should not we search our mind if it is lost? The concept is the same as the one of the dog. The mind is the steering of the body, then it should not be missing. This is the general idea of Takuan, but we have another opinion by Shao Yung. Shao was a 11th century Chinese philosopher and was used to argue that the mind should be let free to lose itself. In fact, if the mind is anchored then it is not independent to freely vacate and create thoughts. Of course, the mind should not vacate without any rule, but it should not be anchored neither. Clearly, keep the mind pegged has some advantages (it permits to avoid some uncomfortable situations) but it

does not permit to exploit his own potential either. Transposing this principle into the martial arts training, the novice should firstly follow the Takuan's philosophy and only secondly, he can (and he should) follow the Shao's way of thinking.

7. 禍は懈怠に生ず

Wazawai wa getai ni shozu

“Calamity springs from carelessness”. This seventh principle is quite simple to understand even if the idea is really important, both in the dojo and in the daily life. For example, think about the road accidents: most them are caused by the distraction. In the working environment, the inattention could ruin a project, or it could not permit to reach the expected outcomes. During a confrontation or combat, the carelessness may cause a disaster. For these reasons, we should always think about our actions, behaviors and methods keeping in mind that “calamity springs from carelessness”.

8. 道場のみの空手と思ふな

Dōjō nomino karate omou na

The principle number 8 stands that “Karate goes beyond the dojo”. According to my opinion, and considering the purpose of the dissertation, this is one of the most significant concept. Funakoshi preaches that the goal of karate-do is the nurturing of the body and the mind. Its training starts in the dojo but it should not be delimited in it. Rather, it should be practiced also outside the dojo. Also, karate practice in the dojo and daily life outside it are interconnected and influence each other. For example, eating and drinking too much may have an impact on the training and make mind and body exhausted. In the same way, karate training may have an influence on the daily life. But that happens only if karate-do philosophy and training are followed inside and outside the dojo.

9. 空手の修業は一生である

Karate no shuryo wa issho de aru

Karate no shuryo wa issho de aru stands for “Karate is a lifelong pursuit”. This sentence means that there is not an end to improving the karate skills: there is always a next step to reach, therefore every karateist should train all lifelong. Hagakure, a samurai master was used to say that the learning process has substantially three steps. The first one is the beginning, the one in which everybody usually studies a lot but he feels totally unprepared and inexperienced. The intermediate level is the one at which

you are still inexperienced but you start to be careful about your own errors and the other's ones. The next level is the third one, and in here you receive the honors from the other karateists and you are able to criticize the others' mistakes. But there is a fourth level, the most important one, that only who has deeply known the Do (the Way) will incur in. Deeply knowing the Way means that you are conscious about your weaknesses and that the perfection does not exist, nobody is able to reach it. For this reason, you should never stop to follow the Do. The Way will be profoundly known only when an individual has littered the pride and has embraced the modesty. Then, karate is a lifelong pursuit: it should be constantly followed and the practice should never be stopped in order to being today more experienced than yesterday and tomorrow better than today.

10. 凡ゆるものを空手化せよ其処に妙味あり

Arai-yuru mono wo karate-ka seyo, soko ni myo-mi ari

“Apply the way of karate to all things. Therein lies its beauty”. The principle number 10 means as follow: the real spirit of Karate-Do lies in the fact that the life or the death depend on a punch or a kick. If every karateist will deal with every life issue according to this way of thinking and like if the stakes were his own life, then every difficult moment and every challenge will be surely passed. Also, the karateist will also discover the beauty of this path, the path of the Way, and its potential.

11. 空手は湯の如し絶えず熱度を与えざれば元の水に戻る

Karate wa yu no goto shi taezu natsudo wu ataezareba moto no mizu ki kaeru

This next principle, the number 11, says that “Karate is like boiling water; without heat, it returns to its tepid state”. An ancient Japanese proverb stands that improving his own abilities though the practice is like carrying on a cart on a little hill: if you relax, then the wagon will go back. At the same time, the Karate-Do learning would be useless if done without continuous diligence, effort and concentration. In fact, an occasional practice would not be enough: it would cause more disadvantages than advantages. Instead, a continuum of training will surely lead to the best outcome both for the mind and the body and the Way philosophy will be deeply understood.

12. 勝つ考えは持つな負けぬ考えは必要

Katsu kangae wa motsu na makenu kangae wa hitsuyo

“Do not think of winning. Think, rather, of not losing”. This principle number 12 will be explained starting from a maxim of Sun Tzu, still from the book “The Art of War”: “The war strategy should not be depending on the enemies’ attack, rather it should be based on the capacity to deal with when it happens. Then, the significant thing is being prepared and not to be vulnerable when the rival will attack”. Every warrior should know about not to lose, rather than how to win. In fact, being too much confident and being sure about the winning may cause excessive optimism and will lead to impatience and suffering. Also, this behavior will lead to underestimate the counterpart and to lose the humility; then this situation may lead to making enemies and discords. The best behavior a practicing can have is to brave the rival being conscious and self-confident about his own abilities, being always respectful against the enemy, being determined and trying to avoid useless confrontations. A maxim says that when a martial artist is angry also the beasts are used to go away. But if this martial artist smiles then the children are used to go to him”. The brave warrior should be gentle outside and courageous inside. Instead, the craven samurai is used to seem brave outside but weak inside. Karate-Do is the gentlemen’s martial art: the karateist should be gentle outside but deeply brave and determined outside.

13. 敵に因って轉化せよ

Tekki ni yotte tenka seyo

“Make adjustments according to your opponent”. This principle can be explained together with number 14, then their explanation will be at the point number 14.

14. 戦は虚実の操縦如何に在り

Tattakai wa kyo-jutsu no soju ikan ni ari

“The outcome of a battle depends on how one handles emptiness and fullness (weakness and strength)”. I would like to start the explanation of the principles number 13 and 14 using a Sun Tzu’s maxim. The philosopher compared the way of combat to the water. In fact, he was used to say that there should not be a predetermined way of dealing with the enemy. Rather, this process should be adapted to the enemy like the water adapts to the different areas (the water has no shape, it continuously makes adaptations). Whoever is capable of changing according to the enemy’s weaknesses is a skillful strategist (The Art of War). Therefore, principles 13

and 14 give us an explanation about the behaviors during a confrontation, intended as a military one but also in general every confrontation during a martial art training and in a daily life context. If we think about a military conflict, as said a commander should avoid following a not flexible predetermined way of combat the enemy. Rather, his strategy should be as flexible as possible and fluid like the water. His army should change as the enemy and his strategy change and should be let free to move to reach a better adaptation to the situation. This process is also identified as the comprehension of the emptiness and fullness and it is not applied just to the combat strategies but also to the karate-do training. In fact, herein lives the concept of how a kumite match or a kata execution should be done: the karateist must know when he should use force and when he should not, when he should relax the muscled and when he should contract them, when he should be fast or when he should not. And of course, these choices depend on the opposing: exactly in this contest the individual must comprehend the emptiness and fullness and be ready to change according to the changes of the rival. Also, as previously said, these principles can be applied also to the daily challenges. The concept remains the same: emptiness and fullness, adaptation.

15. 人の手足を剣と思へ

Hito no te ashi wo ken to omoe

The principle number 15 stands that “Think of hands and feet as swords”. I personally think this concept is quite simple to understand: it can be literally interpreted. In fact, as said karate-do means the “way of the empty hand” (空手道). Therefore, it uses hands and feet of the expert practicing as swords. Even though the explanation is quite simple and understandable, a clarification is necessary. In fact, it is true that an expert martial artist’s hands and feet are dangerous but also the ones of a non-practicing in a perilous situation are quite the same. If a non-practicing feels in dangerous, then he will use all his force to save his own life. In this context, a beginning practicing would not be able to confront him, even if he is studying a martial art. A maxim says that when a rat is forced against a wall, then it should be also able to bite a cat: this is exactly the idea. We should never underestimate the potentiality of our enemies, neither if they are expert martial artists nor if they are non-practicing or beginner practicing. Instead, we should always be respectful and highly determined in confronting the rival.

16. 男子門を出づれば百万の敵あり

Danshi mon wo izureba hyakuman no tekki ari

“When you step beyond your own gate, you face a million enemies”. This next principle underlies the fact that once you leave your home (broadly intended as your own security) then you will run into dangerous situations and you draw problems if you behave negligently. Everyone should be mentally and physically vigilant and ready to any possible circumstance. The sensei Itosu (a karate expert) was used to lower in front of a Shintoist altar every time he went out. One of his student, Kenwa Mabuni (the founder of the Shito-Ryu karate style) asked him the reason of this behavior. He replied that a man older like him was able to go out and to return home only because of the divine protection. In the same way, every martial artist should be conscious about the dangerous situation he can deal with if he behaves in a negligent way.

17. 構は初心者には自然体

Kamae wa shoshinsha ni ato wa shizentai

The principle number 17 says that “Formal stances are for beginners; later, one stands naturally”. The karate-do (but generally every martial art) has different types of kamae, literally the guard. Some of them are not really useful but they are typical of this discipline mostly for aesthetical reasons. In any case, all of them are the product in the years of the passing down process from the masters to the students. The various types of kamae are particularly important for the beginner: he should practice with them to being able to use them. However, when the martial artist becomes more and more skillful, he should progressively drop out of the anchor point of the kamae. This fact because being too much anchored to this idea can prevent the free execution of the techniques. The more a martial artist becomes experienced, the more he should feel free to move, change the positions, execute all the techniques he wants. If you have noticed, this idea can be connected to the principle number 6. In fact, in this context a martial artist should let free the mind to think and consequently to behave. This concept should not be applied only to the kamae intended as the physical technique but also, we should think about the kamae in a mental context. The physical as well as the mental guard should be abandoned to clear the mind, so that the skilled karateist is free to adapt to the situation like the water. A mind without kamae can be obtained only if the mind becomes impassive and is able to delete the negative thoughts. In this way,

the martial artist is able to reflect straight about how to behave. This idea is quite important because a confused mind may cause accidents and damages.

18. 形は正しく実戦は別物

Kata wa tadashiku jissen wa betsu mono

“Perform prescribed sets of techniques exactly (kata); actual combat is another matter”. As this principle says, katas (therefore the prescribed sets of techniques that simulate an imaginary combat) must be performed exactly as the ancient masters preserved and bequeathed them: they hold all the karate techniques. As the sensei Itosu (who is the Shito-Ryu style founder) said, “Kata must not be adorned, they must be conserved as their origin”. However, in real combats things are usually different. In fact, the kata rituals should not obstacle the adaptation to the enemy: the karateist should be let free to change as the rival changes, like the water.

19. 力の強弱, 体の伸縮, 技の緩急を忘るな

Chikara no kyojaku, karada no shinshuku, waza no kankyu wo wasuruna

“Do not forget the employment of withdrawal of power, the extension or contraction of the body, the swift or leisurely application of technique”. This principle number 19 has an important meaning. In the dojo, it highlights that performing the kata without considering to vary the force, use different rhythms, relax and contract the body, then the techniques are useless. As my master Paolo Carraro is used to say: “If you have to practice karate in this way, then it would be better for you to go for a run. It would be the same thing”. But this principle has to be applied to the kumite matches (real combats) as well. In fact, the kumite practicing should recall and understand when to use or not the force, when relax or contract the muscles, when to perform the technique rapidly or slowly. Only if a karateist understands these teachings, he will be able to deeply grasps the concept of this principle.

20. 常に思念工夫せよ

Tsune ni shinen kufu seyo

“Be constantly mindful, diligent, and resourceful, in your pursuit of the Way”. Last but not least, the principle number 20. In a certain sense, it is the most important one as it contains all the previous principles. In fact, a karateist should be always conscious, diligent and with lots of resources both technically and mentally. This principle will be better explained by using the following narrative by the samurai

master Miyamoto Musashi: “I had my first sword match when I was really young, I was thirteen years old. Since that moment I dueled until I was 29 years old, and I have always been the winner of those matches, no one of them has been lost. But during my thirties I realized I did not win because I was technically superior than my rivals. Maybe I was talented or the other swords schools were technically inferior. Then I started to better study and practice the principles of the Way and I deeply understood it only during my fifties”. Then, how we can understand, also an experienced martial artist as Musashi had the illumination when he was about 50 years old. Same thing for Yamaoka Tesshu, the founder of the Muto Ryu sword style: he had the illumination only during his forties. A 5-10 years practice is not enough neither to become an expert sensei of any martial art and to teach it, nor to deeply understand the Way. For this reason, we should always be careful, devoted, scrupulous and resourceful. If your goal is to comprehend the Way, then you should be more and more meticulous until you will not be able to penetrate the most profound Karate-Do principles. The presumption and the laziness are your enemies.

3.1.4 Effects on body

As done in the previous chapter, we are going to talk also about the effects of karate on body. “Benefits from practice include better overall health and balance” (Woodward, 2009; p. 40), therefore karate has some benefits as any other martial art and in general, as any other sport. As we remember, physical activity reduces the risk of several diseases such as coronary heart disease (CHD), hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, colon cancer, anxiety and depression. It also reduces all-cause mortality rate. In this context, martial arts represent an enjoyable alternative to the traditional workout and give people also the opportunity to learn about self-defense. It has been proved (Woodward, 2009) that not only young people benefit karate and martial arts, but also individuals from every age experience these benefits: in fact, in comparisons with non-physically active persons, middle-age athletes possess a better aerobic capacity, balance, strength, flexibility and a lower fat percentage. Elderly people show high capacities in pushups performed, trunk flexion and balance time on 1 foot.

While the aforementioned analysis refers to benefits of karate and martial arts in general, also several studies that considered elite karate performers have been found. In particular, Koropanoski and his colleagues (2011) focused on the difference between kata and kumite competitors showing their different physical performances and anthropometric profiles. This distinction has been made because kata and kumite develop different characteristics being two different disciplines. Starting with the former, kata practitioners showed a higher flexibility than kumiteists (Koropanoski & al, 2011). Also, their stature is smaller than kumite competitors because kata positions are quite low and high strength demanding. Considering the fact that muscle strength rises with body size at a lower rate than body weight, kata athletes have the possibility to benefit from a smaller stature (Koropanoski & al, 2011). Instead, kumite practitioners were found to have a higher initial acceleration and higher explosive power (in the horizontal, but not vertical). Also, kumiteists showed a larger body size than kata competitors (Koropanoski & al, 2011). No differences were found between the two groups regarding aerobic endurance (both of them require a similar amount of aerobic demand) and agility.

To conclude, another topic should be addressed: the relationship between karate (more in general, martial arts) and body injuries. Karate-do, as any other martial art, implies body techniques that are potentially harmful, such as kicking, striking and in a lesser way throwing (especially in kumite matches, when there is a confrontation with a rival). Despite that, this sport resulted relatively safer than other sports such as football, basketball and wrestling (Woodward, 2009). Sprains, strains and contusions are the most common body injuries; fractures, dislocations, and dental injuries are the less common ones. In any case, hurts can be limited or avoided limiting exposure of inexperienced students and using protective equipment such as padding and headgear, mouthguards and eye and face protection. Moreover, basic principle of karate (and any other martial art) is the self-control.

3.2 Aim of the study

3.2.1 Underlying concepts

In this part of the thesis, I am going to talk about our research. Recalling what it was written in the second chapter, sport benefits on physique and mind have already been explained. Also, some studies that show how sport has an impact on the organizational context are shown in

paragraph 2.6 “Sport and management”. Briefly, Stevenson (2010) proved the higher pay of people who participated some sports than the one of individuals who did not; Kniffin, Wansink and Shimizu (2015) showed how sport engagement boosts job satisfaction and helps people moving from a working condition to the retirement. Also, these authors found a positive relationship between competitive youth sport participation and early-career job prospects and late-in-life outcomes. In addition, the research of McDowell-Larsen and his colleagues (2002) proved that physically active people possess better leadership skills (according to the Executive Success Profile and Campbell Leadership scale) rather than who does not play regular sport.

Moving on the team point of view (therefore, not only the individual one), other researchers have proved sport effects at an organizational level. Among them, Katz (2001) drafted seven lessons regarding motivation improvement of work teams taking example from sport teams. In addition, Pescosolido and Saavedra (2012) focused on cohesion of both sport teams and other type of teams (such as the working ones).

Up to this point, is clear how sport has an influence on people regarding both the daily-life context and the working one. In particular, we have seen how the organizational environment benefits from the world of sport and from people who are physically active. It is where the aim of the thesis was born: at the best of our knowledge there are no studies on karate and its influence on the organizational context. In particular, no studies have been found regarding the relationship between attitudes formed practicing karate and if and how they have an influence on practitioners’ behaviors in a working environment. In other words,

the primary scope of this dissertation is to make an exploration concerning if and how karate practice influences the practitioners’ attitudes and behaviors outside the sport environment, specifically in the working context.

Before going on, a brief explanation of what attitudes and behaviors are. We can define the former as a collection of feelings, beliefs, and thoughts about how to behave that people hold about specific ideas, situations, objects or other people (Griffin & Moorhead, 2013). They are important because they usually represent the mean which people express their feelings though. People’s attitudes are the result of several forces such as their personalities, personal values and their experiences (Griffin & Moorhead, 2013). If for example we think of someone who considers honesty as an important value and this person is dealing with an honest manager, then his attitude toward the manager will be favorable. Again, if we think of

someone who has experienced negative situations with a particular colleague, then his attitude toward that coworker will be negative.

An attitude represents a stable disposition to behave toward objects in a certain way. For example, if I do not like a particular place (disposition), it would be expected that I will not go in that place. In this context, an attitude is formed by three components: cognition, affect and behavioral intention (Griffin & Moorhead, 2013). Cognition represents the knowledge someone thinks to have about something. Thinking about a situation in the organizational environment, I could think that my pay is low. Here, the belief may be true, partially true or totally false. In fact, the pay may be really low but it can also be otherwise. If I do not know the pay of the other colleagues of mine or the average pay for my position in the labor market, then my salary may also prove to be not this low. The second element, the affect, is someone's feelings toward something. The affect can also be indicated as an emotion: in fact, it is something toward we have little or no control at all. Continuing with the previous example I may feel angry about how little I am paid. The last element, the behavioral intention, represents instead the individual's thoughts about how to behave toward someone or something. Still in the previous example, if I think that my pay is low and I feel angry about that, I would also decide to search for another job that has a higher salary (behavioral intention).

Now, recalling Figure 2.1 at the beginning of the second chapter, we can see where attitudes are placed, and behaviors too. After the explanation of the former, we can define the latter. A behavior represents the action, the moment in which the individual behaves toward something, someone or toward a situation. In other words, it is the moment in which he acts, he reacts to achieve a specific outcome. As we can see, it is placed at the end of the process, right before the organizational outcome. That means that individual's actions determine their performances and consequently, organizational results.

At this point, wonder whether attitudes directly have an influence on behaviors or not would not be surprising. "It makes sense that attitudes should guide behaviors. Humans are intelligent creatures, and we expect reasons for our behavior" (Brainbridge, 2016; p. 43). In a literature, several studies about the topic have been done (Brainbridge, 2016) but the results were ambiguous: some of them found a relationship between attitudes and behaviors, some others did not. Over the years, scholars switched the focus from "are attitudes correlated to behaviors" to asking themselves when attitudes are correlated with behaviors and what are the factors that influence them. There are times in which the relationship is proved to be true,

others in which it is not. However, one thing is clear: this connection is quite complex and attitudes are not the only variable that has an influence on behaviors.

As our main goal is to search for a relation attitudes-behaviors between two different environments (sporting and working ones), we may ask which is the benefit of doing that. A positive answer can be that this research is particularly important for the selection process in organizations and for monitoring individuals' performances (and consequently the organizational outcomes) as well. In fact, knowing more about the attitudes of an individual may contribute giving the organization more information about his behaviors, that in turn may contribute in predicting the organizational outcomes. In this context, the selection process refers to the procedure which goal is to choose the most qualified persons for a specific job; people may be chosen from the external labor market (selection process and orientation) or from the internal organization staff (new assignments and promotions) (Spencer & Spencer, 1993). If the hirer comes to know about potential worker's attitudes during the selection process, he would have more information about individual's behaviors, then about organizational results. Same logic is for performance monitoring: knowing employee's attitudes helps predicting his future acts. Therefore, observing his performance means observing the organizational performance too. The aim of this dissertation is to verify whether individual's attitudes (developed practicing karate-do) shape practitioner's behaviors not only in the daily life but in an organizational context as well. If this hypothesis comes to be true, then a significant discover would be made at a company level. In fact, the hirer would know in advance that if someone is practicing (or practiced karate), then some attitudes, behaviors and consequently performance are expected from him. The hirer has the possibility to predict potential worker's behaviors or, if the individual has been already hired, to better monitor his performance in the company.

3.2.2 Method and sample

In order to answer to the research question of the thesis, we decided to apply a qualitative research methodology (in particular doing interviews). A qualitative research method has been considered the most appropriate given the exploratory nature of our research.

Research method

The questions contained in the questionnaire were the following:

1. Why did you approach to this practice? When did you start?
2. Why did you continue karate over the years?
3. In your opinion, which personal abilities, personal aspects and personal competences did you learn from this discipline? What did you learn from karate? Do you use these abilities, competences in the daily life?
4. How much do you think to use the aforementioned abilities, competencies in the working environment?
5. Make some example of how you use the learned competencies and how much they are useful (or they have been useful) in the working context.

We gathered surveys from 26 people who were the following: 11/26 from athletes of the dojo where I actually practice; 3/26 of the dojo where I practiced from 7 to 12 years old; 9/26 at the CTN Libertas¹ (Centro Tecnico Nazionale); 3/26 through friends of mine who practice this sport. Therefore, different dojos and different ways of teaching and learning were considered.

The gathering method basically implied two ways to collect the answers: the first one consisted of making the interview via direct interaction with the respondent. In other words, we made a live interview interacting with the person being interviewed. As not everybody was available for a live survey, a second method consisted of an interview via mobile phone. That is, we called the respondent and questions were made via telephone. In any case, each interview lasted from 15-20 to 30 minutes; few of them even lasted 40-45 minutes. Before each survey, we briefly explained the respondent the aim of this dissertation and the interview goal. Additionally, we assured him about the information privacy. The survey collection process started in February 2018 and the last interviews were collected in April 2018. It began from people of CTN; then we moved to athletes of my dojo, to the ones of my first dojo and at the end we interviewed the three friends of mine.

¹ CTN Libertas refers to a monthly karate workout located in Mogliano Veneto (TV) organized by Dipartimento Karate Libertas. It is opened to every Italian dojo and karate society which wants to share karate knowledge and which is highly motivated in training together. It usually lasts 2 hours: at the beginning, there is the salute; then the warm-up. After that people are divided into two groups: the former is formed by people who practice kata, the latter by athletes who train in kumite. At the end of the training, there is again the salute. Then, everybody goes home.

Every survey was taken in Italian (as respondents' mother tongue was the Italian), afterward translated into English. Therefore, we asked the questions in Italian and then translated into English. We made this for thesis writing purposes.

Respondents' profile

We collected surveys from 26 athletes (both karate masters and students) who do not practice it in a professional way. In other words, it means that those people practice karate, but they do not do that for a living. Therefore, a mandatory requirement was that interviewed people had to practice karate and also have a job that is not about karate. Out of the 26 interviews collected, the interview #16 was not considered because the respondent is a karate master and that was his job. Then, 25 over 26 surveys have been considered for the analysis (see Table 3.1 for a summary of the characteristics of the respondents).

ID	Age	Sex	Y. Of practice	Level	Kata/Kumite	Still practicing?	Master ² ?	Job
1	53	M	39	Black, 5 th Dan	Both	Yes	Yes	Technical employee (surveyor)
2	69	M	40	Black, 3 rd Dan	Kata	No	Yes	Gym owner
3	28	M	23	Black, 3 rd Dan	Kumite	Yes	Yes	Entrepreneur
4	54	M	25	Black, 6 th Dan	Both	Yes	Yes	Technical employee
5	27	F	20	Black, 3 rd Dan	Kumite	Yes	Yes	Salesperson
6	54	M	35	Black, 5 th Dan	Kumite	Yes	No	Painter
7	65	M	43	Black, 5 th Dan	Kumite	Yes	Yes	Government employee
8	30	M	25	Black, 2 nd Dan	Kumite	Yes	Yes	Administrative employee
9	58	M	28	Black, 5 th Dan	Kumite	Yes	Yes	Art restorer
10	56	M	35	Black, 4 th Dan	Both	Yes	Yes	Veritas inspector
11	30	M	15	Black, 1 st Dan	Kumite	Yes	No	Mechanic
12	61	M	45	Black, 5 th Dan	Both	Yes	Yes	Master glass-worker
13	30	F	26	Black, 3 rd Dan	Kata	Yes	Yes	Graphic designer
14	26	F	19	Black, 3 rd Dan	Kumite	Yes	Yes	Basket and athletics coach
15	55	M	28	Black, 4 th Dan	Kumite	Yes	Yes	Train driver
17	20	F	13	Black, 1 st Dan	Kumite	No	No	Workman

² The name of this variable was chosen as "Master?", which scope to make readers understand if the interviewed is a mere student or also a master. However, a clarification is necessary. In fact, karate discipline considers three previous steps before someone can become a master. According to Centro Nazionale Sportivo Libertas – Dipartimento Karate, they are aspiring trainer ("aspirante allenatore"), trainer ("allenatore"), and instructor ("istruttore"). After these steps, the practitioner has the possibility to become a karate master. Every stage includes an examination and certain requirements. In this context, the variable "Master?" was put equal to "Yes" even though the respondent was not a master yet but he was placed one or more step before that. This choice has been made because I considered that even if the interviewed has not reached the status of master, he does teach karate (Anon., 2018, Programma attività 2018).

Table 3.1 (continued)

18	42	M	12	Black, 3 rd Dan	Kata	Yes	Yes	Private detective
19	48	F	10	Black, 1 st Dan	Both	No	No	Translator
20	28	F	14	Black, 1 st Dan	Both	Yes	No	Barman
21	28	F	13	Black, 2 nd Dan	Kata	Yes	Yes	Programmer
22	45	M	36	Black, 4 th Dan	Both	Yes	Yes	Clerk
23	40	M	23	Black, 2 nd Dan	Kumite	Yes	Yes	Production manager
24	40	M	13	Blue	Kumite	Yes	No	Welder
25	56	M	14	Black, 1 st Dan	Both	Yes	No	Clerk
26	37	M	9	Black, 1 st Dan	Both	Yes	No	English teacher
Avg.	43,20		24,12					

Table 3.1 – Summary of surveys respondents

As we can see from Table 3.1, respondents' jobs were quite various and different between each others and they both included manual works and intellectual ones. Moreover, questions of the survey have been collected from practitioners who played karate in a continuous way (at least 2-3 times per week every week; someone even practiced 4-5 times per week), and whom belt (that is to say, their karate level) was at least the blue one³. These selection criteria were used because we assumed that a minimum of practice is necessary to practitioners in order to develop karate attitudes and consequently to translate them into behaviors. Of course, this could not be valid for every person who practices this sport, somebody could also need less time to enter karate philosophy and believe and share it. However, neither few months nor few years are generally enough to deeply comprehend an art and to experience it. A longer period is necessary. All the respondent practiced karate for at least 9 years. Also, most respondents started karate practice at a really young age or during adolescence. This represents another important feature of surveys: in fact, we assumed that karate values have a greater impact during early ages and adolescence rather than after these life stages. Again, this could not be true for everybody: somebody can be shaped by sport also in the middle age, but this influence is more likely to have an effect during early ages or adolescence rather than in other life periods. The reason is that in those stages an individual is developing his values and strengthening his attitudes. Therefore, karate (as any other activity or experience the individual runs) has a higher possibility to impact individual's attitudes.

³ The color of karate belts indicates the practitioner's level. Karate belts order is the following (from the earliest to the final): white, yellow, orange, green, blue, brown, and black. Once a practitioner gains the black belt, then he can still raise his level; in fact, the black belt corresponds to the 1st Dan. After that, the practitioner can take 9 more exams until he reaches the 10th Dan, the highest karate level.

Considering Table 3.1, additional consideration can be made: firstly, both men and women were considered. We do not expect substantial differences between men and women, because karate values are not gender-specific. However, considering both of them permits the research to work on a larger spectrum. Same reasoning can be done for variables “Still practicing?” and “Master?”. As a matter of fact, both current practitioners and non-current ones have been considered; both masters and students have been taken into consideration. Again, no differences are expected between people who were still practicing at the time of interview and people who stopped, as long as they took karate classes at least two-three times weekly, in a regular way for a quite long period. Also, no substantial dissimilarities are expected between masters and students: clearly, a master *voluntarily* teaches karate. Therefore, he does that because he likes it, has passion for karate as a sport and as a philosophy and desires to share these elements. Instead, a student may be not so engaged. For example, think about a kid who did not choose this sport, but his parents chose for him. In this case, the student engagement could not be very high and for this reason, his learning might not be so deep. However, Table 3.1 shows us participants’ age: its lowest level was equal to 20, the highest equal to 69, with an average of 43,20 years. Even more significant is the variable “Years of practice”: the lowest level was equal to 9 years, the highest to 45, with an average of 24,12 years. If these people did not like karate or did not believe in it, they would never practice this sport for a period of minimum 9 years: they would have stopped earlier. These are the reasons by which we do not expect such a difference between masters and students.

3.2.3 Analysis

In this paragraph we are going to explain the analysis of the questionnaires.

In order to achieve the thesis scope, we took into consideration solely questions #3 and #5. The reason is that the goal of question #3 was to explore respondents’ attitudes (according to their point of view) and the aim of question #5 was to explore respondents’ behaviors in the working environment. Therefore, a connection between these two questions has been searched: the underlying concept is that if the person interviewed has some attitudes (as proved by question #3) and these attitudes express themselves into some behaviors (as proved by question #5), then karate-do does have an influence on practitioners’ attitudes and consequently on their behaviors in the working context. Hence, the exploration we are going to do in the dissertation is whether this underlying concept is proved or not.

The adopted methodology is based on survey analysis and researchers as Clark and colleagues (2010), Monin and colleagues (2010), Yin (2009) and Maitlis and Lawrence (2007) were taken as models.

In particular, the method consisted in an interpretative and explorative research approach. The questions of the survey were formulated to achieve a specific aim (the study of respondents' attitudes and behaviors), but at the same time they were not too strict, respondents had also the possibility to give broader answers. The aforementioned research approach was considered appropriate because it provided the opportunity to explore which attitudes and which behaviors were expressed by respondents' words, without having a predetermined idea about the outcome, rather discovering it along the way. The emerged concepts were primarily organized into a first aggregation, giving birth to the first order concepts. They represent the more evident and more detailed emerged concepts, and they are the central key of the analysis. Then, they were gathered into larger groups, giving birth to the second order concepts. These steps were made for both question #3 and question #5, and each single stage is deeply explained below.

3.2.3.1 Question #3

Preliminary operations

Here, they will follow all the preliminary operations of question #3 analysis that led to 1st order concepts. Firstly, raw concepts will be found. Afterwards, the raw concepts will be gathered into groups which has the same meaning. The final result will be the 1st order concepts.

Raw concepts

This section shows the first operations regarding the analysis of question #3.

In this first stage, we made a preliminary reading of question #3 answers. The goal was to sniff around about the most evident concepts that shined through the responses. Since that moment, several karate values and attitudes came from them. Also, immediately clear was the fact that respondents used different words to express concepts that had the same meaning. It happened not only from one interview to another, but also within the same survey. That is, it

also happened that the same interviewed expressed the same concept more than one time using different terms. Despite that, every term was considered and was taken into consideration as a respondent's attitude. Then, attitudes coming from each survey were written for each interviewed. Afterward, a second reading of all the surveys took place. This process was necessary to be sure about the conceits which came from this first step.

To be noted is that the meaning of the terms was not given according to the general significance of it (that is, according to the dictionary definition), rather to the connotation they took in the interviews.

To be also noted is that this passage was made both by myself and my supervisor. In fact, the scientific method to conduct a qualitative analysis needs at least two persons who engage in this level. As we are not talking about quantitative data, qualitative analysis may be a matter of opinion. In other words, the interpretations of surveys and their concepts may be subjective (Yin, 2009). For this reason, the above-mentioned operations were made twice (Yin, 2009). Also, it was made separately. That is, first I extrapolated the conceits on my own; my supervisor did the same on her own. After that, we compared our work to see if some biases were made and to control whether we came to the same conclusions or not.

Table 1 (see Appendix) depicts the result of the previous operations: in the first and third columns, there is the respondent's number; in the second and fourth one, all the attitudes that have been leaked from the analysis. As afore-mentioned, all the transpired concepts were taken into consideration. For example, interviewed #1 referred to both persistence and stubbornness. Considering the survey and its context, those two elements had the same meaning. However, they both were reported. An aggregation process will follow this first step.

Homogeneous groups

The second stage consisted of a first attempt of grouping the terms that had the same meaning (even if we cannot talk about 1st order concepts yet). Even in this case, this operation was made considering the significance of the terms in the surveys, not their meaning according to the dictionary or the general sense. Therefore, some words were classified into 7 groups. Table 2 (Appendix) shows us a summary of this operation: in the first column, concepts derived from Table 1 (Appendix) were considered; the second column contains the name given to each association group. For example, the group "Determination" contains the

following raw concepts: “Commitment”, “Determination”, “Stubbornness”, “Grit”, “Perseverance”, “Persistence” and “Constancy”. As they all were considered to have the same meaning, they were gathered into one bigger group. Same thing was done for the other 6 groups.

To be noted is that not all the words were necessarily grouped. As a matter of fact, some of them have been considered as categories on their own. More specifically, “Determination”, “Discipline”, “Self-control”, “Awareness”, “Self-esteem”, “Hierarchy” and “Respect” were considered as categories formed by several subordinate concepts (depicted by Table 2, Appendix); instead, “Concentration”, “Nothing”, “Reflectiveness”, “Readiness”, “Friendship”, “Humility”, “Patience”, “Perfection” and “Ambition” were not. The whole set of categories gives rise to the 1st order concepts.

Final result: 1st order concepts

At this point, Table 1 (Appendix) were written again considering the groups just formed rather than all the transpired concepts from question #3. In other words, Table 1 concepts (Appendix) were written again considering the 1st order concepts (therefore, concepts with the same meaning were grouped) rather than the raw ones. This process permits a higher level of order and precision and makes the analysis easier. Table 3.2 shows the output of the operation: as previously, the first and fourth columns contain the interviewee’s ID and the second and fourth columns, the 1st order concepts for each one of them.

# of interviewed	1 st order concepts	# of interviewed	1 st order concepts
#1	<ul style="list-style-type: none"> • Discipline • Determination • Respect • Concentration 	#14	<ul style="list-style-type: none"> • Hierarchy • Determination • Perfection
#2	<ul style="list-style-type: none"> • Nothing 	#15	<ul style="list-style-type: none"> • Respect • Concentration • Self-esteem • Patience • Reflectiveness
#3	<ul style="list-style-type: none"> • Self-control • Determination • Hierarchy • Discipline • Respect • Awareness 	#17	<ul style="list-style-type: none"> • Determination

Table 3.2 (Continued)

#4	<ul style="list-style-type: none"> • Respect • Hierarchy • Determination • Self-esteem • Awareness 	#18	<ul style="list-style-type: none"> • Concentration • Self-control • Self-esteem • Perfection • Respect • Determination • Discipline • Humility • Respect • Discipline • Determination • Self-esteem • Concentration • Awareness • Readiness
#5	<ul style="list-style-type: none"> • Respect • Awareness • Hierarchy 	#19	<ul style="list-style-type: none"> • Patience • Determination • Awareness
#6	<ul style="list-style-type: none"> • Self-control • Awareness • Readiness • Concentration 	#20	<ul style="list-style-type: none"> • Awareness • Ambition • Determination • Perfection
#7	<ul style="list-style-type: none"> • Respect • Discipline • Self-esteem • Determination 	#21	<ul style="list-style-type: none"> • Respect • Self-esteem • Awareness • Self-control
#8	<ul style="list-style-type: none"> • Determination • Awareness • Respect • Hierarchy 	#22	<ul style="list-style-type: none"> • Self-control
#9	<ul style="list-style-type: none"> • Respect • Discipline • Determination • Friendship 	#23	<ul style="list-style-type: none"> • Self-esteem • Discipline • Awareness • Concentration • Ambition
#10	<ul style="list-style-type: none"> • Discipline • Self-control • Self-esteem • Determination • Concentration 	#24	<ul style="list-style-type: none"> • Awareness • Humility • Respect • Self-control
#11	<ul style="list-style-type: none"> • Respect • Self-control • Reflectiveness • Determination • Self-esteem • Concentration 	#25	<ul style="list-style-type: none"> • Discipline • Patience • Respect • Determination • Awareness
#12	<ul style="list-style-type: none"> • Respect • Patience • Determination • Reflectiveness • Discipline • Concentration 	#26	
#13	<ul style="list-style-type: none"> • Patience • Awareness • Hierarchy • Determination • Humility 		

Table 3.2 - 1st order concepts question #3

In the end, Table 3.3 shows a summary of the 1st order concepts of question #3. Also, it expounds the frequency of each one of them. As we can see, “Determination” has the highest frequency; it is followed by “Respect”, “Awareness”, “Discipline”, “Self-esteem”, “Concentration” and “Self-Control”. These are the most influent attitudes that were

extrapolated from question #3. They are followed by the others, which have a lower weight. 1st order concepts were 16 altogether.

Frequency (#)	1 st order concept
17	A1. Determination
9	A2. Concentration
1	A3. Nothing
8	A4. Self-control
6	A5. Hierarchy
10	A6. Discipline
15	A7. Respect
3	A8. Reflectiveness
13	A9. Awareness
2	A10. Readiness
9	A11. Self-esteem
1	A12. Friendship
3	A13. Humility
5	A14. Patience
3	A15. Perfection
2	A16. Ambition

Table 3.3 - Summary of 1st order concepts and their frequency (question #3)

Once all of these operations were made, the 1st order concepts definitions (and related sentences extrapolated from the surveys) were made.

Table 3 (Appendix) shows the outcome of this process. This step is quite important because giving a definition to the 1st order concepts makes the reader understand the meaning of them; the association of every definition to sentences extrapolated from the surveys further enhances this process. In fact, in this way the definition can be better understood and give a sense of consistency to the interviews.

2nd order concepts

After the previous steps, a second aggregation process were made. Therefore, we moved to 1st order concepts to 2nd order concepts. This process was necessary to further reduce the categories previously created, in this way the analysis was made easier.

A new reading of the previously created 1st order concepts and their definitions, made clear three big groups. The first one regards the individual's area and his characteristics: it is the biggest, and as we can see from Table 3.4, it contains 11 1st order concepts over 16. This

group was named “Self-awareness” and considers the knowledge, skills and abilities an individual is conscious to possess.

The second group, “Relationship”, moves his focus from an individual point of view to the one of people. That is, this second collection gathers all the attitudes that an individual uses to interact with the others. To be noted is that this group contains also the attitude “Patience” that was also part of the first collection. This operation was done because “Patience” has a double meaning: in fact, it both indicates a confidence about the future and respect of the others’ body, mind, emotions, beliefs, desires and problems (see Table 3, Appendix, for the definitions). For this reason, it was considered as part of both groups.

In the end, the group “Rules” considers the elements that are part of a system of rules. They are external to the individuals but they contribute to shape their attitudes and behaviors as well.

Table 3.4 shows a summary of the aforementioned operations. In the first column, the 1st order concepts of each 2nd order concept are written. The second column just exhibits the 2nd order concepts names. Their definition (as done for the 1st order concepts in Table 3, Appendix) is contained in the third column. In the end, column number four shows the frequency of each 2nd order concept. It was calculated taking the frequency of 1st order concepts written in Table 3.3 and making a simple sum. E.g.: for the 2nd order concept “Rules”, the sum of the frequency of the 1st order concepts “Hierarchy” and “Discipline” (respectively, 6 and 10 as showed by Table 3.3) was made. As we have already said, the category “Patience” is a special case and the coming procedure was followed to fairly divide the frequency of the 1st order concept (equal to 5, see Table 3.3) into 2nd order concepts “Self-awareness” and “Relationship”: we made a reading of the 5 interviews that mentioned the attitude “Patience”. Then, for each of them we tried to understand if it was part of the first definition of “Patience” or of the second one (see again Table 3, Appendix). The outcome was that 1/5 referred to the first meaning of this category (“Quality that implies that an individual is confident about the future. The individual also tolerates problems and suffering in order to reach a specific goal.2, see Table 3.3), 4/5 was part of the second meaning of this category (“Respect of the others’ body, mind, emotions, beliefs, desires, problems.”). Therefore, 1/5 point was attributed to the 2nd order concept “Self-awareness”, 4/5 to “Relationship”.

1st order concepts become...	2nd order concept	Definition	Frequency (#)
A1. Determination A2. Concentration A4. Self-control A8. Reflectiveness A9. Awareness A10. Readiness A11. Self-esteem A13. Humility A14. Patience A15. Perfection A16. Ambition	SELF-AWARENESS	<p>This group gathers all the items concerning the individual and his characteristics. Specifically, it contains all the knowledge, skills and abilities that an individual is conscious to possess. These values have an influence both on the inner part of the individual himself and on the people around him. In this step, the individual is aware of his body, mind, emotions, beliefs, desires, more in general all his characteristics. At the same time, he recognizes the same elements of the people around him and the environment.</p>	70
A7. Respect A12. Friendship A14. Patience	RELATIONSHIP	<p>This second group regards people. In this group the items concern the values that an individual employs to interact with other people. Then at this stage there is a direct interaction between the individual and the other people and this interaction is shaped by the rules system.</p>	20
A5. Hierarchy A6. Discipline	RULES	<p>The last classification contains all the elements regarding a system of rules and the discipline. These items are external to the individual and contribute to shape his values and his behaviors toward himself and the other people too.</p>	16

Table 3.4 - 2nd order concepts question #3

2nd order concepts schema

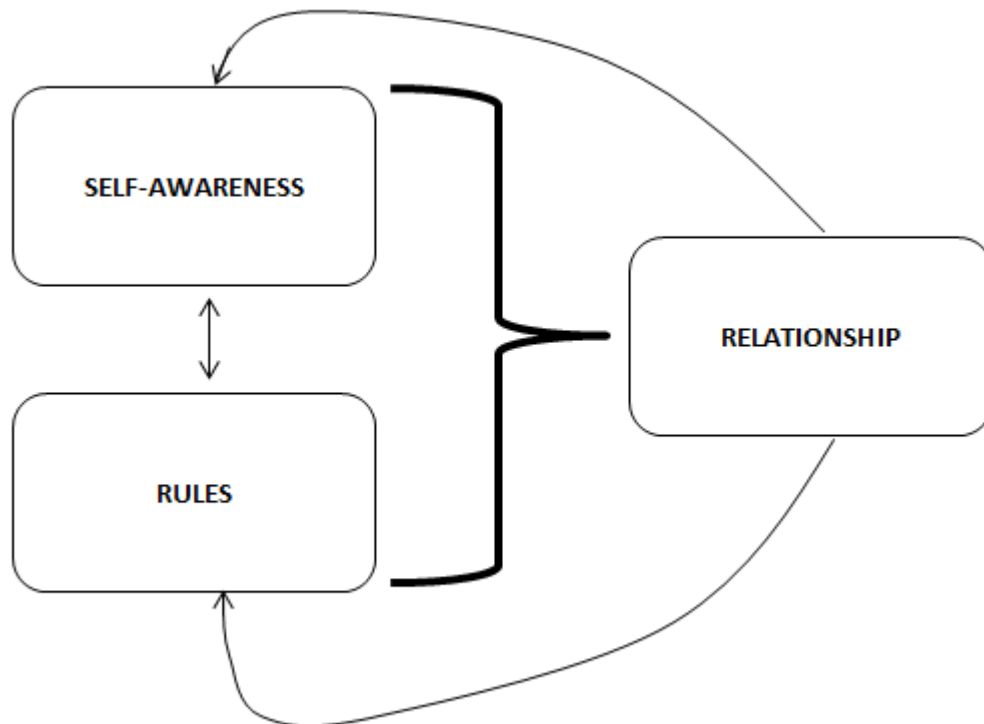


Figure 3.1 - 2nd order concepts schema (question #3)

Figure 3.1 shows the 2nd order concepts just mentioned in the previous paragraph. Then we came from 16 1st order concepts to 3 2nd order concepts. As we said, they are “Self-awareness”, “Rules” and “Relationship”.

The three previous groups are clearly connected: as we can see from the picture, “Self-awareness” and “Rules” influence each other. Their interconnection in turn, has an influence on “Relationship”, then on how the individual behaves toward the society, the others around him considering the hierarchy and the discipline and the values of the individual. The “Relationship” group (considering the individual’s behaviors) have also an influence on “Self-awareness” and “Rules” and the cycle starts again.

3.2.3.2 Question #5

This paragraph shows the analysis of question #5.

As we have already said, we just took into consideration questions 3 and 5 to make the analysis of the interviews. In the previous sections we showed question #3 analysis. In here, we are going to show the one of question #5. Just to recall, it refers to people's behaviors: it explicitly asked respondents to think about applied behaviors connected to the attitudes expressed by question #3.

To be noted is that Spencer and Spencer's book (1993) was taken as a model to name the behaviors depicted by question #5 answers. It is known that this book particularly refers to competencies rather than behaviors, but it was just taken as an example, a model which revealed to be useful to give behaviors a name. We did that because the authors define a competency as "an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation" (Jevscek, 2016; p. 13). A competency is the result of the following elements: motives, traits, self-concept, knowledge and skill. The skills indicate the capacity to execute a specific task, both an intellectual one and a physical one. Therefore, in a certain sense a competency is a broader set than behaviors and the latter is included in the first bigger group. In other words, a behavior is part of the competency. Also, we supposed that a competency is expressed through a behavior. For these reasons, we took Spencer and Spencer's competencies categories as a model. However, we did it in an experimentally way. That is, we neither use them accordingly to the book way, nor we the same meaning as the one of the book. Additionally, we did not use all of them and we even add some new categories that better fitted question #5 behaviors. Specifically, Spencer and Spencer's categories are "Achievement orientation", "Analytical thinking", "Conceptual thinking", "Concern for order, quality and accuracy", "Customer service orientation", "Developing others", "Directiveness: assertiveness and use of positional power", "Flexibility", "Impact and influence", "Information seeking", "Initiative", "Interpersonal understanding", "Organizational awareness", "Organizational commitment", "Relationship building", "Self-confidence", "Self-control", "Team leadership", "Teamwork and cooperation", "Technical/Professional/Managerial expertise" and "Other personal characteristics and competencies" (Spencer & Spencer, 1993). The categories "Conceptual thinking", "Flexibility", "Impact and influence", "Information seeking", "Organizational commitment", "Technical/Professional/Managerial expertise" and "Other personal characteristics and competencies" were not used. Instead, "Rigidity", "Self-awareness" and "Respecting others" were the new added categories.

Question #5 analysis was a little bit different from the one of question #3. It started with a first reading of the respondents' answers; then, a second reading took place. In the analysis of the fifth question, an extrapolation of the raw concepts (as went for question #3 analysis) did not happen. Rather, we named each behavior using Spencer and Spencer's categories. Therefore, we directly jumped from the surveys to the 1st order concepts: all the preliminary operations that were made for the analysis of the third question did not take place.

Also in this case, as went for the third question analysis, the above-mentioned process was made twice. It was made separately, and firstly I extrapolated the 1st order concepts on my own; then, my supervisor did the same on her own. After that, a comparison between my result and her outcome was made.

1st order concepts

Table 3.5 depicts the output of the previous process. As always, the first and third columns contain the respondent's ID; the second and fourth, the 1st order concepts for each interviewed.

# of interviewed	Raw concepts	# of interviewed	Raw concepts
#1	<ul style="list-style-type: none"> Achievement orientation Concern for order, quality and accuracy Rigidity 	#14	<ul style="list-style-type: none"> Directiveness Developing others Concern for order, quality and accuracy Achievement orientation
#2	<ul style="list-style-type: none"> Nothing 	#15	<ul style="list-style-type: none"> Achievement orientation Respecting others Self-confidence
#3	<ul style="list-style-type: none"> Analytical thinking Initiative Achievement orientation Developing others Respecting others 	#17	<ul style="list-style-type: none"> Achievement orientation Initiative
#4	<ul style="list-style-type: none"> Organizational awareness Achievement orientation Team leadership Respecting others 	#18	<ul style="list-style-type: none"> Interpersonal understanding Relationship building Respecting others Organizational awareness Achievement orientation Initiative Concern for order, quality and accuracy
#5	<ul style="list-style-type: none"> Organizational awareness Analytical thinking Interpersonal understanding Customer service orientation Concern for order, quality and accuracy 	#19	<ul style="list-style-type: none"> Analytical thinking Organizational awareness Self-confidence Achievement orientation Self-awareness
#6	<ul style="list-style-type: none"> Achievement orientation Self-awareness Self-control 	#20	<ul style="list-style-type: none"> Achievement orientation Respecting others Self-confidence

Table 3.5 (Continued)			
#7	<ul style="list-style-type: none"> • Achievement orientation • Initiative • Interpersonal understanding • Self-confidence • Relationship building 	#21	<ul style="list-style-type: none"> • Initiative • Achievement orientation • Self-confidence
#8	<ul style="list-style-type: none"> • Self-awareness • Interpersonal understanding • Relationship building • Respecting others 	#22	<ul style="list-style-type: none"> • Initiative • Achievement orientation • Respecting others • Team leadership
#9	<ul style="list-style-type: none"> • Concern for order, quality and accuracy • Achievement orientation • Respecting others • Self-confidence • Initiative 	#23	<ul style="list-style-type: none"> • Relationship building • Directiveness • Interpersonal understanding • Self-control • Team leadership
#10	<ul style="list-style-type: none"> • Respecting others • Interpersonal understanding • Analytical thinking • Directiveness • Self-confidence 	#24	<ul style="list-style-type: none"> • Analytical thinking • Achievement orientation • Interpersonal understanding • Initiative
#11	<ul style="list-style-type: none"> • Respecting others • Teamwork and cooperation • Analytical thinking • Concern for order, quality and accuracy • Achievement orientation 	#25	<ul style="list-style-type: none"> • Self-awareness • Team leadership • Self-confidence • Relationship building • Teamwork and cooperation • Interpersonal understanding • Initiative • Achievement orientation • Respecting others • Developing others
#12	<ul style="list-style-type: none"> • Self-control • Achievement orientation • Respecting others 	#26	<ul style="list-style-type: none"> • Respecting others • Developing others • Teamwork and cooperation • Achievement orientation • Self-control
#13	<ul style="list-style-type: none"> • Interpersonal understanding • Customer service orientation • Organizational awareness 		

Note: interview #16 has been deleted because it did not meet the requirements for the dissertation analysis.

Table 3.5 - 1st order concepts question #5

As previously done, a summary of the afore-mentioned operations will follow. Table 3.6 shows the 1st order concepts of question #5 and their frequency. They are 18 altogether and the most influential are “Achievement orientation” and “Respecting others”. The others follow these two 1st order concepts with a lower weight.

Frequency (#)	1 st order concept
19	B1. Achievement orientation
6	B2. Concern for order, quality and accuracy
1	B3. Nothing
1	B4. Rigidity
6	B5. Analytical thinking
9	B6. Initiative
4	B7. Developing others
13	B8. Respecting others
5	B9. Organizational awareness
4	B10. Team leadership
9	B11. Interpersonal understanding
2	B12. Customer service orientation
4	B13. Self-awareness
4	B14. Self-control
8	B15. Self-confidence
3	B16. Directiveness
3	B17. Teamwork and cooperation
5	B18. Relationship building

Table 3.6 - Summary of 1st order concepts and their frequency (question #5)

Again, as done for question #3, the definitions of each 1st order concepts and related sentences extrapolated from the surveys were done. This process is showed by Table 4, Appendix, that contains the 1st order concepts in the first column. The second one, contains their definition and the third one the sentences from the interviews. As previously said, the creation of a definition for each 1st order concept makes the reader better understand the meaning of each one of them. The extrapolation of sentences from the surveys gives consistency to this process and enhances the 1st order concepts meaning.

2nd order concepts

Last step in analysis of question #5 is represented by the 2nd order concepts. Also in this case, as we made for the 1st order concepts, we used Spencer and Spencer (1993) as a model. The authors use six bigger categories to gather the 21 competencies categories. More specifically, they are: “Accomplishment and operative competencies”, “Competencies of assistance and service”, “Personal efficiency competencies”, “Influential competencies”, “Managerial competencies” and “Cognitive competencies”. As done with the 1st order concepts, we neither use these categories accordingly to the book way, nor with the same meaning as the one of the book. Rather, we used them just as a model to give 2nd order concepts a name. Exactly like previously, not all the categories of the book were used; in fact, “Accomplishment and operative competencies”, “Competencies of assistance and service”, “Personal efficiency

competencies”, “Influential competencies”, “Managerial competencies” were used, instead “Cognitive competencies” was not. Also, the name of these categories changed to “Accomplishment behaviors”, “Behaviors of assistance and service”, “Personal efficiency behaviors”, “Influential behaviors” and “Managerial behaviors” because we are specifically dealing with behaviors and not with competencies. Additionally, the 1st order concepts were gathered according to their meaning (see Table 4, Appendix) and according to the one of the 2nd order concepts (see Table 3.7).

Table 3.7 shows the outcome of the process: in the first column, the 1st order concepts; in the second column, the name of their 2nd order concept. Then, the definition for each of them (column 3) and in the end their frequency. Taking a rapid look, we can see that “Accomplishment behaviors” are the ones which gained the higher grade. They follow “Behaviors of assistance and service”, “Personal efficiency behaviors”, “Influential behaviors” and “Managerial behaviors”. The frequency of each 2nd order concept was calculated adding up the individual 1st order concept frequencies (contained in Table 3.6) for each 2nd order group category. E.g.: the frequency of “Influential behaviors” was calculated taking the individual frequencies of “Organizational awareness” and “Relationship building” and making a simple sum. Therefore: 5 + 5 gives 10.

1 st order concepts become...	2 nd order concepts	Definition	Frequency (#)
B1. Achievement orientation B2. Concern for order, quality and accuracy B6. Initiative	ACCOMPLISHMENT BEHAVIORS	Behaviors that lead the individual to act in order to achieve a fixed goal.	34
B7. Developing others B8. Respecting others B11. Interpersonal understanding B12. Customer service orientation	BEHAVIORS OF ASSISTANCE AND SERVICE	Behaviors expressed by helping and serving the others, nurturing them, understanding their interests, worries, needs and satisfying them.	28
B13. Self-awareness B14. Self-control B15. Self-confidence B4. Rigidity B5. Analytical thinking	PERSONAL EFFICIENCY BEHAVIORS	Behaviors that mirror the individual's ripeness regarding the others and the job.	23
B9. Organizational awareness B18. Relationship building	INFLUENTIAL BEHAVIORS	Behaviors regarding the influence and the impact on the others, and the desire of serving the organization or the others.	10

Table 3.7 (Continued)

B10. Team leadership B16. Directiveness B17. Teamwork and cooperation	MANAGERIAL BEHAVIORS	Behaviors regarding the improvement of teamwork and cooperation, and the management of people.	10
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Table 3.7 - 2nd order concepts question #5

3.2.3.3 Questions #3 and #5 correlation

Until now, the organization of emerged concepts from questions #3 and #5 has been done. The next step consisted of searching for a relationship between question #3 attitudes and question #5 behaviors. As already said, the aim of the dissertation is to verify if karate attitudes have an impact on athletes' behaviors in the working environment. Therefore, in this paragraph we are going to search whether this relationship exists or not. It was done accordingly to the following steps.

Firstly, all the answers to question #3 and #5 were pasted into a 2-columns table: in this way, the comparisons were made easier. To be noted is that we considered the 1st order concepts and not the 2nd order ones. This choice was made because the former are more detailed than the latter. Therefore, we supposed that better and more accurate relationships were possible to find, rather than the ones found using the 2nd order concepts.

After that, each survey was carefully read. In particular, the focus was on question #5: it was read again and an attempt to connect them to question #3 attitudes was made. Specifically, it has been verified if behaviors were correlated to attitudes: if the respondent mentioned a specific behavior in question #5 and in turn this behavior was explained by an attitude showed by question #3, then a relationship between attitudes and behaviors has been considered existing. In the case of the respondent mentioned a behavior that was not explained by an explicit attitude, the individual has been considered to possess also that specific attitude and a relationship between attitude and behavior has been considered existing also in this case. This choice has been made because if an individual has some behaviors, he clearly possesses some attitudes, even if the opposite is not true. Therefore, a higher weight and greater importance were given to behaviors. In the case of attitudes that did not explain a behavior (therefore, in the case in which the respondent mentioned some attitudes but then he did use them to explain his behaviors) a correlation between attitudes and behaviors was considered not existing.

The previous operation was made for each behavior of question #5 and for each interviewed. The result was that 1 1st order concept of question #3 was connected to 0, 1 or more than 1 1st order concept of question #5 and 1 1st order concept of question #5 was connected to 0, 1 or more than 1 1st order concept of question #3. The last sentence means as follows:

- the relationship between 1st order concepts of both the questions was bidirectional: it goes from the first group (question #3 attitudes) to the second group (question #5 behaviors). Therefore, attitudes of question #3 influence behaviors of question #5. But even in the case in which a behavior is not explained by an explicit attitude, this attitude is considered existing in any case. This is the reason why the relation is bidirectional: from the first group some elements have a relationship with some other elements of the second group, but the second group can also lead to make explicit some attitudes of the first group.
- One 1st order concept of the first group can be connected to 0, 1 or more than 1 element of the second group: it means that each element of question #3 could be related to no element of the second group, to only one of them or also to more than one of them. Therefore, an attitude can influence no behaviors, only one of them or more than one of them. The consequence is that not all the elements of the first group were considered to influence the behaviors of the second group and among the influential attitudes, a single attitude has an influence on one behavior or more behaviors.
- One 1st order concept of the second group can be connected to 0, 1 or more than 1 element of the first group: as the previous point, this one means that each element of question #5 may have make explicit 0, 1 or more than 1 attitudes. The consequence is that not all the elements of the second group were considered to give birth (to influence) to explicit attitudes of the first group and among the ones that did it, a single behavior can give birth (to influence) to one explicit attitude or to more than one.

Once all the relationships between 1st order concepts of question #3 and 1st order concepts of question #5 were created, a frequency was calculated for each of them. Near the relationship, the total number of respondents who possessed it was written. To be noted is that the aforementioned operations were organized into a table giving more weight to question #3 attitudes rather than the behaviors expressed by question #5. This choice has been made because the amount of cases in which an attitude influences a behavior (therefore, the relationship goes from question #5 to question #5) is much greater than the amount of cases in

which a behavior gives rise to an explicit attitude (therefore, the relationship goes from question #5 to question #3).

In turn, 1st order concepts of question #3 have been gathered together according to 2nd order concepts of question #3. In this way, not only the relationship between 1st order concepts and 2nd order concepts have been studied, but also the weight of each 2nd order concept of question #3 has been considered.

After the relationships were organized according to the 1st order concepts and the 2nd order ones of question #3, relative frequencies for each 1st order concept of the first group were calculated.

The outcome is that, even if not all the attitudes were connected to specific behaviors, some of them do have an influence on athletes' behaviors. In particular, they have an impact on behaviors in a working context because question #5 specifically required examples in the working environment (recall it says: "Make some example of how you use the learned competencies and how much they are useful (or they have been useful) in the working context.>"). Results will be more thoroughly explained in the next paragraph.

A summary of the abovementioned operations is available in Table 5, Appendix.

3.2.4 Results

Briefly summarizing what was done until now, we saw the details about the analysis of questions #3 and #5. Their analysis consisted in the extrapolation and organization of the concepts emerged from the answers of the surveys. Also, a correlation between the two questions was searched. As we have said at the end of the last paragraph, some attitudes were found to have an influence on athletes' behaviors in the working context. Therefore, our exploration gives positive answers about the effectiveness of karate in influencing practitioners' actions.

In this section, we are going to present the outcomes of the analysis: firstly, some charts will be showed and explained. Secondly, a graphic representation of 2nd order concepts-2nd order concepts correlation of both the questions will be exhibited. In the end, an attempt of statistics correlation will be made. The next section will show an additional confirmation to our

outcomes: an interview to Andrea DiLenna, director of Performando srl who directly works with projects connected to sport.

3.2.4.1 Result #1: attitudes-behaviors relationship

The first chart we are going to explain is represented by Figure 3.2: basically, it shows all the behaviors influenced by attitudes for each attitude that was found to have an impact on athletes' behaviors. Along the y-axis we can see question #3 attitudes, and along x-axis the percentage of behaviors influenced by them. Just to make it clearer, let's observe the attitude "Determination": it has an impact on "Achievement orientation" behavior for 60%, for 24% on "Initiative", 8% on "Team leadership", 4% on "Directiveness" and 4% on "Developing others". The sum of the percentages gives 100%. Taking another example, let's consider "Concentration": this attitude has an impact for 88,89% on "Achievement orientation" and for 11,11% on "Concern for order, quality and accuracy".

It is curious to disclose that these percentages were calculated in Table 5, Appendix: as a matter of fact, they are the relative frequencies showed by the fifth column.

Figure 3.2 represents the heart of the outcome of the thesis: in fact, it does show that a correlation between attitudes and behaviors exists. Also, it shows a summary of which attitudes are significant and which are the behaviors influenced by each one of them. Even if at first glance it may seem a bit chaotic, it is pretty efficient in showing the final result of the dissertation: each color corresponds to a specific behavior and the underlying legend makes colors and the chart understandable.

To be noted, is that not all the attitudes and behaviors are represented by the chart. In fact, as we said in the paragraph 3.2.3.3 Questions #3 and #5 correlation, neither all the attitudes have an impact on behaviors nor all the behaviors give rise to explicit attitudes. Figure 3.2 only shows the significant elements that contributed to the final result.

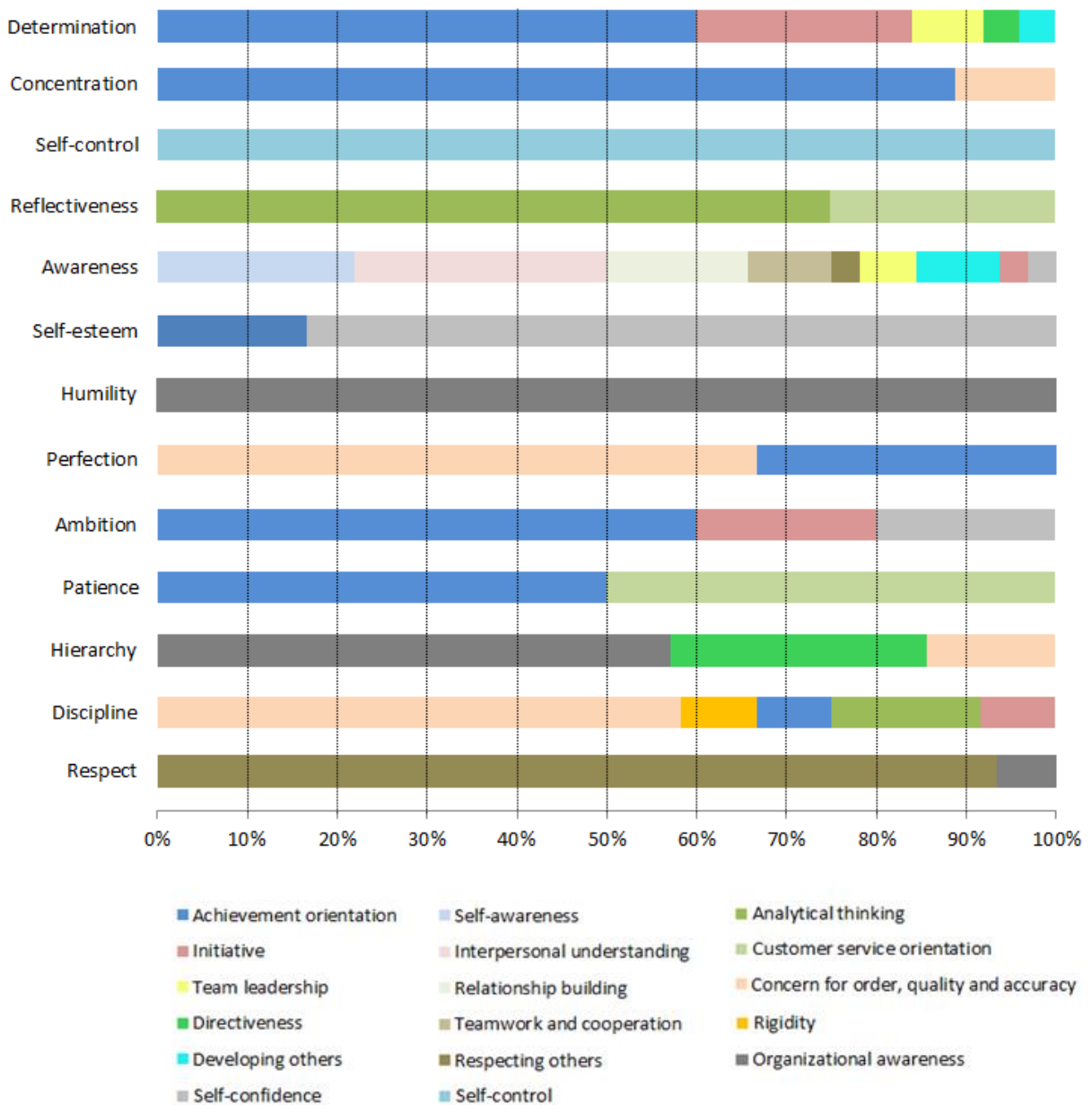


Figure 3.2 - Behaviors influenced by attitudes

Moving on, Figure 3.3 shows the percentage for each 2nd order concept (question #3) that was found to have an influence on behaviors. In other words, let's consider again Table 5, Appendix: as we have previously said, this table was organized gathering the 1st order concepts of question #3 into their bigger grouping, that is into 2nd order concepts. For each one of the latter, a total was calculated: it was the sum of the relative frequencies for each attitude belonging to each 2nd order concept. Therefore, Figure 3.3 percentages are basically the percentages calculated as Total 2nd order concept/Total significant attitudes-behaviors correlations: 73,02% is given by 92/126; 15,08% by 19/126 and 11,90% by 15/126. This chart is important because it focuses on the 2nd order concepts of question #3 rather than the 1st

order ones. So, it makes the result more compact: it exhibits the percentage of each 2nd order concept of the third question that has an influence on behaviors.

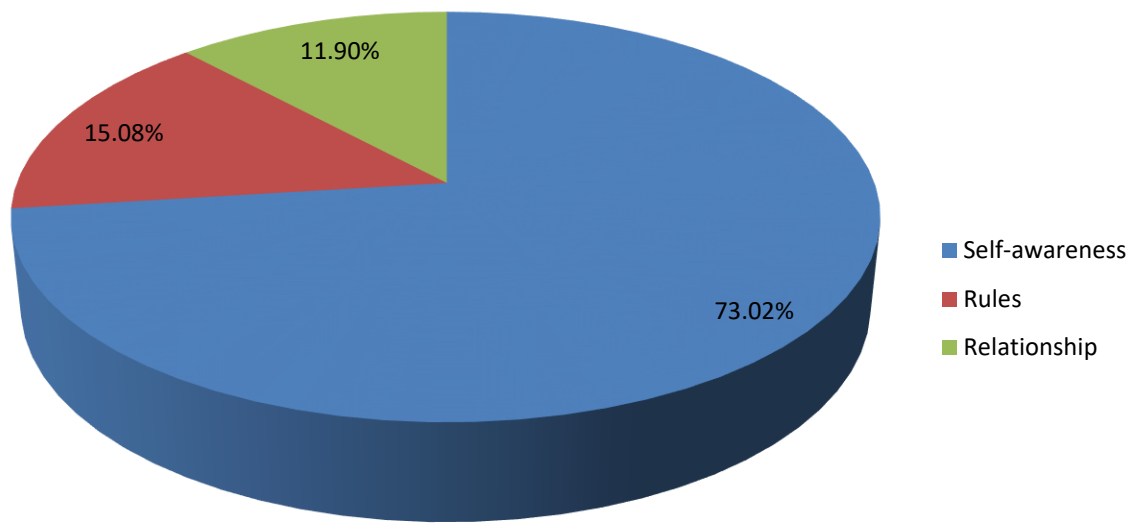


Figure 3.3 - % of 2nd order concepts that has an influence on behaviors

The next chart (Figure 3.4) displays another point by which analyze the results: in fact, it shows the percentage of each behavior influenced by attitudes. In other words, for each behavior that is influenced by one or more attitudes, its percentage over the total significant correlations was calculated. The formula is Total 1st order concept (question #5)/Total significant attitudes-behaviors correlations. Just to make it easier, let's consider the percentage of "Achievement orientation": 24,60% was calculated by the total of "Achievement orientation" (extrapolated from Table 5, Appendix)/Total significant attitudes-behaviors correlations, therefore, 31/126. The other values are calculated in the same way. This chart gives a total picture of which behaviors are influenced by attitudes (even though it does not show which are these attitudes, but this information may be deduced from Figure 3.2).

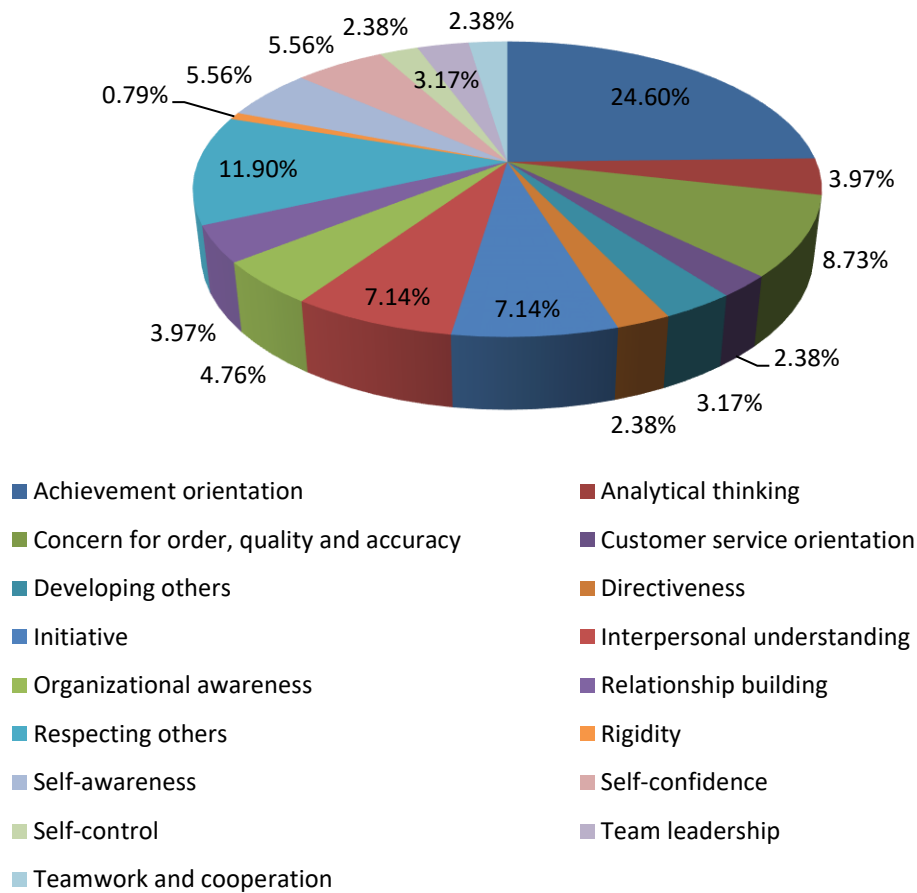


Figure 3.4 - Percentage of behaviors influenced by attitudes

The last chart we are going to analyze is depicted by Figure 3.5: it represents a network. After the previous analyses were made, we thought that correlation between 2nd order concepts of both the questions might better complete the picture. So, the total for each 2nd order concept of question #3 has already been calculated: in fact, it was measured and showed by Table 5, Appendix. As regard the total for each 2nd order concept of question #5, it was computed summing the 1st order concepts for each 2nd order group contained in Table 5, Appendix. For example, “Accomplishment behaviors” was calculated summing the total of “Achievement orientation”, “Concern for order, quality and accuracy” and “Initiative” (information extrapolated from Table 5, Appendix).

To be noted is that neither the total of each 2nd order concept of question #3 nor the one of each 2nd order concept of question #5 give the same results as previously presented in paragraphs 2nd order concepts (3.2.3.1 Question #3) and 2nd order concepts (3.2.3.2 Question #5): the previous results refer to the total for each 2nd order concept mentioned in the surveys

for both question #3 and #5, instead here we are talking about the significant attitudes-behaviors correlations.

Taking a better look at Figure 3.5, we can observe the network: each red circle represents a 2nd order concept of question #3 (attitudes), each blue one a 2nd order concept of question #5 (behaviors). The size of the circles is proportionate to their total value: for example, “Self-awareness” has a total of 92. It is the biggest value, therefore its circle is the biggest one. Same argument leads to the size of the other circles. This choice has been made to give an immediate impact about each 2nd order concept relative weight. Same reasoning has been adopted in drawing the lines: the larger is the lines, the higher is the number of connections it represents. For example, the line that connects “Self-awareness” and “Accomplishment behaviors” is the largest: it represents a total of 41 number connections between these two 2nd order concepts. Same argument leads to the width of the other lines.

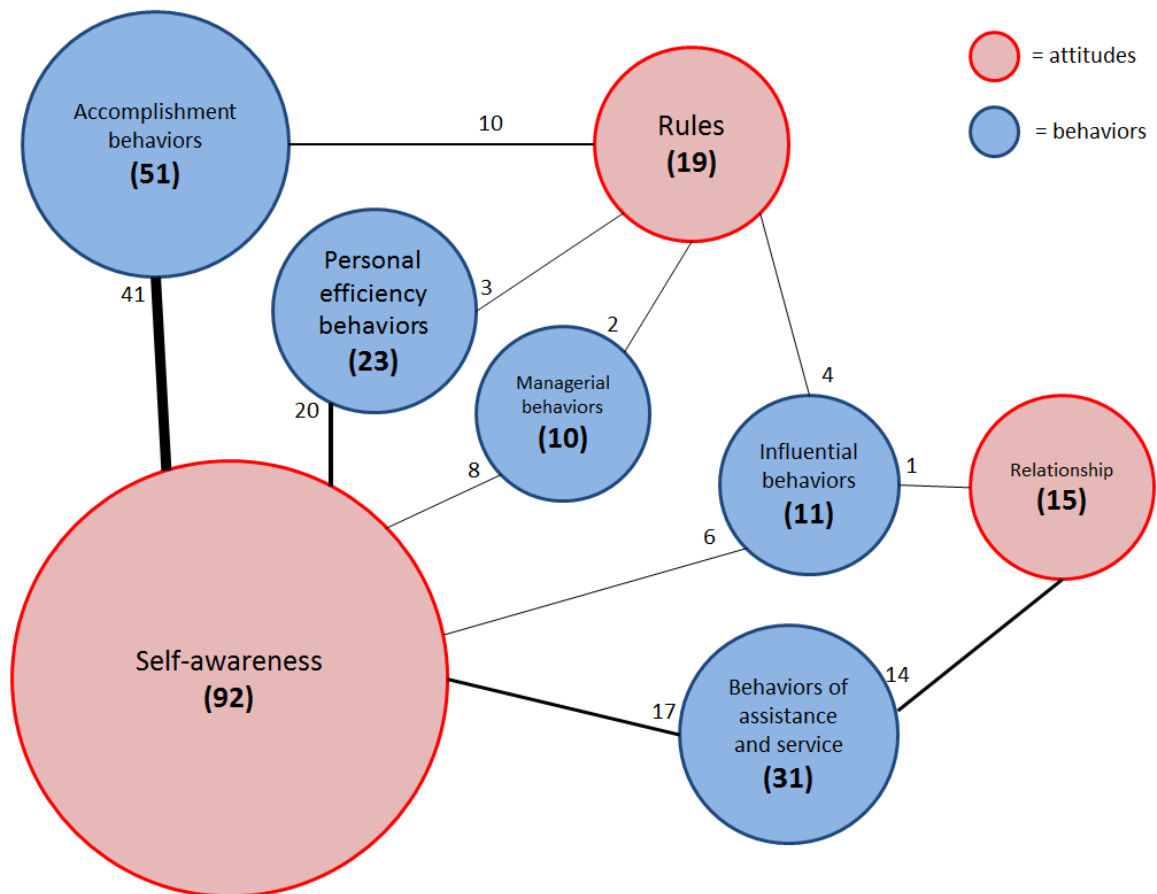


Figure 3.5 - Correlations between 2nd order concepts of both the questions

At this point, the final outcome is pretty clear: we can consider karate to have an influence on athletes’ attitudes that in turn have an impact on their behaviors in the working context. Not

only: we also know which attitudes influence which behaviors. Even if not all of them impact karateists' behaviors, an important part of them do that. The general picture suggests that "Self-awareness" area is the most significant: most of the attitudes that have an influence on behaviors belong to this zone. Therefore, "Determination", "Concentration", "Self-control"; "Reflectiveness", "Awareness", "Readiness", "Self-esteem", "Humility", "Patience", "Perfection" and "Ambition" are the attitudes that mostly influence behaviors. These elements mostly impact "Accomplishment behaviors" ("Achievement orientation", "Concern for order, quality and accuracy" and "Initiative") but also all the other 2nd order concepts in a lesser way. So, the "Self-awareness" area influences all the behaviors areas. The "Rules" area ("Hierarchy" and "Discipline") has mostly an influence on "Accomplishment behaviors", and in a lesser way on "Influential behaviors" ("Organizational awareness" and "Relationship building"), "Personal efficiency behaviors" ("Self-awareness", "Self-control", "Self-confidence", "Rigidity and "Analytical thinking") and "Managerial behaviors" ("Team leadership", "Directiveness" and "Teamwork and cooperation"). In the end, "Relationship" area ("Respect", "Friendship" and "Patience") has an impact on "Behaviors of assistance and service" ("Developing others", "Respecting others", "Interpersonal understanding" and "Customer service orientation") and "Influential behaviors".

In general, each 2nd order concept of question #5 is influenced by 2 2nd order concepts of question #3. Only "Influential behaviors" is influenced by all the three 2nd order concepts of question #3.

To be noted is that lines in Figure 3.5 have no arrowheads: it is true that the focus of this dissertation is to verify the attitudes-behaviors relationship and not the inverse one. But another thing is also true. Remember Figure 2.1 (at the beginning of the second chapter) we can note that surely attitudes do influence behaviors, upon which organizational outcomes are dependent, but in turn these outcomes have again an impact on the individual and both the working and non-working environment and the cycle starts anew. Therefore, drawing arrowheads would not have been totally correct: certainly, we are searching whether karate attitudes have an influence on karateists' behaviors, but once these behaviors have been run, they will have an impact on the outcomes, therefore a new impact on workers' attitudes.

The “Nothing” case

Another important point needs to be discussed. Going back to Table 3.3 (the summary of 1st order concepts of question #3), we can observe that respondent #2’s answer is “Nothing”. Same thing happened in Table 3.6 (the summary of 1st order concepts of question #5): respondent #2’s answer was “Nothing” again. This case has not been considered in the analysis process, because we searched for an existing attitudes-behaviors relationship. Instead, interviewed #2 declared that karate did not help neither in the attitudes formation process nor these attitudes have an influence on his behaviors. More specifically, the subject declared that karate has only taught him its specific techniques, but that he uses family and school values in his everyday life and in the working one. He thinks that sport can shape or complete the formation and education of the individual only if the individual starts the practice early on life, instead the respondent started when he was 21. Even if 24/25 surveys showed an existing attitudes-behaviors relationship, this special case has to be enlightened and represents the other side of the coin. It offers another important point of view: in a certain sense, it confirms one of our underlying concepts which says that in general karate has mainly an impact if started during the early age or adolescence. Therefore, even though the vast majority of respondents considered karate to be useful in forming their attitudes and in influencing their behaviors, respondent #2 did not. And also his opinion, as the other ones, is significant.

Additional elements to consider about attitudes-behaviors relationship

Every time we are considering the relationship between attitudes and behaviors we should also consider other 5 categories of additional factors: measurement issues, perception of behavioral control, attitude formation, cognitive processing, and situational factors (Brainbridge, 2016). Considering these variables may help in better understand both attitudes and behaviors.

Briefly, measurement factors indicate the necessity of observing attitudes and behaviors at the same level of specificity. This fact leads to a stronger relationship between these two elements and to more predictable behaviors.

Behavioral control beliefs refer to the fact that “what a person beliefs about a behavior can also influence whether he or she will perform that behavior” (Brainbridge, 2016; p. 48). They indicate the perception of the level of control someone thinks to have over his behaviors. Measuring this indicator, means greater chances to monitor individuals’ behaviors.

The third variable is formation factors. They refer to the fact that “the way an attitude is formed can also affect whether attitudes influence behaviors” (Brainbridge, 2016; p. 48). If they are formed through direct experiences, they usually have a greater impact on behaviors than attitudes formed through indirect experiences.

Cognitive processing factors refer to how individuals process different attitudes according to their frequency of use. Frequently-used attitudes are easier to activate than infrequently-used ones which activation requires way more time. As Brainbridge and colleagues say: “It makes sense that people who talk about an issue frequently are more likely to engage in behavior consistent with their attitudes than those who rarely consider an issue [...]” (2016; p. 51). Relevant attitudes are better predictors of future behaviors.

The last variable is the situational factors. Simply, they are the “characteristics of the situation in which the individual performs the behavior in question” (Brainbridge, 2016; p. 52).

It has to be noted that 2/5 of these aspects were fulfilled for all the respondents, instead the others need to be considered for each interviewed. In particular, measurement factors and formation factors were the two satisfied conditions: regarding the former, the level of specificity of attitudes and the one of behaviors were the same; regarding the latter, attitudes were definitely formed through direct experiences, as they were formed practicing karate and all the respondents were still doing that at the time of the surveys or did that in the past. Concerning behavioral control beliefs, cognitive processing factors and situational factors, they need to be considered for each respondent. Regarding behavioral control beliefs, we can say that if someone thinks to possess a low level of control over his behaviors, he will probably act in a different way than his attitudes, and vice versa. In this context, the level of motivation a person possesses results significant in predicting and monitoring his future behaviors. More than one respondent said that karate is definitely useful in the everyday and working life, but only if the practitioner is highly motivated in acquiring and using the values of this sport. Also, cognitive processing factors need to be taken into consideration when we are looking at the results of the dissertation. As a matter of fact, outcomes of each respondent should be weighted also according to his cognitive processing factors, therefore we cannot say karate has an equal effect on everybody, rather its effects depend on the practitioner’s personal characteristics. In the end, when we are considering an existing attitudes-behaviors relationship and we look at the obtained results, situational factors have to be considered too. This is also what Figure 2.1 (at the beginning of the second chapter) depicts: clearly certain behaviors depend on certain personal characteristics, but the ones of the environment (both

the working and the non-working one) also impact on the individual, therefore behaviors depend also on them.

3.2.4.2 Result #2: statistical correlation

Another point of view by which observing the outcomes is the statistical correlation. We made it to investigate further, considering also the personal characteristics of interviewed athletes. In particular, they are age, sex, years of practice, discipline (kata, kumite or both), current practice or not, and whether the respondent is a master or not.

Table 3.8 shows a summary of the result obtained. As said, correlation was done to consider not only the mere attitudes and behaviors emerged from respectively questions #3 and #5, but also respondents' personal characteristics. The outcome was that the latter did not have an impact on attitudes-behaviors relationship. In other words, the result of the dissertation does not change according to the personal characteristics of the respondents: activated behaviors do not depend on personal traits. Let's better explain correlation result.

As we can see from Table 3.8, practitioners' age did not influence attitudes-behaviors relationship. As previously said, the average of participants' age was 43,20 years (lowest age equal to 20, highest to 69). Even if the aforementioned average indicates a large range of ages, almost all participants were living in the same life stage. No one of them was a teenager and everybody was clearly a worker (as the fundamental requirement of dissertation asked).

Also no impact was found from respondents' gender: it means that karate teachings influence in the same way men and women. This result was expected because karate values and discipline are not gender-specific.

The variable "Years of practice" did not impact the thesis result because its average was equal to 24,12 years and as Table 3.1 exhibits every interviewed practices for at least 9 years (the highest level of this variable was 45 years). Therefore, all the practitioners do karate since a significant amount of years (or did that for a significant amount of years). 9 years are more than enough to understand karate values and use them in the everyday life context. Every additional year after 9, becomes "useless" in this sense.

Another outcome that Table 3.8 depicts is that there is no difference between kata and kumite in influencing karateist's behaviors. This result was given by the fact that 9/25 respondents

did not practice exclusively kata or kumite, rather they practiced both. Then, we did not have enough data to observe the differences between these two disciplines.

Also, no difference was found between who still practices karate and who stopped. As expected, karate values are permanent, they train and give you a teaching for life. This outcome is especially true considering the data of respondents: they did that for a long period (a minimum of 9 years) practicing at least 2-3 times per week. Therefore, even if someone stopped, he still cares about karate teachings. The only significant correlation (at the 0,05 level – 2-tailed) of the whole table is recorded between the variable “Practicing” and “Behaviors of assistance and services”: it is positive and equal to 0,44.

In the end, the variable “Master?” also was found to have no impact on attitudes-behaviors relationship. Also in this case, this was an expected effect. In fact, again, practitioners’ years of practice are long enough to teach students about karate attitudes. Therefore, in the long run difference between master and student becomes nonexistent (regarding the assimilation of karate values).

	MEAN	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Age	42.13	13.48	1															
2 Sex	.29	.46	-.610**	1														
3 Years of practice	23346	10.83	.623**	-.426*	1													
4 Kata	.13	.34	-.252	.312	-.23	1												
5 Kumite	.5	.51	-.205	-.092	.028	-.378	1											
6 Both	.38	.49	.384	-.118	.129	-.293	-.775**	1										
7 Practicing or not	.92	.28	.186	-.470*	.34	.114	0	-.078	1									
8 Master or not	.67	.48	.161	-.13	.539**	.267	0	-.183	.426*	1								
9 Self-awareness	2,88	1,36	.15	-.077	-.197	.319	-.344	.137	-.141	-.265	1							
10 Rules	.67	.56	.051	-.111	.14	0	0	0	.091	.373	0	1						
11 Relationship	.88	.68	.348	-.293	.174	-.118	-.188	.275	.17	.133	-.112	.227	1					
12 Accomplishment behaviors	1,42	.88	.05	-.097	-.162	.11	.097	-.175	-.029	-.068	.082	.029	.091	1				
13 Behaviors of assistance and service	1,17	.82	-.038	-.248	-.127	.079	-.104	.054	.440*	.147	-.098	.314	.274	-.161	1			
14 Personal efficiency behaviors	.96	.75	.374	-.088	-.019	-.321	-.057	.278	-.222	-.401	.378	-.034	-.011	-.236	-.059	1		
15 Influential behaviors	.42	.58	.07	.013	-.169	.386	-.146	-.113	-.044	.206	.123	.176	.027	-.099	.395	-.058	1	
16 Managerial behaviors	.42	.65	.092	-.274	-.133	-.246	-.13	.303	.196	-.092	-.085	-.314	-.171	-.164	.353	.037	.095	1

** : correlation is significant at the 0.01 level (2-tailed); * : correlation is significant at the of 0.05 level (2-tailed)

Table 3.8 – Statistical correlation between questions #3 and #5

3.2.4.3 Andrea Di Lenna interview – Performando srl

To conclude the paragraph of the results, we interviewed Andrea Di Lenna, director of Performando srl.

Performando srl is a company specialized in managerial training and advisory services about personal and organizational development. It is run by a team formed by several professionals who possess national and international experiences, both in small-medium and in large companies. The whole team's aim is to create customized solutions being placed side by side by famous managers, athletes and in general by influential people. The director of this company is Andrea Di Lenna, that we interviewed to have an opinion about our analysis and our outcomes.

Mr. Di Lenna has a degree in economics and is responsible for managerial training, organizational consultancy, experience-based training and business coaching both for national and international companies. He worked for several important companies (e.g. Galgano & Associati, Aprilia, Luxottica and Emerson) in the HR Department. He also teaches "Human Resource Management for International Firms" and "Economia e programmazione organizzativa" at the University of Padua. According to his background and experience, we deemed him the most appropriate expert to ask an advice about. We met him at the end of May, after the analysis was completed. We mainly focused on the elements of both the questions and the correlation between them. It will follow the summary and the outcomes of this interview.

First of all, Mr. Di Lenna confirmed that non-working activities are particular important when we are interviewing a potential worker or in any case, someone we do not know a lot about. In particular, sport is extremely significant because as Di Lenna said: "*it usually has an impact on individuals and it permits the prediction of behaviors*". In this context, there is no difference between individual and team sports, because they both have an influence on athletes and they both offer a point of view by which acquire more information about the individual.

Secondly, we focused on martial arts, more specifically on karate. Our interviewed was not surprised about the emerged concepts of question #3, in particular about the 2nd order concept "Rules". According to his opinion, this conceit is the key of individualistic sports and in particular of martial arts. In this context, the discipline covers a central role and as Di Lenna said: "*It is highly unlikely that a 3rd Dan karate does not behave in a certain way. Almost always, he acts according to specific actions*". Also, another martial arts key feature is

represented by the role of the master. In here, he is a reference point for all the students: he teaches them about the sport and its techniques. But he also teaches about its philosophy and about karate as a way of life. The master is a life coach and a mentor for his students.

What aforementioned said is definitely true for those people who start the practice in the early ages or during adolescence. But what if someone starts karate during his forties? Could we come at the same conclusions? Di Lenna replied that it depends on how much this person is open to change, on how much he wants to be shaped by karate values. However, in this context also the “Self-awareness” aspect becomes important. In fact, as Di Lenna said: *“We should keep in mind that if someone starts during his forties, his choice is stronger than someone who starts earlier. In fact, this person is aware about his choice, he opted for path A instead of path B, he perfectly knows what he is doing”*. This fact is highly predictive, as well as the reasons that lead this person to start the practice. The self-awareness and self-discipline are particular important when an individual practices sport in life stages subsequent to adolescence: in these stages, you become your own master. For example, the All Blacks team always cleans up the dressing room after a game.

Another point we asked ourselves was the following: do the teachings depend on the dojo in which someone practices? The answer was that generally they do not, it is the sporting discipline that teaches. However, every dojo is characterized by different masters’ teachings. In any case, the most important things to consider are the years of practice and the frequency.

In general, *“every sport teaches to be determined and to always achieve the desired outcome”*, Di Lenna said. Therefore, here there is the explanation of “Accomplishment behaviors”. Also “Personal efficiency behaviors” score is proved to be true practicing any sport. Same thing for “Managerial behaviors”: sport is a way of life. Any of them trains people, and teaches about how to live in a team. Instead, “Behaviors of assistance and service” depend on the sport: for example, soccer does not teach about the discipline.

The previous information is useful in several organizational processes, not only when we are dealing with team building. In fact, they are also useful in a selection and training process. In the former case, information such as the practiced sport by someone plays an important role because in this context, not much information about the individual are possessed by the hirer. Instead, in the second case they play a less important role because the available information about the person are much more than in the first case. In any case, everyone who practices (or practiced) sport is able to better understand more things and to deal with more issues than someone who is not (or did not). Moreover, a sport club is often considered exactly like an

organization: whoever lives (lived) in the former, also knows how to live in the second. In fact, sport teaches about hierarchy and rules, how to deal with work pressures, and how to constructively learn from our own mistakes. Additionally, sport makes anyone ambitious and longing to a continuous improvement.

3.2.5 Conclusions

This paragraph represents the conclusion of our study and the thesis. Also, it wants to show a summary of the outcomes that we have previously displayed.

The aforementioned results took into consideration the 1st order concepts of both question #3 and question #5 and found a general existing relationship between karate attitudes and working behaviors. In obtaining this outcome, not all the attitudes resulted significant in this sense, even if the majority of them were relevant. More specifically, 13/16 attitudes obtained practicing karate were found to have an influence on behaviors. They were: “Determination”, “Concentration”, “Self-control”, “Reflectiveness”, “Awareness”, “Self-esteem”, “Humility”, “Perfection”, “Ambition”, “Patience”, “Hierarchy”, “Discipline” and “Respect”. They influenced 1 or more than 1 behavior/s. On the other hand, the significant behaviors made explicit 1 or more than 1 attitude/s. Therefore, the analysis gave us positive feedbacks about the aim of our initial exploration.

A more complete picture takes into consideration the 2nd order concepts. The outcome shows that regarding the attitudes, the “Self-awareness” area is the most significant in influencing behaviors. The areas “Rules” and “Relationship” follow the former in this order. Regarding behaviors, the “Achievement orientation behaviors” are the most influenced by attitudes. “Behaviors of assistance and service”, “Personal efficiency behaviors”, “Influential behaviors” and “Managerial behaviors” follow the former behaviors in this order (see Figure 3.5). Therefore, neither all the elements emerged from questions #3 and #5 were significant (even if the majority of them were relevant), nor all the elements equally contribute to the relationship attitudes-behaviors. Despite that, this relation was proved to be existent as well as the aim of the dissertation.

However, we need also to consider that 1 over 25 interviews was not considered for the analysis. As a matter of fact, the respondent explicitly said in the interview that he did not

experience any benefit in practicing karate regarding neither attitudes development nor the connection between attitudes and working behaviors. Therefore, this case has been treated as a special one and offers us a different point of view by which observing the general phenomenon, that sees karate as a powerful tool to monitor workers' organizational performance.

Also, a statistical correlation was made in order to verify whether the practitioners' personal characteristics have an influence on the attitudes-behaviors relationship or not. In this context, these features were found to be irrelevant regarding this relation. Even if this outcome means that this association is always existent regardless of practitioners' individual traits, statistical correlation result and explanation need to be read: in fact, they need to be observed considering the particular sample we interviewed.

Our outcomes have also been confirmed by Andrea Di Lenna, who runs Perfomando srl. This company is specialized in managerial training and advisory services about personal and organizational development. It also carries out projects connected to sport, being helped by famous athletes. Mr. Di Lenna agreed on the importance of sport as a predictor of behaviors. He also agreed on our results concerning karate and martial arts. He considers karate as a school of discipline and self-awareness development.

Our work wants to show a different and original point of view in comparisons with the existent literature. First of all, we specifically searched for studies regarding sport and its general benefits: the majority of them refer to its positive effects on both body and mind. In particular, physical activity was found to decrease the risk for several chronic diseases, such as coronary heart disease (CHD), hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, colon cancer. Also, sport decreases the all-cause mortality rate. Physical activity has also positive effects on mind: it helps against anxiety, depression and increases the stress responsivity.

However, our main purpose was to connect sport and management worlds, verifying if and how the former influences the latter. The existent studies we found were primarily focused on team sports and topics connected to them, such as the cohesion and the teamwork. Among them, Pescosolido and Saavedra (2012) and Katz (2001) were found to be useful to achieve our scope and proved the effects of sport at an organizational level from the team point of view. The researchers we based on that focused on individual sport and their influence on the organizational context were Kniffin, Wansink & Shimizu (2015) who proved a positive relationship between competitive youth sport participation and early-career job prospects and

late-in-life outcomes, McDowell-Larsen, Kearney, & Campbell (2012) who proved better leadership skills of those who are physically active and Stevenson (2010) who found a higher salary of those who participated some sports than those who did not.

Instead, our work focused on Karate-Do and on whether attitudes obtained with this sport have an influence on practitioners' working behaviors or not. At the best of our knowledge, this particular center of attention has not been developed before. After a brief focus on the benefits of karate concerning the body (from which it resulted to increase the overall health and balance), our analysis switched to verify the specific above-mentioned goal. Primary purpose of our thesis is to be a valid support to the hiring process and to the organizational performance monitoring process. The managerial implications result to be significant: as outcomes show, a hirer takes some advantages in knowing in advance that an individual practices (practiced) karate. As a matter of fact, he has the possibility to predict his future behaviors. Also, this information is fundamental in monitoring the performances of the workers: knowing that someone practices (practiced) karate, permits to better predict but also monitor his future acts. At the organizational level, an important discover has been made: karate practice represents a significant biodata that every company should consider when dealing with a current practitioner or a former one. These results are particularly relevant to the HR Department regarding the selection process and the performance monitoring because they boost the recruitment of the best person who better fits for a specific role (who can be both external to the company and internal). Also, they permit to monitor the workers' performances because they help in predicting specific behaviors. A company is primarily its workers, then a focus on them is a broader focus on the whole company. And in this sense, karate showed to be definitely relevant.

Limitations and further analyses

Our work shows some limitations and gives some ideas for further analyses.

Firstly, it considers a relatively small sample. As a matter of fact, we interviewed 26 karate practitioners (25/26 were taken into consideration for the analysis). Also, these people were connected between each other. As we have previously said, respondents came basically from four big groups: the dojo where I practiced from 7 to 12 years, the dojo where I currently practice, the CTN and from three friends of mine. Therefore, in this case we are not dealing with a random sample. An idea for the future could be an analysis with a random sample.

Additionally, we took into consideration the following personal characteristics: “Age”, “Sex”, “Years of practice”, “Level”, “Kata/Kumite”, “Still practicing?” and “Master or not?”. Considering more personal traits may lead to a better and more exhaustive research: new tendencies and outcomes may emerge. Despite the fact we considered people whose age ranges from 20 years old to 69, all these people are placed in the same stage of life (they all are workers). An idea for further research may be the consideration of people placed in different steps of life. Same hint could be said for the participants’ karate level: as all the people is black belt (except 1 individual over 26 who has the blue one), considering also different and lower levels to analyze the attitudes-behaviors relationship may be an idea for future research. The variable “Kata/Kumite” has some space for future researches improvement as well. In fact, 9/26 individuals did not practice either kata or kumite, rather they practiced both. This fact made impossible to establish the differences between these two specializations. A further analysis of kata versus kumite practitioners may be interesting and deepen our work. Additional personal characteristics to be considered may be the karate style and whether the karateists practice agonistically or not.

Another point has to be enlightened: despite the fact we start the thesis referring to sport in general and talking about its benefits on both body and mind and its implications on the organizational context, we later focused particularly on karate. Our outcomes may be valid and significant for other sports as well. For this reason, we would suggest a first comparison with other martial arts. Also, a comparative estimate may be made with other individual sports and with team sports as well, to better analyze the difference between individualistic discipline and group ones.

Appendix

# of interviewed	Raw concepts	# of interviewed	Raw concepts
#1	<ul style="list-style-type: none"> • Method • Persistence • Loyalty • Consistency • Stubbornness • Concentration 	#14	<ul style="list-style-type: none"> • Authority • Hierarchy • Determination • Grit • Perfection
#2	<ul style="list-style-type: none"> • Nothing 	#15	<ul style="list-style-type: none"> • Respect • Concentration • Security • Patience • Reflectiveness
#3	<ul style="list-style-type: none"> • Control • Determination • Hierarchy • Education • Respect • Introspection 	#17	<ul style="list-style-type: none"> • Grit • Determination
#4	<ul style="list-style-type: none"> • Respect • Hierarchy • Determination • Self-confidence • Empathy 	#18	<ul style="list-style-type: none"> • Security • Method • Concentration • Self-control • Self-esteem • Perfection • Respect • Commitment • Discipline • Humility • Respect • Discipline • Dedication • Grit • Self-esteem • Self-confidence • Concentration • Awareness • Readiness
#5	<ul style="list-style-type: none"> • Respect • Altruism • Self-knowledge • Hierarchy 	#19	<ul style="list-style-type: none"> • Humility • Respect • Discipline • Dedication • Grit • Self-esteem • Self-confidence • Concentration • Awareness • Readiness
#6	<ul style="list-style-type: none"> • Control • Coordination • Readiness • Concentration 	#20	<ul style="list-style-type: none"> • Patience • Perseverance • Approach to people • Collaboration • Awareness • Commitment • Constancy
#7	<ul style="list-style-type: none"> • Security • Respect • Education • Self-esteem • Self-confidence • Determination 	#21	<ul style="list-style-type: none"> • Self-assessment • Ambition • Constancy • Determination • Perfection
#8	<ul style="list-style-type: none"> • Determination • Introspection • Respect • Hierarchy 	#22	<ul style="list-style-type: none"> • Respect • Self-esteem • Awareness • Control
#9	<ul style="list-style-type: none"> • Respect • Discipline • Determination • Friendship 	#23	<ul style="list-style-type: none"> • Self-control

Table 1 (Continued)

#10	<ul style="list-style-type: none"> • Discipline • Control • Self-esteem • Determination • Concentration 	#24	<ul style="list-style-type: none"> • Security • Discipline • Education • Awareness • Concentration • Ambition
#11	<ul style="list-style-type: none"> • Respect • Self-control • Reflectiveness • Determination • Self-confidence • Concentration 	#25	<ul style="list-style-type: none"> • Introspection • Serenity • Awareness • Humility • Loyalty • Respect • Positivity • Control
#12	<ul style="list-style-type: none"> • Respect • Patience • Determination • Reflectiveness • Discipline • Concentration 	#26	<ul style="list-style-type: none"> • Discipline • Patience • Respect • Tolerance • Commitment • Determination • Collaboration
#13	<ul style="list-style-type: none"> • Patience • Approach to people • Hierarchy • Determination • Humility • Empathy 		

Note: interview #16 has been deleted because it did not meet the requirements for the dissertation analysis.

Table 1 - Raw concepts of question #3

Concepts	Group
<ul style="list-style-type: none"> • Commitment • Determination • Stubbornness • Grit • Perseverance • Persistence • Constancy 	Determination
<ul style="list-style-type: none"> • Method • Discipline • Education • Dedication 	Discipline
<ul style="list-style-type: none"> • Control • Self-control 	Self-control
<ul style="list-style-type: none"> • Serenity • Positivity • Approach to people • Introspection • Awareness • Coordination • Empathy • Collaboration • Altruism • Self-knowledge • Self-assessment 	Awareness
<ul style="list-style-type: none"> • Security • Self-esteem • Self-confidence 	Self-esteem

Table 2 (Continued)

• Authority	Hierarchy
• Hierarchy	
• Respect	Respect
• Consistency	
• Tolerance	
• Loyalty	

Table 2 - *Homogeneous groups of question #3*

What is the name of the category? - 1 st order concept -	What does the 1 st order concept mean? - Definition -	Where does it come from? - Sentences from the surveys -
A1. Determination	Attitude by which an individual is determined and never stops in front of difficulties. Firmness of purpose and grit that permit to reach the goal.	<p>“karate helps in developing willpower” (Interviewed #3)</p> <p>“[...] consider that I work out 5 times per week and I still take part in competitions. Moreover, I have practiced this sport since I was 15 without stopping.” (Interviewed #11)</p> <p>“[...] many things are not impossible, even if they are very hard to obtain. But if you are determined, the obstacles may be overcome. There is a saying which goes: in an apple crate, there is always a rotten apple. But we should always move on” (Interviewed #12)</p> <p>“[...] I always see the outcomes deriving from my teaching” (Interviewed #14)</p> <p>“If you fail, you get up stronger than before.” (Interviewed #17)</p>
A2. Concentration	Attitude by which an individual is able to strongly focus his attention on an action or an activity.	<p>“[...] even in this case, karate practiced competitively really helps in developing both concentration and determination” (Interviewed #10)</p> <p>“It (karate) demands (requires), mainly at a high-level, an extreme ability to concentrate [...]” (Interviewed #19)</p> <p>“Karate has also taught me how to concentrate [...]” (Interviewed #24)</p>
A3. Nothing	No definition required: this is not a KSA.	<p>“I started karate when I was 21, therefore I think that I acquired the personal abilities, the personal aspects and the competencies before I started the practicing karate.” (Interviewed #2)</p> <p>“karate taught me just its specific techniques as it happens by practicing any other sport. I use the values learned from my family and school in my everyday life.” (Interviewed #2)</p>
A4. Self-control	KSA possessed by an individual who is able to control both his body and his emotions and reactions.	<p>“[...] this sport helps me perfectly controlling both my body and mind.” (Interviewed #3)</p> <p>“This sport has taught me control [...]” (Interviewed #6)</p> <p>“(the karate has taught me the) Emotional control: anger, joy, heartache, and so on” (Interviewed #11)</p> <p>“[...] karate has helped me learn how to control my personality that unfortunately was even more quick-tempered some time ago [...]” (Interviewed #23)</p>

		<p>"When there are any tension, I am able to control them and to restore serenity [...]"(Interviewed #25)</p> <p>"karate, but in general every martial art, teaches the importance of hierarchy. It teaches to respect our superiors and helps us to understand "how far we are allowed to go"" (Interviewed #3)</p> <p>"this sport teaches about the hierarchy. The master is the master, the student is the student but this distinction is not to be intended in a negative way: it has to be intended in a spirit of respect" (Interviewed #4)</p> <p>"(the karate has taught me the) Authority, hierarchy: when I was young I was really shy. Partly, I am still like this but now I am able to be authoritative." (Interviewed #14)</p>
<p>A5. Hierarchy</p>	<p>Concept that expresses the individual's capacity to recognize his own status and authority and the ones of people around him (e.g. the master and mates in a dojo, the boss and colleagues in a working context).</p>	
<p>A6. Discipline</p>	<p>Attitude possessed by an individual who is trained to do things according to a specific method and dedication, in order to achieve the best possible outcome.</p>	<p>"The method [...] are aspects that I deal with every day, helping me in planning my life according to my reasonable and accessible objectives" (Interviewed #18)</p> <p>"Whoever practices karate learns also discipline. You cannot improvise a kata. A kata shall be studied with dedication, you have to repeat it a thousand times until it is properly performed" (Interviewed #19)</p> <p>"Karate makes you more confident and more disciplined; it boosts the education" (Interviewed #24)</p>
<p>A7. Respect</p>	<p>Attitude by which an individual has regard for feelings, wishes, rights of others and in general for the other person (both friend and rival). Being tolerant and respectful towards what and who is different from ourselves.</p>	<p>"It (karate) has taught me to be consistent and loyal to my rivals but generally with everybody" (Interviewed #1)</p> <p>"[...] karate has helped me understanding the difference between the power intended as dominance and the power intended as vigor: in the first case, power is coercive, oppressive, instead vigor is expressive and also respectful" (Interviewed #3)</p> <p>"[...] karate has taught me to be respectful to everybody, both team mate and rival." (Interviewed #5)</p> <p>"There is an inviolable respect for people you have in front of you. Before fighting, there is the salute. You have to salute the rival watching him in the eyes, from peers to peers, but lowering. You can be a rival on the tatami and in life as well, but always with respect" (Interviewed #19)</p> <p>"[...] this sport is based on the respect both of the mate and of the opponent" (Interviewed #22)</p> <p>"I have learned [...] tolerance towards who is different than me" (Interviewed #26)</p>
<p>A8. Reflectiveness</p>	<p>Quality possessed by an individual who thinks before acting. Thinking about consequences of an action or</p>	<p>"karate helps me being meditative and not impulsive" (Interviewed #11)</p>

	activity.	“before acting, we have always to count from 1 to 10” (Interviewed #12)
A9. Awareness	KSA that makes an individual aware of his body, mind, emotions, beliefs, desires. He also is aware of body, mind, emotions, beliefs and desires of the others. He knows about the consequences of his actions both regarding himself and the others. He is also aware about the surrounding environment. Condition that leads to a sense of inner calm and self-fulfillment.	<p>“[...] this sport helps me understanding the direction I want to take in my life.” (Interviewed #3)</p> <p>“karate has taught me to understand myself and to be aware of myself.” (Interviewed #8)</p> <p>“[...] mainly with the kids, I have to understand them and use certain kind of language.” (Interviewed #13)</p> <p>“[...] You have to stay there being conscious that you need to count only on your strengths [...]” (Interviewed #19)</p> <p>“[...] it surely stimulates a correct perception of yourself, of what you know and what you know to do [...]” (Interviewed #20)</p> <p>“if the environment (the dojo environment) is optimal it pushes towards collaboration [...]” (Interviewed #20)</p> <p>“[...] you understand when you should go on or when you should give up, by recognizing your limits.” (Interviewed #22)</p> <p>“In the family environment as well as the working one I am used to help the other persons, to encourage them, to positively stimulate my sons and my colleagues.” (Interviewed #25)</p> <p>“[...] I found serenity and awareness.” (Interviewed #25)</p> <p>“[...] you are more relaxed, more aware and positive toward other people.” (Interviewed #25)</p>
A10. Readiness	KSA that expresses the capacity to be prepared and quickly ready for something.	“It demands (requires) [...] a fast mind-body coordination that is amazing in the champions” (Interviewed #19)
A11. Self-esteem	Quality possessed by a person who believes in himself and his capacities and knows how much he is worthy. Self-confidence and respect, ability to win against fears.	<p>“[...] this sport has helped me increase my self-esteem (considering my past).” (Interviewed #4)</p> <p>“karate has given me a sense of safety, both regarding the physical aspect (self-defense) and my potentials” (Interviewed #18)</p> <p>“karate helps you believe in yourself, and dominate your own fears” (Interviewed #19)</p> <p>“[...] everything you learn and obtain from it, you do it alone by increasing your self-esteem.” (Interviewed #22)</p>

A12. Friendship	Value by which two or more persons respect, support and love each other.	“[...] karate (as every Japanese martial art) taught me about [...] the value of friendship.” (Interviewed #9)
A13. Humility	KSA by which an individual is conscious he still has so much to learn. The individual also admits there is always someone more skilled than himself who can teach lots of stuff to him.	“Firstly, it represents a humility lesson: you can learn that “exams never end” because after a belt change there is always another belt change and the second one is always harder than the previous one. It does not matter if you win one thousand competitions or if you possess so many Dans, there is always an exam that is waiting for you, there is always someone who has a higher grade to learn from.” (Interviewed #19) “[...] the internal part makes you humble [...]” (Interviewed #25)
A14. Patience	1. Quality that implies that an individual is confident about the future. The individual also tolerates problems and suffering in order to reach a specific goal. 2. Respect of the others' body, mind, emotions, beliefs, desires, problems.	“Patience mainly in the teaching process.” (Interviewed #13) “(karate has taught me) patience and perseverance.” (Interviewed #20) “I have also learned that patience [...] rewards in the future.” (Interviewed #26)
A15. Perfection	KSA possessed by an individual who is constantly not satisfied in order to improve himself, his abilities and his outcomes in order to reach a better degree of excellence.	“I am used to be a fussy person toward my athletes and not so much affectionate as well. However, this allows their talents to emerge.” (Interviewed #14) The [...] constantly quest for perfection and neatness of katas [...] are aspects that I deal with every day, helping me in planning my life according to my reasonable and accessible objectives.” (Interviewed #18) “[...] by undertaking a path of personal development and searching an ideal state of perfection.” (Interviewed #21)
A16. Ambition	Quality typical of those individuals who strongly want to achieve something in order to continuously improve themselves and their condition.	“[...] by challenging yourself in an idea of continuous improvement.” (Interviewed #21) “Karate has also taught me how to concentrate and constantly improving myself.” (Interviewed #24)

Table 3 - 1st order concepts definitions and sentences from the surveys (question #3)

What is the name of the category? - 1 st order concept -	What does the 1 st order concept mean? - Definition -	Where does it come from? - Sentences from the surveys -
B1. Achievement orientation	Behavior that implies a certain determination, commitment and concentration in order to achieve a specific goal.	<p>“[...] when I have an assignment to solve, I tend to be really resolute. Moreover, I usually solve it on my own, without asking for help.” (Interviewed #1)</p> <p>“[...] the advice process has to make its mark on the client, it has to be like a gyaku zuki: elegant, but at the same time it has also to be deep and precise” (Interviewed #3)</p> <p>“Time management and determination: thanks to these two values we can obtain everything. I personally build up my business” (Interviewed #9)</p> <p>“The hard work, the method and the commitment lead to win in the long run.” (Interviewed #18)</p> <p>“[...] even if I have not a particular qualification, I became responsible of a 50-workers production department, where many of them have a high-school diploma and a couple are also college graduates.” (Interviewed #22)</p>
B2. Concern for order, quality and accuracy	Typical behavior of those people who are used to follow a certain method to achieve a goal, being concerned in quality and accuracy of results.	<p>“[...] I am able to always obtain good results because of the karate method.” (Interviewed #1)</p> <p>“[...] another thing that karate has taught me is to be organized. I usually need to manage more than one thing at the same time. Thanks to this sport I am able to better handle things, to be faster and to waste a lower quantity of time.” (Interviewed #5)</p> <p>“[...] if I have to fix a car, I need to follow a certain procedure.” (Interviewed #11)</p>
B3. Nothing	No definition required: this is not a behavior.	“I did not used anything in my working and personal life that I have learned from practicing karate.” (Interviewed #2)
B4. Rigidity	Behavior by which an individual shows a certain rigidity in managing the routine tasks (e.g.: the individual does things in the same way).	“[...] it leads to a certain rigidity in managing the routine tasks.” (Interviewed #1)
B5. Analytical thinking	Behavior that mirrors the reflectiveness of an individual: conduct by which a person reflects and thinks about the consequences before acting.	<p>“Thinking about my job, if I do not know deeply a market and if I am not able to enter it, then I will not enter it.” (Interviewed #3)</p> <p>“When I am working (I am a saleswoman) I usually have to deal with demanding and not very polite clients. But I do not behave impulsively. I stop, think and afterwards I act.” (Interviewed #3)</p> <p>“[...] I should be reflective, concentrated and I should also operate rapidly. It is like when you are throwing a kizami zuki: you need to think about where you are throwing it, be concentrated but you should also be fast to make a shot and take your rival by surprise.” (Interviewed #11)</p>

		"[...] when I need to do something dangerous, I mentally review the moves and the passages like in the katas." (Interviewed #24)
B6. Initiative	Taking initiative is a behavior of an individual who has a proactive conduct and is curious in order to improve his own condition or reach a particular result.	<p>"[...] I try to be curious and interested about everything." (Interviewed #3)</p> <p>"This mindset has helped me to be courageous and to start up my business: when I was 26 years old I already had 7 employees and I went to Japan to erect buildings and to restore them." (Interviewed #9)</p> <p>"I try every day to go beyond the quantity I produced the day before." (Interviewed #17)</p>
B7. Developing others	Typical behavior of who nurtures people motivating and pushing them and transferring his own values to them.	<p>"When I am training the kids to the approach of running: it is really important to be able to motivate and to push them." (Interviewed #14)</p> <p>"I have noticed that I have transferred my values to my colleagues sometimes; in the working environment, I achieved good results with my collaborators [...]" (Interviewed #25)</p> <p>"I am an English teacher and I applied martial art metaphors and comparisons with martial art movements fluidity to teach rhythm, fluidity and intonation of the English language." (Interviewed #26)</p>
B8. Respecting others	Behavior that implies respect for other people and the rules as well.	<p>"[...] in the working environment I respect everybody, both my peers, my superiors and my subordinates." (Interviewed #4)</p> <p>"[...] there should be respect when we are dealing with both clients and suppliers. In a karate competition, we put ourselves out there and we deal with a rival, but always respecting the rules. In the daily life it is the same thing: you compete with suppliers and clients but always respecting the game rules and the players too." (Interviewed #9)</p> <p>"I work with 7 individuals. Respect and getting along are really important in a work environment." (Interviewed #11)</p> <p>"[...] reciprocal respect, [...] are essential if you want to grow up." (Interviewed #18)</p>
B9. Organizational awareness	Behavior of who is conscious about his position within the organization. Being aware about the hierarchy in the organization.	<p>"[...] I know about my position and I how far I could push it." (Interviewed #4)</p> <p>"[...] usually I know more things than my boss (because I am closer to the clients than my boss), but I recognize my position: it must not be overcome." (Interviewed #13)</p>
B10. Team leadership	Behavior of who guides, instructs and directs people in	"[...] I became responsible of a 50-workers production department [...]" (Interviewed #22)

	order to reach a specific result, solve conflicts and help the others.	<p>"[...] handle the working relationships with confidence, solving and facing the conflicts with authority because I inspire trust and reliability to my colleagues." (Interviewed #23)</p> <p>"[...] I am used to help the other persons, to encourage them, to positively stimulate my sons and my colleagues." (Interviewed #25)</p>
B11. Interpersonal understanding	Typical behavior who is able to understand the other people and be empathic.	<p>"[...] karate educates also on how to be empathic. In a job like mine, being empathic is a really useful asset." (Interviewed #5)</p> <p>"This helps me in better understanding the other people as well, in being more emphatic." (Interviewed #8)</p> <p>"Karate has helped me in being respectful and empathic with everybody. When I read the meters, I know how to relate to people." (Interviewed #10)</p>
B12. Customer service orientation	Customer service orientation is a conduct of who gives the priority to clients' necessities.	<p>"When I am working (I am a saleswoman) I usually have to deal with demanding and not very polite clients. But I do not behave impulsively. I stop, think and afterwards I act." (Interviewed #5)</p> <p>"[...] when I am dealing with a 60-years-old man who does not understand as much about information technology, I have to be patient and focus on his necessities." (Interviewed #13)</p>
B13. Self-awareness	Behavior of who is able to understand himself, his emotions, desires and body also in comparisons with others.	<p>"[...] it (karate) gave me the possibility to understand my emotions, my body and ultimately understand myself." (Interviewed #8)</p> <p>"I am conscious about my body and how it is positioned in a space and/or in comparisons with others." (Interviewed #19)</p> <p>"The practice gives you an incredible internal power; you are [...] more aware [...]" (Interviewed #25)</p>
B14. Self-control	Behavior of who is able to control himself, his emotions, thoughts and reactions.	<p>"Karate helps me controlling the irritability coming from the work pressure: self-control." (Interviewed #12)</p> <p>"Some time ago (before karate practice), if someone attacked me personally, I would have been able to stay calm and I would not have solved the situation." (Interviewed #23)</p>
B15. Self-confidence	Self-confidence is a behavior that implies believing in yourself, having a high self-esteem and being positive in order to solve a problem, deal with a situation or improve a certain condition.	<p>"[...] even if I make some mistake while working, I know my worth and I immediately try again." (Interviewed #7)</p> <p>"This mindset has helped me to be courageous and to start up my business: when I was 26 years old I already had 7 employees and I went to Japan to erect buildings and to restore them." (Interviewed #23)</p>

		#9)
		"When I am confronting someone, I am confident about myself." (Interviewed #10)
		"Sometimes, I need to show character in my work (when there are some people difficult to deal with, I have been always sent to handle them by my colleagues)." (Interviewed #10)
B16. Directiveness	Directiveness is a typical behavior of who authoritatively deal with a situation being assertive.	"[...] the parents prefer to make the kid relaxed, but in my opinion the kid should be pushed to participate in the competitions that is the moment when the kid goes out there, life has to be tackled." (Interviewed #14)
		"What I have learned from karate allows me to handle the working relationships with confidence, solving and facing the conflicts with authority [...]" (Interviewed #23)
B17. Teamwork and cooperation	Behavior of who is favor of cooperation within a group of people or a team. Behavior that implies the teamwork and the getting along of the member to reach a specific result.	"I work with 7 individuals. Respect and getting along are really important in a work environment." (Interviewed #11)
		"[...] I practice the salute every morning with my working squad. We greet each other and we talk about the current state of play; we usually do the same ritual at the end of the working day before going back home." (Interviewed #25)
B18. Relationship building	Behavior of people who care about getting along with the others and developing long-lasting and stable relationships.	"[...] I develop better and long-lasting relationships with both colleagues and supervisors." (Interviewed #7)
		"[...] I get along better with my colleagues too." (Interviewed #8)
		"The clarity in the personnel management and in the personal relationships is fundamental: [...] duty and commitment are essential if you want to grow up." (Interviewed #18)

Table 4 - 1st order concepts definitions and sentences from the surveys (question #5)

3 rd question attitudes	5 th question behaviors	Who (respondent's ID)	Frequency (#)	% of Frequency
Determination	Achievement orientation	1-3-4-7-9-12-14-17-18-19-20-21-22-25-26	15	60,00%
Determination	Initiative	3-7-9-17-18-22	6	24,00%
Determination	Team leadership	4-22	2	8,00%
Determination	Directiveness	10	1	4,00%
Determination	Developing others	14	1	4,00%
		Tot. Determination	25	100,00%
Concentration	Achievement orientation	1-6-11-12-15-18-19-24	8	88,89%
Concentration	Concern for order, quality and accuracy	18	1	11,11%
		Tot. Concentration	9	100,00%
Self-control	Self-control	6-12-23	3	100,00%
		Tot. Self-control	3	100,00%
Reflectiveness	Analytical thinking	5-10-11	3	75,00%
Reflectiveness	Customer service orientation	5	1	25,00%
		Tot. Reflectiveness	4	100,00%
Awareness	Self-awareness	6-8-18-19-21-22-25	7	21,88%
Awareness	Interpersonal understanding	5-7-8-10-13-18-23-24-25	9	28,13%
Awareness	Relationship building	7-8-18-23-25	5	15,63%
Awareness	Teamwork and cooperation	11-25-26	3	9,38%
Awareness	Respecting others	20	1	3,13%
Awareness	Team leadership	23-25	2	6,25%
Awareness	Developing others	3-25-26	3	9,38%
Awareness	Initiative	25	1	3,13%
Awareness	Self-confidence	25	1	3,13%
		Tot. Awareness	32	100,00%
Self-esteem	Achievement orientation	4	1	16,67%
Self-esteem	Self-confidence	7-9-10-15-19	5	83,33%
		Tot. Self-esteem	6	100,00%
Humility	Organizational awareness	13	1	100,00%
		Tot. Humility	1	100,00%
Perfection	Concern for order, quality and accuracy	18-21	2	66,67%
Perfection	Achievement orientation	21	1	33,33%
		Tot. Perfection	3	100,00%
Ambition	Achievement orientation	7-21-24	3	60,00%
Ambition	Initiative	21	1	20,00%
Ambition	Self-confidence	21	1	20,00%
		Tot. Ambition	5	100,00%
Patience	Achievement orientation	12-20	2	50,00%
Patience	Customer service orientation	13-26	2	50,00%
		Tot. Patience	4	100,00%
Tot. Self-awareness (2nd order concept)			92	
Hierarchy	Organizational awareness	4-5-13-18	4	57,14%
Hierarchy	Directiveness	14-23	2	28,57%
Hierarchy	Concern for order, quality and accuracy	14	1	14,29%
		Tot. Hierarchy	7	100,00%
Discipline	Concern for order, quality and accuracy	1-5-9-11-18-19-26	7	58,33%
Discipline	Rigidity	1	1	8,33%
Discipline	Achievement orientation	18	1	8,33%
Discipline	Analytical thinking	19-24	2	16,67%
Discipline	Initiative	3	1	8,33%

		Tot. Discipline	12	100,00%
Tot. Rules (2nd order concept)			19	
Respect	Respecting others	3-4-8-9-10-11-12-15-18-19-20-22-25-26	14	93,33%
Respect	Organizational awareness	19	1	6,67%
Tot. Respect			15	100,00%
Tot. Relationship (2nd order concept)			15	
Nothing	Nothing	2	1	

Table 5 - Summary of attitudes-behaviors correlation process

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