A methodology of assessment based on the interaction between practice-based paths and standardized enquiring instruments

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The object of this paper is to describe an intervention conducted using specific assessment tools created after an analysis of work practices and standardized instruments.

The experience was carried out at a company managing the yard of an important commercial port in Italy, and in this paper the authors also present the reasons underlying the intervention request and a brief explanation of the specific context in which this company operates.

After a description of the steps taken to enquire the work practices on the field, the article continues explaining how, starting from the results of the study about the practices, the authors created specific assessment techniques tailored for this particular situations. Such techniques consist of focus groups and role playing, expressly adapted to the context. A tool for evaluation, namely a grid containing different indicators was also created on the basis of the company needs. At the same time, the authors chose a set of standardized instruments with the aim of using them for integrating the qualitative results. These instruments were the M.P.P. test (Multidimensional Personality Profile) and some Organizational Citizenship scales. The set of the instruments was integrated to provide the company with a broader and more exhaustive set of information, in which the two types of tools gave a different contribution.

The complexity of the problems at stake makes the choice of a qualitative approach necessary. As it is known, anyway, this is unique and non repeatable. For this reason it is important to make it sounder by adding objective data, in order to gain new and strong elements for sustaining the argumentations and making the conclusions usable and controllable by the company and the scientific community.

Keywords: Work Practices, Qualitative Methodology, Quantitative Methodology, Methodology Interaction, Assessment

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1. Objectives of the paper

The objective of this paper is to show how instruments derived from a qualitative analysis were used together with statistically based instruments for creating an integrated system of assessment and feedback for organizations (Thornton & Rupp 2005). This operation adds the advantages of the usage of instruments that can give a standardized feedback (Eurich et al. 2009) both for the researchers during the process of assessment and for the company, which is also allowed to know where it stands in comparison with a larger sample of data, to the depth of qualitative instruments specifically crafted for the committing company (St-Onge et al. 2009). In this way no aspect of the process is neglected, creating value for the research, and there is also the possibility of a greater control of the processes by the researchers.

For doing this, an experience carried out in a real working environment is presented. During that, which was an assessment activity for a big company, these techniques were used.

2. The context

This article has its focus on the assessment experience carried out by a research group in the year 2008. Hence, considering the specific tools used for this intervention, it is important to specify the context in which it has been done.

The intervention which we shall discuss here was carried out at a multinational company which manages the yard of an important commercial port in southern Italy. The company's operations are focused on transshipment, that is, to deal with the movement of containers from long-distance ships onto smaller ships which have the possibility of docking in the smaller ports located in Italy and the Southern Mediterranean. The port serves the entire Mediterranean area and is considered a high quality facility not only for the local area, but for all of Italy. In fact, due to the number of containers handled, it is among the leading ports in the world in terms of goods handled.

To understand the functioning of the port, it is important to refer to the organizational structure and how the organizational chart is set up. A total of approximately 1,000 people work at the port. 800 of those individuals are yard employees with the task of dealing with the loading and unloading of arriving ships. The workers are organized into teams of about 10 people each, coordinated by a Team Supervisor. There are 7/8 ships present at the port's wharf at any given time, on which an equal number of teams work continuously, 24 hours a day. The work day is organized into three shifts, each of which has a Shift Foreman (SF) who coordinates the allocation of the teams working on the ships based on urgency and unforeseen events. The teams are then grouped into three large units, each of which is coordinated by an Operational Unit Supervisor (OUS). The Shift Foreman and the

Operational Unit Supervisor are in radio contact with the Port coordination center, which controls the operations through the monitors, keeping watch over the operations in the yard and the movement of the containers. From an organizational standpoint, this is a critical area of interaction. In fact, the operator at the monitor (Controller) has an important coordinating function because he has to decide how the teams work, on which ships, and with what priority. It should be stressed that all of the figures described above are constantly in contact with each other by two-way radio in order to exchange information and data on the operations which are being performed.
This method of work requires an efficient coordinating function which must be capable of allocating the human resources based on urgent needs, unforeseen events, and the importance of different clients.

A critical aspect is represented by the fact that, despite being monitored as regards their loading and unloading operations, the yard workers have a certain amount of autonomy which effectively allows them to influence the flow of containers based on how they manage routine operations and how they deal with the unforeseen situations which periodically arise.

2.1. The request for an intervention

The port is located in a very particular socio-cultural context, where an industrial culture, which could help the personnel to identify with the company's mission, is lacking.

The owners of the company decided to adopt a dual, challenging objective: that of monitoring and limiting the presence of organized crime, and guaranteeing that the majority of the port workers are from the local area, in order to make a contribution to the economic and social recovery of the area itself. However, these choices make it essential to pay particular attention to the care and development of the personnel, who in many cases, have not internalized an industrial-type working culture. The training of the personnel is thus an area which requires special attention at the company.

Following particularly critical events, which indicate an ambivalent involvement and merely utilitarian attitude on the part of the yard personnel (the laborer level) towards the company, the managers asked themselves how they could sustain positive engagement towards the work on the part of the company's employees. Behavior denoting a lack of participation in the company is often noted, indicated by a high level of absenteeism, lack of coordination between the work teams, and dependence on the orders coming from the hierarchy, without taking responsibility for dealing with critical situations which arise in the yard.

The company management has thus promoted an assessment process with the goal of launching a promotion program for middle management in order to enhance the roles of individuals with high potential. The idea is to then rely upon those individuals to sustain a positive organization of the work teams and a good level of engagement on the part of the laborers.

The request for intervention from the Port Management was driven by the intention to succeed in determining which skills are critical for the Team Supervisors who manage the work teams in the yard. The managers' initial intention was to assess those skills based on criteria of the workers' compliance with general skill levels which are normally measured by assessment programs, for which many different protocols and measurement methods have been developed by now. Once that initial request was made, the group at the Università Cattolica began a process of working together with the managers in order to reformulate the request. A shift was made, from the request to use only standardized tools to assess skills or personality traits, to the proposal to develop an assessment process based on the measurement of skills actually deployed by the workers in their daily operations in addition to the more traditional quantitative methodologies.

The advantages regarding depth, precision and explanatory capabilities of an assessment based on both qualitative and quantitative methods was discussed and accepted by the management despite the problem of a greater expense of time due to the necessity of creating the qualitative instruments after an extensive work of ethnolmetodological observation (Brummel et al. 2009; Krause et al. 2006).

3. The qualitative instruments

The first step taken for creating the qualitative instruments was the observation of work practices. These, as defined by Gherardi, are: "*a mode, relatively stable in time and socially recognized, of ordering heterogeneous items into a coherent set"* (Gherardi 2006). These practices influence and give rise to a specific mode of experiencing and constructing the organization through a process of continuous sense making and interpretation of what happens (Weick 1969, 1995). The working hypothesis adopted is that in real operational situations, it is possible to intercept the (more or less functional) concrete modes through which people develop responses to problems they must face, exchange and circulate knowledge and learning, and share and develop practices and recurrent systems of action with respect to the work needs with which they are faced.

The survey of the work practices was made possible by ethnographic observation work in the field, which allowed for taking note of the work processes, critical points, and real difficulties encountered by the men in the yard. The researchers negotiated with the port managers to devise an ethnographic observation plan which allowed for accompanying the yard teams in all phases of their work, on

each shift. The observations lasted for 14 days, divided into two sessions lasting one week each. For each day, each researcher was assigned to a team, and accompanied that team as it performed its work. The researchers also negotiated permission to take notes in the presence of the workers.

The observation process was guided by certain specific questions which, after having been discussed with the management, represented the viewpoints which the researchers adopted to direct their observations when they were involved in the work situation in the yard. The questions which guided the observation were aiming to assess how and through what processes does the passage from the inputs to the implementation of the company plans take place, what is the proximity/distance between the representation of the anticipated profiles/skills and their translation into practice in the system of action, what methods of promotion and management of knowledge in use are adopted and supported, what points of strength and weakness seem to characterize the organizational situation observed.

The review of the ethnographic forms was a process which initially involved the researchers, who attempted to identify macro-areas in order to understand the material that had been gathered. Recording the information on ethnographic forms allowed for an initial identification of certain critical areas with respect to which the personnel in the yard appeared to develop differentiated work practices, showing different levels of skills in managing unforeseen situations in daily work. This process consisted in the detailed analysis of the data gathered, with the purpose of registering the episodes which, in order to be dealt with, required the ability to activate a process of sense making by the groups of workers. The researchers then identified different types of critical episodes dealt with, which in order to be overcome required the activation of different areas of skills. The outcome of the first re-elaboration of the ethnographic forms was the preparation of a report for the Company Management which was discussed with the managers in order to decide which skills and abilities underlie the modes of work detected. With the managers' contribution, we reconstructed the data which emerged and identified which skills and practices were to be considered relevant and appropriate for monitoring during assessment, based on the company's goals and the management of the work.

Based on the results of this process of identifying skills, which was performed in close collaboration with the Management, specific assessment tools were devised which presented the workers with recurrent work situations and critical situations resulting from the real organization of the work at the port (Table 1).

Table 1: critical situations at the port

Areas and Skills	
Human resources management area	Management of work team groups Promotion of personnel motivation Management of informal working networks which arise based on immediate urgent needs
Knowledge Communication and Management Area	Competent exchange and knowledge circulation Communication styles
Commitment Area	Promotion of commitment to the company Support of commitment
Working Style and Ability Area	Management of priorities and urgent needs Technical knowledge Problem setting/problem solving Safety management

Source: own creation

The design of the setting and assessment tools took place starting with the analysis of the work practices made visible by observation in the field. The work on the practices detected saw active cooperation between the group of researchers and the clients, who participating in identifying a grid in which the dimensions to be assessed were listed by order of importance. The specific nature of this step is that the identification of each skill took place following an analysis of the practices used in the port yard, and that "context of use" for each of them was made explicit. The forms were analyzed, and the study which was performed jointly by the researchers and managers allowed for identifying the recurrent work practices associated with successful work in the yard. Subsequently, the skills necessary for effectively managing the work practices that are considered strategic were identified.

The process of monitoring the skills took place by presenting the individuals under assessment with some of the work situations and practices in use, detected during the phase of observation in the field.

The tools prepared for the assessment were of three types, as indicated below.

3.1. First type of assessment tool: Group discussion starting with forms which depict recurrent problems to be managed.

This type of assessment situation allowed for highlighting the mental schemes activated with respect to problematic situations, which the individuals under assessment were asked to comment on and discuss as a group. For example, in the situation reported in sequence 1. …, the communication process is confused because the Manager calls the Team Supervisor directly due to a slowdown of the lifts. The latter has not been notified by the Controller. We are describing a process, which occurs very often, where the establishment of the temporary decision-making unit cannot take place because a clear exchange of information between the actors is lacking; the manager intervenes, but without activating the Controller. Thus, what prevails is interaction between individuals who remain isolated, and the decision-making unit described above is not established. A communication process is created which does not activate the network consisting of the Shift Foreman and Controller, who each have a viewpoint on the organizational dynamic which is partial, but essential in order to develop an overview of the problem. The middle manager and Team Supervisor alone do not possess the wealth of information necessary to manage the episode in the best manner possible.

Furthermore, in the episode chosen in the box, there is a reference to a problem of managing the men in the yard. It often happens that slowdowns of a technical nature are taken as an opportunity to further slow down production and not work up to one's own abilities. The referenced event can serve to attempt to manage this type of recurrent problem in the simulation. Thus, in this situation, the Team Supervisor must indicate a type of thinking which allows for defining the situation as stated above, while having certain hypotheses in mind as to how to manage his own work group.

Sequence 1

Loading operations are underway involving a strategic ship for a potential new client. The Operational Unit Supervisors have directed that close attention be paid to the process in order to avoid any type of problems or delays. It is known, however, that the yard is full of containers, and this could slow the process down considerably. Thus, it is necessary for everyone to cooperate in order for the shift to perform well.

Shortly after the beginning of the shift, while doing a check of the cranes on the terminal monitor, the Shift Foreman calls the Team Supervisor to check on why certain lift trucks have long work times.

Shift Foreman: “Hey Giacomo, check on lift truck SC 17. The Dispatcher told me that its times are too long. We're at an average of 4.5, which is a bit too low. What's going on?

Team Supervisor: “OK, I'll check on it now.

Team Supervisor (calls the lift operator): “SC 17, what's going on? Your times are too long; is there a problem?

Lift operator: “Yeah, I'm picking up from position xxx, which is far away, you know. The problem was known. The yard is full and we have to do pick-ups in the rear sections.

Team Supervisor: “OK, got it, I'll inform the Dispatcher and Shift Foreman

Team Supervisor to the Dispatcher : “Hi, how come you didn't inform me of the delay with SC 17? The Shift Foreman called to tell me. Anyway, it's because the route is slow.”

The Shift Foreman again contacts the Team Supervisor. Shift Foreman: “can't we speed this up a bit?”

Team Supervisor: “we'll check now, we'll try, but you know how the situation is,

don't you?" Shift Foreman: "OK, OK." The environment is quickly "heating up" during the afternoon. Due to the request to increase the loading speed, which is slower than expected, the operators began to get nervous due to the tension. The Team Supervisor realizes that the far-away position of the containers is slowing down the loading times, but that this is being used as an excuse to justify a certain laxity by the lift operators, who are taking it "easy."
Delivery for discussion. At this point, how can the CO manage this situation?

3.2. Second type of assessment tool: Role Playing

The second type of tool proposed for the assessment is the use of role playing, where people are asked to identify themselves with a professional role and dialogue with their colleagues based on a specific situation which is presented. The role playing scenario was designed based on the analysis of the ethnographic forms, and points out critical situations for which the individuals under assessment are asked to explain, in a group discussion, how they would react if they were involved in such a situation.

In this case, based on a situation outlined starting with the results which emerged from the observations, they are asked to participate in a discussion in which they interpret the role of the Team Supervisor with given tasks.

In the case presented here, the problem is represented by the lack of motivation of the men in the yard, and the use of this role playing scenario clearly

identifies the hypotheses regarding the methods the Team Supervisors can use to motivate the workers. During the assessment, a meeting between the Shift Foremen is simulated, who comment on the situation described.

The Team Supervisor realizes that he is asking a lot of his team, and he also knows that the problems which are occurring have various different causes. There are slowdowns due to the full yard, technical malfunctions, and things aren't working the way they should. He also knows that his group is following procedures properly, but without doing its best. If only the lift operators were to put a bit more grit into it and the crane operators worked harder, the limitations and technical problems could be overcome or at least held in check, allowing the group to maintain a good level of productivity. If the team's mood is good, then it is possible to lessen the impact of the delays due to technical problems.

He decides to intervene with his workers at the end of the shift, to try to motivate them a bit….

Delivery for role playing.

You are a group of COs. Try to imagine what you would do in this situation. Decide on a common strategy to adopt, as COs, identifying and describing four potential actions, in order of priority.

You have 45 minutes.

3.3. Third type of assessment tool: Questionnaire for monitoring recurrent episodes

A final assessment tool, devised using the analysis of the practices, was the questionnaire for monitoring recurrent episodes. This tool was devised starting with the construction of boxes which depict the most common recurrent situations monitored by the research group. These situations were summarized and presented to the workers in the form of a multiple choice questionnaire. The possible answers were developed based on direct observation of behavior in the field. Each alternative

represents an actual form of behavior detected during observation. This tool thus requires the worker to put himself in a certain situation and identify the behavior considered most proper based on one's own knowledge.

One example of this tool is presented below.

There are slowdowns and delays in the loading and unloading operations in the yard (lines of lifts at the cranes, different needs in terms of loading speeds, critical situations,) which are affecting productivity. The CO implements certain solutions and:

Uses his visual control of the yard and suggests moving some lifts from one crane to another, because he knows that they will not be used to capacity.

Leaves it to the Operational Unit Supervisor to intervene and manage the problem: it's his responsibility.

Knows that the Controller is overloaded and therefore does not communicate the problem to him.

Having to manage multiple ships at once, he doesn't have time to deal with these things!!

He concentrates on providing support to the lift and crane operators who have to accelerate their work for certain ships, knowing that a special effort is required of them in these situations.

You can't take care of everything! With the yard full there are many moves and there just isn't time for communications which slow things down…

4. The Quantitative Methods

As it has been said through this article, in addition to qualitative methodologies and instruments, a group of quantitative instruments has been also used for making the assessment more broad and descriptive.

The tools that have been implemented for this assessment have been chosen for their capability of observing variables relevant for the working activity. Another characteristic of the questionnaires was the fact that they would measure different traits, attitudes and behaviors then the qualitative instruments crafted for this intervention, giving a real edge to the assessors in observing a much wider set of variables.

Specifically, the instrument used for this assessment have been the Multidimensional Personality Profile (Caprara et al. 2006), a scale for measuring commitment and one for measuring citizenship behaviors.

The Multidimensional Personality Profile (MPP) is a personality inventory specifically created for assessing traits that are relevant for working. This makes it a useful tool for any work related assessment. Furthermore, the dimensions it measures are different than the ones assessed with the observation-based instruments, or, in rare cases, just partially overlapping. This has been an important factor that led to the choice of it as the main quantitative assessment tool.
The test measures five fundamental areas of personality:

- Agenticity – the attitude of a person to be proactive during in different situations, to find solutions for problems and to have the willingness to change.
- Socio-emotive intelligence – the ability of a person to understand others, to feel empathy and to be able to show emotions
- Self-regulation – the ability of a person to be precise and reliable in accomplishing tasks, of being punctual and of managing his/her own emotions, feelings and desires.
- Ability to face critical situations – the ability of a person to think in an efficient way when faced with a difficult situation.
- Innovation – the ability of a person to find new solutions and of thinking in a different way, also the willingness to do it.

This test provided some insights of the deeper personality traits of the workers that would have been difficult to assess with the work related tasks discussed above. Particularly, the MPP test has been chosen also because its dimensions are substantially different than the ones measured with the qualitative instruments. In this perspective, this assessment shows a methodology in which the two types of instruments should not have correlation, as they are meant to observe a vast range of characteristics instead of proving with quantitative instruments what was found with qualitative ones.

Other two scales have been used for this intervention: a commitment scale (Meyer & Allen 1991, 1997) and a citizenship behavior (Organ 1988, Organ et al. 2005) one. The first scale measures the duty of the workers toward the employee's psychological attachment to the organization. All the three dimensions of organizational commitment were included in the scale:

- Affective Commitment: the employee's positive emotional attachment to the organization. An employee who is affectively committed strongly identifies with the goals of the organization and desires to remain a part of the organization.
- Continuance Commitment: The commitment due to the perception of the high costs of losing organizational membership, including economic costs and social costs
- Normative Commitment: The commitment due to of feelings of obligation.

The organizational citizenship behavior scale measures a special type of work behavior that are defined as individual behaviors that are beneficial to the organization and are discretionary, not directly or explicitly recognized by the formal reward system (Smith et al. 1983).

The quantitative instruments have been administered to the workers during the assessment in small groups. In fact everyday they were split in three groups doing different activities, one of those being completing the MPP test and the scales. The amount of time required for doing that was about 1 hour and 30 minutes.

5. Putting the instruments together

Having data obtained with these two types of instrument, the problem was to give a useful feedback to the organization.

For doing that a grid was created. This instrument allows a broad view of the results of all tasks completed by the assessed workers.

The scores have been given on a scale from 1 to 5 (the scores of the MPP have been transposed within these values too) and weights have been used for giving a greater importance to the qualitative part. Specifically the single dimensions measured with qualitative instruments were weighted following the points of greater interest of the company and the general score of the qualitative part was added to the quantitative for giving the total score.

An example of the grid presented to the management is presented above, weights are recognizable, as well as the single and total scores (Figure 1).

Figure 1. Assessment grid

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Name	Id	Assessors	Role

Minimum score = 10
Maximum score = 50

SCORES								
Dimensioni	W.	Case 1		Case 2		Role playing		Pondered average
		Score	Pond.	Score	Pond.	Score	Pond.	
Group management	0,5		0,0		0,0		0,0	0,0
Leadership	0,5		0,0		0,0		0,0	0,0
Motivation promotion	1,5		0,0		0,0		0,0	0,0
Conflict managementi	1,5		0,0		0,0		0,0	0,0
Communication	0,5		0,0		0,0		0,0	0,0
Affiliation	1,5		0,0		0,0		0,0	0,0
Promotion of positive organizational cultures	0,5		0,0		0,0		0,0	0,0
Priorities management	1,0		0,0		0,0		0,0	0,0
Problem setting and problem solving	1,0		0,0		0,0		0,0	0,0
Safety	1,5	Focus	Score		Pondered			0,0
								0,0

TEST SCORES		
Dimensioni	Test	Score
Agenticity	MPP	
Socio-emotional intelligence		
Self-regulation		
Coping ability		
Innovation		
Committment	COM	
Citizenship	CIT	
		0,0

TOTAL SCORES		BALANCED
ASSESSMENT SCORES	0,0	0,00
TEST SCORES	0,0	0,00
	0,0	0,00

WEAKNESSES	STRENGHTS

Source: own creation

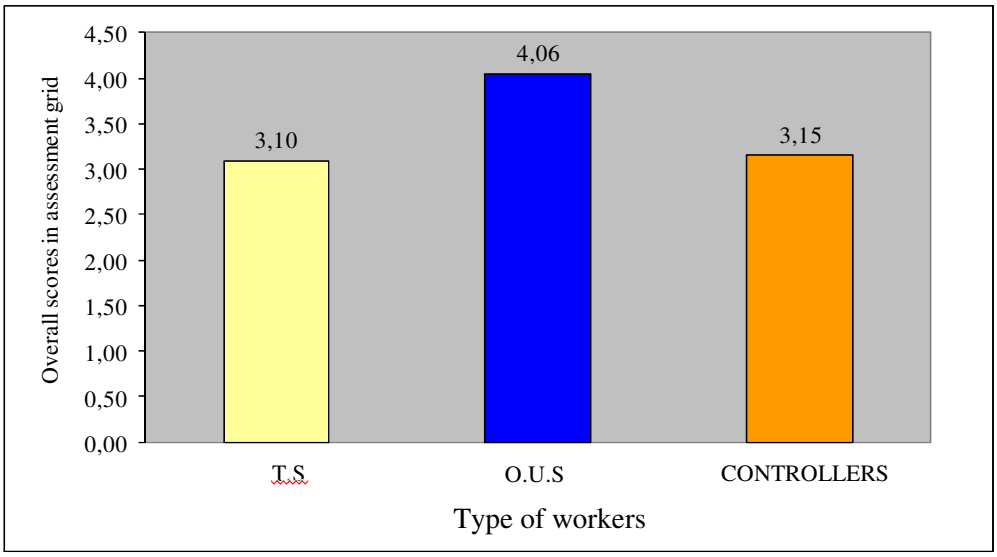
It is important to notice how an area for individual judgments by the assessors has been maintained. This allows the experience of the professionals to add more value to the results. In fact, all the tasks, both qualitative and quantitative, have been conducted with the supervision of at least one assessor, two for the dialogical tasks. This granted the reliability of the assessment and it allowed the professionals to formulate specific notes on every participant.

6. Results

Some results, being in line with the expectation of the company management are used as a tool of validation of the assessment, specifically, the company appreciated these correspondences.

The first fact is that the OUS personnel, already selected by the management from the port crew, scored higher points overall (Figure 2)

Figure 2. Overall Assessment Scores



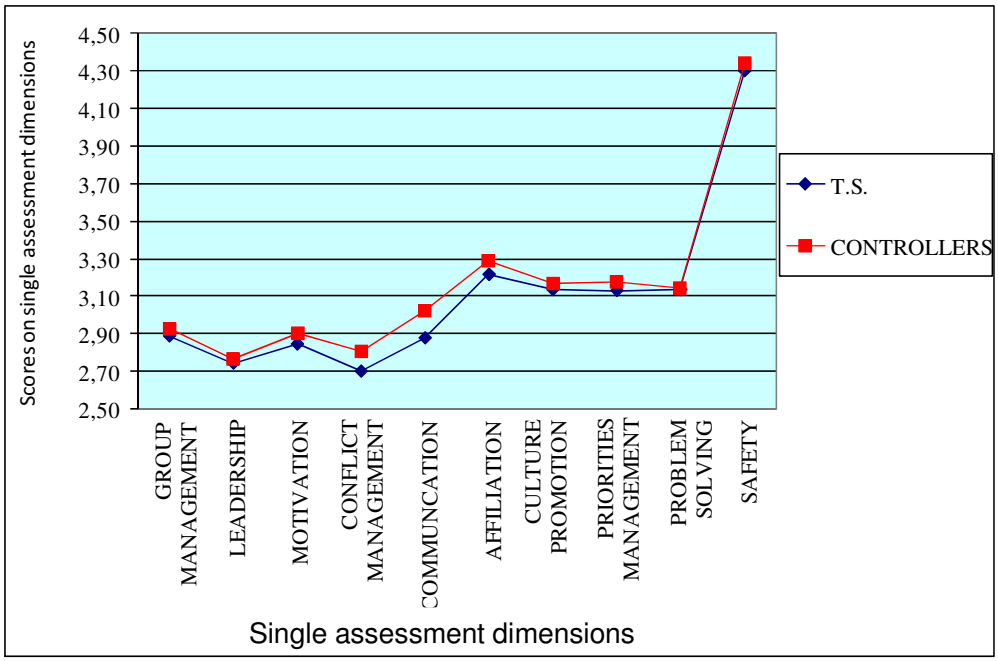
Source: own creation

This is in line with the expectations. The assessment allowed understanding which specific OUSs had outstanding qualities and might be ready for career advancement.

Another result that overall follows the expected path is the difference between dock workers and controllers in the abilities in which controllers are supposed to be stronger (Figure 3)

As it is possible to note, the controllers show higher abilities in communication and conflicts management, and this was expected. Instead, motivation and commitment have been discovered to be higher in the controllers groups with this assessment. Anyway the focus of this intervention was to rate the single workers, and that what has been done. Aggregate charts like these have been taken into account mostly for checking the consistency with expectation and data that the company already had.

Figure 3. Scores on single assessment dimensions



Source: own creation

The feedback from the organization has been very positive. They used the results of the assessment for adjusting their policies in human resources management, and this is still ongoing. They implemented a protocol for continuous assessment based on the findings of the research conducted for creating the instruments discussed in this paper. The organization is now working with the Università Cattolica for implementing a follow up of the intervention, which aims to be even more targeted on the specific environment and practices observed during the first contact.

7. Conclusions

This experience shows how it is possible to put qualitative and quantitative techniques together for adding value to an assessment process and how it is possible to use the results together for creating general and specific rankings that can be useful for the companies for acknowledging their strengths and weaknesses and for choosing courses of action.

The quantitative part, being corroborated by a vast database, gives also more strength to the company in its eventual actions toward the single workers and the groups that might follow the assessment. This is a fact that must been taken into consideration, especially in realities in which trade unions are strong.

On the other hand, the qualitative part was not only important for its assessment value, it was useful for the managers in order to become more familiar with the dynamics of the yard. The reflection on the ethnographic forms produced an outcome in terms of very in-depth knowledge of the real work processes and led to considerations with respect to new methods of organizing the work of the teams.

Furthermore there is the advantage for the researchers to have objective data that are useful for the scientific community. In fact the context in which this assessment has been carried on is very particular, as it has been said, and the data obtained can be helping for future scientists and professionals operating in similar contexts.

A fact is that there has been a high level of participation. Despite being an evaluation/development session, most of the participants participated actively, considering the work setting to be useful as training. The tests and scales created curiosity about the scores and about how they work, the parts derived from the observations have been perceived as a possibility for close exchange between professional figures who cooperate with each other daily, but do not have the opportunity to understand the different viewpoints used to interpret work situations.

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