



## Building High Performance Teams

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# Building High Performance Teams

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**Abstract.** Work design is being constantly transformed by technology and requirements for polyvalent workers piloting the work system instead of operating it. Performance no longer depends exclusively on working hours, but in multiple aspects that balance the vision of production systems results. The purpose of this paper is to investigate self-management teams' implementation and its effects on performance. A Brazilian cosmetics company case study of team development was used as a guidance for this investigation and company performance reports were the data source for descriptive statistics and multivariate analysis. Boxplot performance analysis was applied over team building stages along with One-way Variance Analysis to test average performance differences among stages' transitions. Tukey test was sequentially applied to identify its statistic differences in pairs. Results revealed team development reached the expected performance over team stages. Forming to storming, though, was the only transition with no performance average gains. Storming to norming was the highest improvement, which meets literature principles. The present research is limited to a single sociotechnical environment and performance measurement is based on average data. Therefore, specific conclusions imply further research to extend findings to other contexts. However, the present study identified empowerment best practices to achieve superior performance. The originality of this paper consists on providing consistent connection between team development theory and practice, exploring sociotechnical approach benefits through practices into performance.

**Keywords:** Work organization, Team performance, Self-managed teams, Empowerment.

## 1 Introduction

Work rationalization, born in the Classical School with Scientific Administration, indorsed critical specification for task execution, and little flexibility in the work posts. Taylor's organizational model consisted of a rigid hierarchy, that it was highly dictating specialized and standardized tasks (Weisbord, 2011; Batiz-Lazo, 2019). The

social scientist Elton Mayo was the first to reveal opposition to this work system. Hawthorne Experience, coordinated by the sociologist between 1924 and 1933, showed that Western Electric Company's productivity increased with the stimulus of social aspects in the work environment. The School of Human Relations contradicted Taylor's theory since it knocked down the preponderance of physiologic factors on the psychological ones (Zoller and Muldoon, 2019). Toyota's Japanese approach also brought revolutions when they started to consider the intellectual prospect of working members as a critical success organizational factor (Simonetti and Marx, 2010).

The models that came after Taylorism started to value the collective work, inside of activities that before were only mechanists. They tried to bring together the projection with the execution of tasks previously segmented by the classical approach (Joullié, 2018). Autonomous teams, however, presented a differentiation factor: the minimization of the hierarchical role figure, stimulating teams for high performance (Marx, 1997). The sociotechnical model was discovered, and subsequently, studied by Tavistock Institute researchers after observing the productivity's optimization in the English coal mines through self-management in 1949 (Salerno, 1994; Moreira and Marx, 2008).

Lee and Edmondson (2017) recently investigated current trends and expected benefits that motivate the development of self-managing organizations. Less-hierarchical organizations with employee empowerment initiatives stimulate brighter and faster responses in dynamic conditions. Also, Yin *et al.* (2018) argue that empowerment has been a mechanism to reduce traditional managing costs and proposed an economic perspective to explain how empowerment practices affect organizational performance indirectly through moderating the effect of the employee-employer exchange relationship.

The work with greater autonomy can increase productivity and work motivation providing competitive advantage for organizations (Manz and Sims, 1996). The implantation of autonomous teams according to the sociotechnical model, however, involves great and challenging organizational changes (Salerno, 1994). The introduction of these teams requires a new style of leadership and designates greater responsibilities to workers, and not everyone is willing to work in teams. The implementation of these teams is usually of medium to long term and involves high costs, demanding deeper organizational changes and there is not always a consensus between the hierarchies for political changes (Marx, 1997; Cunningham and MacGregor, 2000). Moreover, autonomy degrees must be consistent with strategic goals (Olsson and Bosch, 2018).

Based on the problems related to the organizational challenges of this work model described above, the following research question is proposed for this paper: Can self-managed teams bring performance improvement? A case study is used as a guidance for this investigation. The case study's company introduced sociotechnical work teams willing to reach high performance and this paper explores its approach with performance improvement over team-building stages. Therefore, this paper presents a meaningful relationship between team empowerment theoretical principles and practice.

## 2 Literature review

This section explores theoretical background of teams in three dimensions considered relevant to this paper: team building, empowerment and team performance measurement.

### 2.1 Team Building

Widely known as an effective team building design for the educational setting (Riebe *et al.*, 2010; Aydin and Gumus, 2016; Weber and Karman, 2017), Tuckman approach (1965) remains famous for team development model and it is still known for its four-sequential stages (Kur, 1996; Largent, 2016; Manges *et al.*, 2017). Forming is the first interaction of team members, when they become familiar with each other and try to find out which behaviors are acceptable regarding their tasks, feeling confused on how to act and unsure about the benefits of team participation. There is suspicion, fear and anxiety on the onward work and the common goal supported by the formed team. At storming stage, members start to show resistance and hostility towards each other and conflicts are often caused by miscommunication, what may lead them to disbelief in the collective power. These problems begin to be solved at norming stage, when the whole team effectively learn how to work together and internal differences are overcome. The focus on tasks, interpersonal relationship and mutual identification among members are fortified. Finally, performing stage comes and the responsibility shared is intensified, together with creativity and the expected productivity. Mutual cooperation and team self-identity provide exceptional results (Tuckman, 1965).

Tuckman and Jensen (1977) formally extended the original model and added a fifth stage, adjourning, to provide opportunity for acknowledgements. Since then, the model was studied, applied and successfully validated in many team development fields, remaining strongly accepted (Largent, 2016; Aydin and Gumus, 2016; Manges *et al.*, 2017). An Indonesian research has recently used Tuckman model as a theoretical reference to investigate virtual team performance of Binus University e-learning student's capability of solving teamwork problems (Siregar *et al.*, 2018).

Manges *et al.* (2017) successfully used the model in the healthcare environment as a guiding framework to improve safe patient care delivery. Nurse leaders' behaviors changed over Tuckman stages and were critical to build high performance teams. At the performing stage, nurse leaders no longer coordinated team actions and focused mainly on empowering members that developed shared leadership in the work design.

Kuhrmann and Munch (2016) highlights Tuckman theory's importance and argue that project managers must be familiar with the theoretical stages because they do not only start during project beginnings, but also when new members join team projects. The authors applied group dynamics with graduate students at Munich Technical University and Blekinge Institute of Technology and reinforced the premise that performance drops after changing teams. Conjointly, the dynamics revealed that time pressure, team size and missing strategies are the factors that mostly impact performance while task complexity and communication aspects affect work efficiency. Additionally, Largent (2016) reinforces Tuckman pattern that team's skill level rises

over time and team enthusiasm starts high, drops and then returns to a high level. The author also emphasized the importance of team ability to recognize the team current stage because this awareness can provide knowledge to understand team progress and distinguish between normal and abnormal difficulties along team development.

On the other hand, Tuckman's model was also challenged by some researchers. Kur (1996) complemented that company teams can possibly transit from one stage to another during work execution. Miller (2003) argued that complex teams do not follow the linear team building performance suggested by the psychologist researcher. Rickards and Moger (2000) also criticized the theoretical model, claiming that not all teams go through all stages. According to the authors, storming stages can possibly never end and teams become dysfunctional, failing to pass a weak behavioral barrier before norming. Even though most teams overcome the weak barrier, fewer teams pass the strong performance one and do not achieve exceptional performance.

A similar model of team development was additionally proposed by Katzenbach and Smith (1993), projecting a performance curve that losses up to the team complete formation, integration and alignment of the members. Therefore, formation phase will undoubtedly need more time than a group run by a single leader to reach a desirable performance. According to Katzenbach and Smith (1993) it happens because a real team demands more from its members and team formation phase tends to be less effective. Formation requires difficult adaptation periods in the level of sharing experiences and distinct knowledge among members can bring disagreements and competition. Learning requires trust, as well as trust promotes learning. Therefore, learning and trust are not earned in a short period and only over time inevitable conflicts are solved.

Staniforth (1996) claims that many organizational practices and systems are more aligned to individuals, which inhibits team maturity growth and consequently teamwork performance. Castka *et al.* (2001) grouped successful factors of high performance teams implementation into two categories and seven subgroup categories: I) system factors: organizational impact; alignment and interaction with external entities; performance measures and defined focus II) human factors: knowledge and skills, individual needs and group culture.

## **2.2 Empowerment**

High performance companies depend on internal policies and capabilities (Okoshi *et al.*, 2019). Empowerment practices allow coworkers to gather relevant information from each other and prompt employees to work as teammates, which reduces communication and coordination costs. Unlike ineffective authority, autonomy can lead self-managed teams with consistent knowledge shared to make better decisions, contributing to organizational performance and reducing monitoring high costs (Yin *et al.*, 2018).

Idris *et al.* (2018) found empirical evidence that employee empowerment strengthens job satisfaction for Malaysian capital local workers. Potnuru *et al.* (2019) recently identified that organizational learning culture remarkably influences the relationships of team building and empowerment on employee competencies in Indian cement

manufacturing companies. Another interesting finding is the interrelationship between enabling management controls and staff empowerment and their mutual beneficial effects on performance in Australian companies (Baird *et al.*, 2018).

Jian'an (2008) discussed how to build self-management teams through empowerment, proposing pushing and pulling power strategies to achieve the desired dynamic equilibrium between supply and demand of power along team evolution. Empowerment advances gradually with time, maturity and experience, consequently benefits are only obtained in long-term. Strategic guidance is a requirement to optimize business performance through previously established autonomy levels that meets organizational specific ambitions (Olsson and Bosch, 2018). Autonomy degrees are often low during team forming stage and increases along team life cycle, exerting influence on outcomes (Hess, 2018).

Even though moving away from a traditional hierarchical design is a demand, most organizations persist to inhibit and limit employee's participation and empowerment skills and shifting responsibilities are impossible if leaders at every level are not truly committed to empower their subordinates (Huusko, 2006; Attaran and Nguyen, 2000; Horner, 1997).

According to Hess (2018) and Brower (1995), hierarchy must be limited to offer only guidelines as well as the confidence required to work execution and autonomous team members' expectations for top leader involvement must be aligned with previously established empowerment degrees consistently further reinforced to ensure perceptions that autonomy given is a real purpose and not purely symbolic.

In order to accelerate autonomy progress, empowerment practices must be adapted. Some approaches are commonly implied, such as training development plans for motivation and knowledge improvement, along with performance assessments connected to the organizational learning programs (Brower, 1995; Holt *et al.*, 2000; Potnuru *et al.*, 2019). Employees' strengths must be intensified instead of focusing on their weaknesses, because complementary team members' skills compensate individual flaws to achieve common goals (Margulies and Kleiner, 1995). In addition, clear goal statements through effective communication channels are meaningful. Targets and decisions must also be appraised by managers to ensure that commitment and efforts are focused on expected directions. Performance results, acknowledgments and rewards must be afforded not only to individuals, but also to the whole team, to reassure teammates take responsibility for each other's performance. (Brower, 1995; Elmuti, 1997; Conti and Kleiner, 1997). In conjunction with open and frequent communication, all-inclusive recruitment and consistent resource allocation are other preconditions to be granted to autonomous team members (Hess, 2018).

### **2.3 Team performance measurement**

Teams with greater autonomy demand performance measurement indicators to appraise autonomy progress and results achieved over time (Marx, 1997). In order to build high performance teams, it is exceedingly indispensable that team members are acquainted and in total consonance with the chosen performance measurement system. According to Aguinis (2013), there are some fundamentals for team performance

assessment. Firstly, it is essential to ensure that teams are actually teams sharing common goals and not simply small groups with individual targets. Secondary steps are the investment in measurement structures and clear establishment of performance goals. Further, the selection of multiple appraisal methods focused on processes as well as outcomes and, finally, long-term changes are assessed.

Macbryde and Mendibil (2003) propose a four dimensional model for team performance measurement. I) team effectiveness, the dimension which process' results satisfy team stakeholders; II) team efficiency, the dimension in which internal processes support the achievement of process outcomes; III) learning and growth, which consists on monitoring team progress. Some features of this assessment involve transferable skills, documented learning, best practices, tools, methods, process improvement and team innovation potential; IV) satisfaction of the members, which implies motivation and personal fulfillment measurements, quantifying how teamwork contributes to the growth and personal well-being of each teammate.

Work designs, team composition and direct or indirect factors influencing high performance are widely explored by researches to support team cohesion theories (Ferreira *et al.*, 2012; Wilsher, 2015; Moura *et al.*, 2019). Rezvani *et al.* (2019) recently applied partial least square regression analysis on construction project teams' surveys to measure emotional intelligence relationship with team performance. Emotional intelligence and trust as a mediate factor were positively related to team performance, while conflict mediate factor presented a negative relation. The study implies that relationship conflicts could be diminished, and trust can be reinforced by improving emotional intelligence to reach performance enhancement. Cha *et al.* (2014) also used the same statistical methodology with developed surveys based on literature to support member's psychological proximity has a critical effect on team performance.

Jaca *et al.* (2013) applied a teamwork effectiveness measurement structured by survey to investigate key performance factors employing Input-Mediator-Outcome methodology (Ilgen *et al.*, 2005; Mathieu *et al.*, 2005). Independence, autonomy, internal leadership, conflict management were some common highly rated and constantly measured in healthcare and manufacturing distinct environments.

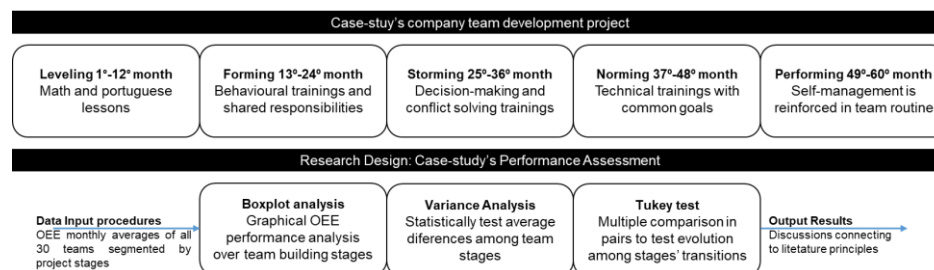
Team performance measurements have been also consistently worked out to test work designs involving leadership styles to evaluate optimizing performance structures. Ciasullo *et al.* (2017) measured effectiveness, efficiency and satisfaction of members dimensions to compare a traditional top-down with a hybrid bottom-up team building approach. The authors used not only lead-time, an organizational performance indicator, but also applied external and internal surveys to quantify both, customer and employee's satisfaction. Bottom-up team development performed better across all three dimensions of this integrated performance assessment. Yang and Choi (2009) also identified that empowerment elements influence on team performance through linear regression.

Han *et al.* (2017) have indirectly explored some dimensions suggested by Macbryde and Mendibil (2003) in a survey research, testing the effect of shared leadership on team perceived performance. Statistical analysis performed have supported shared leadership indirectly increases performance through stimulating knowledge share, commitment to goals and activity coordination as team mediate factors. Complemen-

tary, Müller *et al.* (2018) have also found that shared leadership positively affects team performance on a laboratory team decision-making exercise. Statistical analysis showed not only that sharing leadership brought quality improvement, but also perceived task complexity strengthens this effect. Even with constant complexity, when recognized as harder tasks, shared leadership was intensified and fewer errors were made in work execution.

### 3 Research Design

This paper presents a case study of team building, introduced by a cosmetics Brazilian company with the purpose to reach higher performance with the development of shop-floor self-managed teams. Empowerment practices with technical and behavioral trainings were provided to gradually achieve the desired team autonomy degrees over time. This research consists on measuring quantitative team performance over team building stages and evaluate the team development project, that was segmented by five learning levels. These five progressive stages structured by the company, presented by Figure 1, involved all factory teams and each level was planned to last the period of a year. Leadership left coordination role and gradually started to act as internal coaches and consultants, limiting to provide only generic directions along with confidence for members to accomplish autonomy. An important procedure followed by the company is that, for each stage advancement, besides the mandatory approval after trainings, auditing carried out to reassure that behavioral and professional improvement were successfully achieved to certify team breakthrough.



**Figure 1.** Research Design.

Quantitative performance reports provided by the company at the end of the project were the original data source for all the analyses. The main shop-floor performance indicator, overall efficiency, was chosen for the assessment. Overall line efficiency is measured through the formula Availability x Performance x Quality and team evaluation was applied by project consultants and team leaders. This indicator considers three percentage target dimensions, which only good parts are produced (100% quality), at the maximum cycle time speed (100% performance), and without equipment interruption (100% availability). Since the purpose is generic conclusions, team performance data of all 30 developed teams, were converted to monthly performance averages as a single team for all the following analyses described below.

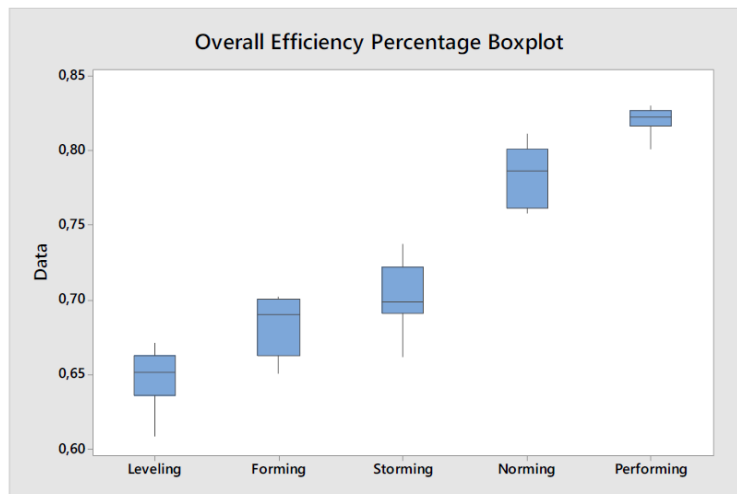


1. Boxplot with all stages of overall efficiency's performance in a single chart was applied to graphically analyze performance over team learning stages.
2. One-way variance analysis was applied to statistically test performance average differences among team stages.
3. Tukey test was applied to test overall efficiency's multiple comparison in pairs to test performance evolution analysis between stages' transitions.

The performance assessment exhibited by Figure 1 was applied in academic environment to evaluate performance enhancement with the new intended work design and consequently answer the research proposed question regarding the ability of self-managing teams to bring high performance.

## 4 Results

Overall efficiency exhibits wide-ranging performance evolution over the stages, presented by Figure 2. It is perceptible forming to storming is the only particular distinguishable transition that did not present considerable difference in the average values. Performance staunchly had its greatest increase at storming to norming and repeatedly had another breakthrough at performing stage, when overall efficiency data is more concentrated, reaching persistent performance stability.



**Figure 2.** Boxplot analysis.

Performance behavior presented in boxplot reinforces some literature principles further explored in discussion section. Boxplot method provided graphical evolution overview, summarizing each stage's enhancement along team development. A single-factor variance analysis for overall efficiency was sequentially appropriate to test significant average difference among stages. Table 1 details the hypothesis test, performed with 95% confidence interval for this analysis.

**Table 1.** Hypothesis test.

Method	
Null hypothesis	All Means are equal
Alternative hypothesis	Not all means are equal
Significance level	$\alpha = 0,05$
Equal variances were assumed for the analysis.	

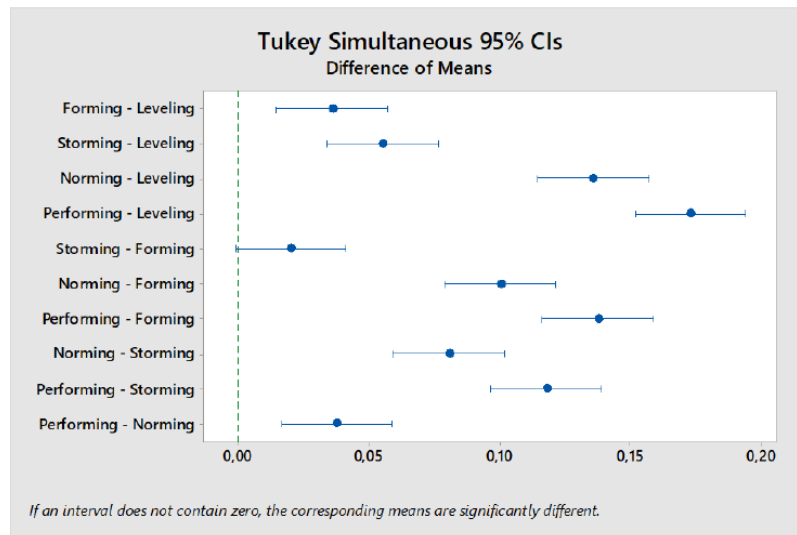
  

Factor Information		
Factor	Levels	Values
Factor	5	Leveling; Forming; Storming; Norming; Performing

Analysis of Variance					
Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	4	0,24884	0,062210	184,25	0,000
Error	55	0,01857	0,000338		
Total	59	0,26741			

Before conclusions, test premises were challenged. Since residues showed a large adherence to the standard normal distribution and residual variances were approximately equal, premises were ratified. Considering a 95% confidence level,  $H_0$  was rejected, since  $p\text{-value} < 0.05$ . Therefore, statistical evidence of significant average difference for at least a couple of overall efficiency's stages was found. Tukey's test was then conveniently useful to test average differences between stages in pairs, presented by Figure 3.

**Figure 3.** Tukey test.

By means of the 95% confidence interval for differences between averages, Tukey's test showed that only forming to storming stage had no significant difference, as

suspected upon boxplots descriptive analysis. In addition, it also implied a respective improvement for all the other transitions compared in pairs since the difference is always positive, hence, it essentially diagnoses overall efficiency gain over all other transitions, except forming-storming.

## 5 Discussion

The training development approach adopted by the company to introduce team development matches Tuckman's initial model (1965). The autonomy given was previously planned to attend organizational demands as highlighted in literature by Olsson and Bosch (2018) and autonomy was initially low (Hess, 2018). Both initial Boxplot and Variance Analysis approaches imply performance improvement along team autonomy progress.

Boxplot presented consistent performance breakthrough over team development, even though some stage transitions noticeably had different improvement scales. Although there was no performance loss from forming to storming as defended by theory (Tuckman, 1965; Katzenbach and Smith, 1993), it was the only transition with no performance average gains since Tukey's test showed no significant average differences between both stages. Storming to norming is highlighted by Tuckman theory as the greatest performance evolution, which also coincides with the case study's pattern. The highest improvement also corresponds to Katzenbach and Smith's theory (1993), that implies a huge evolution from potential team to real team. Tukey's test analysis also implies that teams have succeeded at passing both, weak behavioral and strong performance barriers, suggested by Rickards and Moger (2000).

Salerno (1994), Manz and Sims (1996), and Simonetti and Marx (2010) emphasized that self-managed teams, besides performance gains and commitment improvement, also reduces processes variability, which was an achieved result by the teams, since performing stage presented consistent lower variability in Boxplot analysis.

Learning and growth and team efficiency are some of the dimensions suggested by Macbryde and Mendibil (2003) related and explored in this case study. Team development brought the high performance expectation achievement in the long-term defended by sociotechnical researchers (Moreira and Marx, 2008). It is essential to recognize that empowerment practices applied are related to theoretical principles, such as training programs, open communication and shared leadership with previously designed individual responsibilities (Brower, 1995; Margulies and Kleiner, 1995; Hess, 2018).

This study also implies theoretical discussion related to future approaches of organizational work. Salerno (1994) defends that despite the autonomy given for decision-making during work execution, teams cannot be regarded as completely autonomous, after all even with great empowerment, members can't be completely independent since they belong to an organization with strategies of its own. However, Zarifian (1997) believes that this tends to change in the future, because according to the author, it is not possible to keep two management systems built on different principles for too long. Self-organizations do not only reduces coordination costs (Yin *et*

*al.*, 2018) but remain studied because they also respond more effectively in dynamic scenarios (Lee and Edmondson, 2017).

This paper supports sociotechnical approach principles, bringing evidence that the case study's company achieved its ambition to reach high performance with the new work design with empowered teams (Salerno, 1994; Marx, 1997). Empowerment benefits remarkably appeared in the long-term, as implied by researchers (Jian'an, 2008; Olsson and Bosch, 2018). This study suggests that a team building prosperity has a connection to empowerment practices that meets literature suggestions (Margulies and Kleiner, 1995; Elmuti, 1997; Brower, 1995) such as internal alignment between managers and teams (Hess, 2018) and proper strategic guidance before team development to gradually introduce autonomy (Olsson and Bosch, 2018).

## 6 Conclusion

This paper strengthens the hypothesis that self-managed teams can reach high performance, since quantitative analysis showed performance evolution on the presented case study, and positively answered the research investigative proposed question. Team building academic contributors and sociotechnical researchers provided a strong theoretical background, making it possible to connect theory to practice identifying similarities and divergences shown in the discussion section. The consistency of this integration brings relevance and originality to this paper in work organizational field.

Limitations are also relevant to direct following research to cover some topics left unexplored in the present case study. For this reason, cost-exchange perspective must be a further study, to quantify managing costs reduction brought by empowerment practices defended by literature and examine the investment made on training programs comparing to team development's cost reduction. It is equally important to emphasize that we do not generalize and extend our conclusions to other realities because the present study was restricted to a single company case-study.

This paper focused on measuring team performance across team development, exploring learning and growth versus team efficiency dimensions. The unexplored dimensions could be further assessed by internal surveys to measure employee's satisfaction individually and inside their own teams, together with external surveys to evaluate customer satisfaction, as explored by team building research present in the visited literature. Complimentarily, empowerment measurement itself through external questionnaires along with internal learning and shared leadership mediate factors' influence on performance could be meaningful techniques to extend our case study's analysis.

Statistical analysis presented in research design were applied using team performance averages for general conclusions. Consequently, a further study exploring teams individually could also contribute to additional and more specific studies. It is also suggested the Myers-Briggs Type Indicator test application for team building and leadership development. Based on the ideas of analytical psychology, the test provides individual personality analysis and their behavior in different situations, consid-

ering specific preferences, values and motivations. Therefore, another complementary research involving members' personalities inside teams could be also an interesting following theme to test relations between team personality structure and performance.

## References

1. Aguinis, H. (2013). *Performance Management* (3<sup>rd</sup> ed). Boston: Pearson.
2. Attaran, M., & Nguyen, T. T. (2000). Creating the right structural fit for self-directed teams. *Team Performance Management*, 6(1/2), 25–33. doi.org/10.1108/13527590010731952
3. Aydin, I.E., Gumus, S. (2016). Sense of Classroom Community and Team Development. *Turkish Online Journal of Distance Education*, 17(1), 60–77. doi.org/10.17718/tojde.09900
4. Baird, K., Su, S., & Munir, R. (2018). The relationship between the enabling use of controls, employee empowerment, and performance. *Personnel Review*, 47(1), 257–274. doi.org/10.1108/PR-12-2016-0324
5. Batiz-Lazo, B. (2019). What is new in “a new history of management”? *Journal of Management History*, 25(1), 114–124. doi.org/10.1108/JMH-07-2018-0033
6. Brower, M. J. (1995). Empowering teams : what, why, and how. *Empowerment in Organizations*, 3(1), 13–25. doi.org/10.1108/09684899510079780
7. Castka, P., Bamber, C. J., Sharp, J. M., & Belohoubek, P. (2001). Factors affecting successful implementation of high performance teams. *Team Performance Management*, 7(7/8), 123–134. doi.org/10.1108/13527590110411037
8. Cha, M., Park, J. G., & Lee, J. (2014). Effects of team member psychological proximity on teamwork performance. *Team Performance Management*, 20(1), 81–96. doi.org/10.1108/TPM-03-2013-0007
9. Ciasullo, M. V., Cosimato, S., Gaeta, M., & Palumbo, R. (2017). Comparing two approaches to team building: a performance measurement evaluation. *Team Performance Management*, 23(7–8), 333–351. doi.org/10.1108/TPM-01-2017-0002
10. Conti, B., & Kleiner, B. H. (1997). How to increase teamwork in organizations. *Training for Quality*, 5(1), 26–29. doi.org/10.1108/09684879710156496
11. Cunningham, J. B., & MacGregor, J. (2000). Trust and the Design of Work Complementary Constructs in Satisfaction and Performance. *Human Relations*, 53(12), 1575–1591. doi.org/10.1177/00187267005312003
12. Elmuti, D. (1997). The perceived impact of team- based management systems on organizational effectiveness. *Team Performance Management*, 3(3), 179–192.
13. Ferreira, P. G. S., Lima, E. P. De, & Da Costa, S. E. G. (2012). Perception of virtual team's performance: A multinational exercise. *International Journal of Production Economics*, 140(1), 416–430. doi.org/10.1016/j.ijpe.2012.06.025
14. Han, S. J., Lee, Y., Beyerlein, M., & Kolb, J. (2017). Shared leadership in teams. *Team Performance Management*, 24(3/4), 150–168. doi.org/10.1108/tpm-11-2016-0050
15. Hess, J. P. (2018). Autonomous team members' expectations for top-leader involvement. *Team Performance Management*, 24(5–6), 283–297. doi.org/10.1108/TPM-10-2017-0060
16. Holt, G. D., Love, P. E. D., & Nesan, L. J. (2000). Employee empowerment in construction: an implementation model for process improvement. *Team Performance Management*, 6(3/4), 47–51. doi.org/10.1108/13527590010343007

17. Horner, M. (1997). Leadership theory: past, present and future. *Team Performance Management*, 3(4), 270–287. doi.org/10.1108/13527599710195402
18. Huusko, L. (2006). The lack of skills: an obstacle in teamwork. *Team Performance Management*, 12(1/2), 5–16. doi.org/10.1108/13527590610652756
19. Idris, A., See, D., & Coughlan, P. (2018). Employee empowerment and job satisfaction in urban Malaysia. *Journal of Organizational Change Management*, 31(3), 697–711. doi.org/10.1108/jocm-04-2017-0155
20. Ilgen, D.R., Hollenbeck, J.R., Johnson, M., & Jundt, D. (2005). Team in organizations: from input-process-output models to IMO models. *Annual Review of Psychology*, 56, 517–543. doi.org/10.1146/annurev.psych.56.091103.070250
21. Jaca, C., Viles, E., Tanco, M., Mateo, R., & Santos, J. (2013). Teamwork effectiveness factors in healthcare and manufacturing industries. *Team Performance Management*, 19(3), 222–236. doi.org/10.1108/TPM-06-2012-0017
22. Jian'an, C. (2008). Research on strategies and empowerment process to achieve self-management team. 2008 International Conference on Wireless Communications, Networking and Mobile Computing, WiCOM 2008, 1–5. doi.org/10.1109/WiCom.2008.1731
23. Joullié, J. E. (2018). Management without theory for the twenty-first century. *Journal of Management History*, 24(4), 377–395. doi.org/10.1108/JMH-05-2018-0024
24. Katzenbach, J.R., Smith, D. (1993). *The Wisdom of Teams: Creating the High-Performance Organization*. Boston: Harvard Business School Press.
25. Kuhrmann, M., & Münch, J. (2016). When teams go crazy: An environment to experience group dynamics in software project management courses. Proceedings - International Conference on Software Engineering, 412–421. doi.org/10.1145/2889160.2889194
26. Kur, E. (1996). The faces model of high performing team development. *Management Development Review*, 9(6), 25–35. doi.org/10.1108/09622519610151624
27. Largent, D. L. (2016). Measuring and Understanding Team Development by Capturing Self-assessed Enthusiasm and Skill Levels. *ACM Transactions on Computing Education*, 16(2), 1–27. doi.org/10.1145/2791394
28. Lee, M. Y., & Edmondson, A. C. (2017). Self-managing organizations: Exploring the limits of less-hierarchical organizing. *Research in Organizational Behavior*, 37, 35–58. doi.org/10.1016/j.riob.2017.10.002
29. MacBryde, J. C., & Mendibil, K. (2003). Designing performance measurement systems for teams: Theory or practice. *Management Decision*, 14(8), 722–733. doi.org/10.1108/00251740310496233
30. Manges, K., Scott-Cawiezell, J., & Ward, M. M. (2017). Maximizing Team Performance: The Critical Role of the Nurse Leader. *Nursing Forum*, 52(1), 21–29. doi.org/10.1111/nuf.12161
31. Manz, C.C., Sims, H. P. (1996). *Empresas sem chefes*. São Paulo: Makron Books.
32. Margulies, J. S., & Kleiner, B. H. (1995). New designs of work groups: applications of empowerment. *Empowerment in Organizations*, 3(2), 12–18. doi.org/10.1108/09684899510089284
33. Marx, R. (1997). Autonomia, trabalho em grupo e estratégia empresarial. O que há de novo neste final de século?. *São Paulo Em Perspectiva*, 11(4), 67–75. [http://produtos.seade.gov.br/produtos/spp/v11n04/v11n04\\_08.pdf](http://produtos.seade.gov.br/produtos/spp/v11n04/v11n04_08.pdf)
34. Mathieu, J.E., Heffner, T.S., Goodwin, G.F., Cannon-Bowers, J.A., & Salas, E. (2005). Scaling the quality of teammates' mental models: equifinality and normative comparisons. *Journal of Organizational Behavior*, 26, 37–56. doi.org/10.1002/job.296

35. Miller, D. L. (2003). The stages of group development: A retrospective study of dynamic team processes. *Canadian Journal of Administrative Sciences*, 20(2), 121–134. doi.org/10.1111/j.1936-4490.2003.tb00698.x
36. Moreira, L. F. de C., & Marx, R. (2008). Evolução da organização do trabalho fabril: aplicação do modelo de semi-autonomia em empresa nacional de cosméticos. In Anais.. Rio de Janeiro: ABEPRO.
37. Moura, I., Dominguez, C., & Varajão, J. (2019). Information systems project teams: factors for high performance. *Team Performance Management*, 25(1–2), 69–83. doi.org/10.1108/TPM-03-2018-0022
38. Müller, E., Pintor, S., & Wegge, J. (2018). Shared leadership effectiveness: perceived task complexity as moderator. *Team Performance Management*, 24(5–6), 298–315. doi.org/10.1108/TPM-09-2017-0048
39. Okoshi, C. Y., Pinheiro de Lima, E., & Gouvea Da Costa, S. E. (2019). Performance cause and effect studies: Analyzing high performance manufacturing companies. *International Journal of Production Economics*, 210(April 2018), 27–41. doi.org/10.1016/j.ijpe.2019.01.003
40. Olsson, H. H., & Bosch, J. (2018). Singing the praise of empowerment: Or paying the cost of chaos. Proceedings - 44th Euromicro Conference on Software Engineering and Advanced Applications, SEAA 2018, 17–21. doi.org/10.1109/SEAA.2018.00012
41. Potnuru, R. K. G., Sahoo, C. K., & Sharma, R. (2019). Team building, employee empowerment and employee competencies: Moderating role of organizational learning culture. *European Journal of Training and Development*, 43(1–2), 39–60. doi.org/10.1108/EJTD-08-2018-0086
42. Rezvani, A., Barrett, R., & Khosravi, P. (2019). Investigating the relationships among team emotional intelligence, trust, conflict and team performance. *Team Performance Management*, 25(1–2), 120–137. doi.org/10.1108/TPM-03-2018-0019
43. Rickards, T., & Moger, S. (2000). Creative Leadership Processes in a Project Team. *British Journal of Management*, 11(4), 273–283. doi.org/10.1111/1467-8551.00173
44. Riebe, L., Roepen, D., Santarelli, B., & Marchioro, G. (2010). Teamwork: Effectively teaching an employability skill. *Education and Training*, 52(6), 528–539. doi.org/10.1108/00400911011068478
45. Salerno, M. S. (1994). Mudança organizacional e trabalho direto em função de flexibilidade e performance da produção industrial. *Produção*, 4(1), 5–22. doi.org/10.1590/S0103-65131994000100001
46. Simonetti, P. E., & Marx, R. (2010). Estudo sobre implementação de trabalho em grupos com autonomia: pesquisa quantitativa numa amostra de empresas operando no Brasil. *Production*, 20(3), 347–358. doi.org/10.1590/S0103-65132010005000051
47. Siregar, C., Pane, M. M., & Ruman, Y. S. (2018). The Virtual Team Performance in Solving Teamwork Conflict Problems. ICDEL '18: Proceedings of the 2018 International Conference on Distance Education and Learning, 1, 1–5. doi.org/10.1145/3231848.3231850
48. Staniforth, D. (1996). Teamworking, or Individual Working in a Team? *Team Performance Management*, 2(3), 37–41. doi.org/10.1108/13527599610126256
49. Tuckman, B.W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63(6), 384–399. doi.org/10.1037/h0022100
50. Tuckman, B.W., Jensen, M.A.C. (1977). Stages of small-group development revisited. *Group & Organization Management*, 2(4), 419–427. doi.org/10.1177/105960117700200404

51. Weber, M. D., & Karman, T. A. (2017). Student group approach to teaching using Tuckman model of group development. *Advances in Physiology Education*, 261(6), S12. doi.org/10.1152/advances.1991.261.6.s12
52. Weisbord, M. (2011). Taylor, McGregor and me. *Journal of Management History*, 17(2), 165–177. doi.org/10.1108/17511341111112578
53. Wilsher, S. (2015). Behavior profiling: implications for recruitment and team building. *Strategic Direction*, 31(9), 1–5. doi.org/10.1108/SD-02-2015-0023
54. Yang, S. B., & Choi, S. O. (2009). Employee empowerment and team performance: Autonomy, responsibility, information, and creativity. *Team Performance Management*, 15(5–6), 289–301. doi.org/10.1108/13527590910983549
55. Yin, Y., Wang, Y., & Lu, Y. (2018). Why firms adopt empowerment practices and how such practices affect firm performance? A transaction cost-exchange perspective. *Human Resource Management Review*, 29(1), 111-124. doi.org/10.1016/j.hrmr.2018.01.002
56. Zarifian, P. (1997). Organização e sistema de gestão: à procura de uma nova coerência. *Gestão & Produção*, 4(1), 76–87. doi.org/10.1590/S0104-530X1997000100004
57. Zoller, Y. J., & Muldoon, J. (2019). Illuminating the principles of social exchange theory with Hawthorne studies. *Journal of Management History*, 25(1), 47–66. doi.org/10.1108/JMH-05-2018-0026