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CONTENTS

Shared leadership: The Italian version of an overall cumulative scale

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♟ *ABSTRACT*. La leadership condivisa è un fenomeno in cui il ruolo e l'influenza propri della leadership sono distribuiti tra i membri di un gruppo. Questo studio presenta la versione italiana della scala di Leadership condivisa (LC) sviluppata da Muethel e Gehrlein (2009). La versione italiana della scala, composta da 7 item, è stata proposta a due campioni di studenti universitari italiani impegnati a svolgere attività di gruppo, per un totale di 444 rispondenti e 118 team. L'analisi fattoriale esplorativa e quella confermativa hanno confermato la struttura unidimensionale della scala. Inoltre, la scala è correlata significativamente con misure di processo (identificazione di gruppo e fiducia di gruppo) e di risultato (prestazione di gruppo e soddisfazione di gruppo), mostrando buona validità nomologica. Lo studio mostra che la versione italiana della scala ha buona validità interna e affidabilità, e costituisce un primo strumento per la misura della LC nel contesto italiano.

♟ *SUMMARY. Shared leadership is defined as an emergent team phenomenon where leadership roles and influence are distributed among team members. This study presents the Italian version of the Shared leadership (SL) scale developed by Muethel and Gehrlein (2009). The one-dimensional, seven-item scale was presented to two samples of Italian university students involved in team projects and team assignments, with a total of 444 respondents and 118 teams. Exploratory and confirmatory factor analyses confirmed the original one-factor model. The SL scale also shows good nomological validity because it is significantly related to team identification and team trust, as well as to team performance and team satisfaction. The study shows that the SL scale has good internal validity and reliability and can be considered a useful tool to measure SL in the Italian context.*

Keywords: *Shared leadership, Team performance, Team processes, Scale validation*

INTRODUCTION

Leadership in organizations is no longer concentrated only in the hands of specific individuals who manage organizations and teams in a top-down way. Multidisciplinary teams, task forces, virtual teams, cross-functional, and inter-organizational teams require each member to make his/her own contribution by sharing knowledge and know-how to reach team objectives. In such teams, members tend to exercise, formally or informally, some forms of collaborative behaviors that yield horizontal and synergistic ways of performing leadership.

Shifting their focus from top-down, vertical influence processes to horizontal processes shared among team members, scholars introduced the concept of shared leadership. Shared leadership has been defined as "a dynamic, interactive influence process among individuals for which the objective is to lead one another to the achievement of group or organizational goals or both" (Pearce & Conger, 2003, p.1). What distinguishes shared leadership from traditional forms of leadership is that the process of influencing team members is no longer a skill or role attributed to a single person, the appointed or elected leader; instead, it is broadly distributed within the team and involves downward and upward influences as well as peer or lateral ones (Barnett & Weidenfeller, 2016; Pearce & Conger, 2003).

Other definitions of shared leadership have been provided to describe this phenomenon (Carson, Tesluk & Marrone, 2017; D'Innocenzo, Mathieu & Kukenberger, 2016). Most of them highlight that each team member, based on his or her skills and abilities, leads some team activity and follows the other team members when they are leading other activities. Three common aspects of the many existing definitions are that: 1) shared leadership involves lateral influence among peers; 2) it is an emergent team phenomenon; and 3) leadership roles and influences are distributed across team members (Zhu, Liao, Yam & Johnson, 2018).

Three recent meta-analyses concluded that shared leadership has a moderate, but significant, positive correlation with team performance (D'Innocenzo et al., 2016; Nicolaides et al., 2014) and team effectiveness (Wang, Waldman & Zhang, 2014), and these effects range between .21 and .35 in the three studies. In particular, shared leadership is more related to attitudinal (such as team satisfaction, team commitment, or team identification) and behavioral (such as team coordination) team outcomes than to subjective or objective team performance measures (Wang et al., 2014). A complex and reciprocal relationship with trust has also been observed. Small and Rentsch (2010) showed that trust is an antecedent of shared leadership, whereas Robert and You (2018) found that shared leadership promotes trust, which, in turn, has a direct effect on team satisfaction.

One important theoretical and methodological question has to do with the type of leadership shared among team members or, in other words, "what is shared in shared leadership". Wang et al. (2014) and Zhu et al. (2018) noted that some studies focus on the sharing of specific leadership styles (for instance, shared transformational, shared charismatic, or shared transactional leadership), whereas other studies focus on a "cumulative, overall" shared leadership, where team members assess how much their team relies on its members "for leadership". This latter case does not specify what type of leadership is enacted, but teammates have the "shared perception that, in general, members show leadership towards each other" (Wang et al., 2014, p. 184).

To assess and measure shared leadership, two major approaches have been observed: the aggregation approach and the social network approach (D'Innocenzo et al., 2016; Wang et al., 2014; Zhu et al., 2018). In the case of aggregation approach, when examining whether a specific leadership style (e.g. transformational leadership) was shared within a whole team, some scholars adapted well-established individual leadership questionnaires by changing the item referent from "my supervisor" to "my team members" and then aggregating members' ratings to the team level. For instance, Gockel and Werth (2010) used traditional questionnaires of aversive, directive, empowering, transactional, and transformational leadership that asked respondents to assess how much their teammates, or the team, shared one of these specific leadership styles. The same approach was used in other cases where new questionnaires were developed to assess specific functional leadership behaviors: respondents had to mentally aggregate the behavior of their different teammates for each item, and scholars derived an overall estimation of the team's shared leadership. For example, Muethel, Gehrlein & Hoegl (2012) developed a questionnaire to assess team members' proactive behaviors directed towards other teammates and towards their own area of responsibility. Grille & Kauffeld (2015) measured to what extent leadership behaviors such as assigning tasks, promoting team cohesion, or presenting inspiring ideas were shared among team members.

In the case of the social network approach, each team member assesses each of the other team members in terms of his/her respective leadership behavior. This is a more analytical approach because it sums up the influence of each member and provides a richer and more informative measure of shared leadership. Network density and network centralization indices have been used, although rarely in conjunction, to assess, respectively, how much leadership is being shared and the distribution pattern within the team or, in other words, if leadership is evenly distributed or concentrated in a few people (Carson et al., 2007; D'Innocenzo et al., 2016; Gockel & Werth, 2010).

Both the aggregate and network approaches have advantages and limitations (D'Innocenzo et al., 2016; Zhu et al., 2018). The limitations of the aggregate approach are based on the mental combinations that team members have to perform to provide a single representation of the team, as well as the adaptation of traditional vertical leadership constructs at the team level. The network approach more accurately reflects the complexities of shared leadership, but it is time consuming (because team members have to assess every other team member), and it is not efficient in assessing the many behaviors (such as planning, problem solving, suggesting ideas, or team support) that characterize leadership.

Considering the relevance of teams in modern organizations, the need to manage distributed, virtual, or even inter-organizational teams, and the relative lack of tools to measure shared leadership, this paper aims to provide the Italian community of scientists and practitioners with the Italian version of the shared leadership questionnaire proposed by Muethel and Gehrlein (2009). Following the aggregate approach, these two authors developed a scale to measure shared leadership behaviors. This is a seven-item, one-factor scale that the authors used to assess shared leadership in geographically disperse project teams working in software development companies. Five items were developed by the authors, based on their literature review, and two were adapted from two other different studies. The items assess an overall perception of shared leadership and address proactive initiatives undertaken by team members to anticipate other team members' information needs, facilitate task interdependencies, and encourage information flow, in order to revise and adapt team strategies to the environment.

Most previous studies have used traditional individual leadership scales aggregated at the team level, whereas the scale proposed here uses an overall cumulative approach. In addition, it focuses on proactive and goal-oriented behaviors of team members that facilitate task coordination and information flow. The scale is also suitable for research and practice because it is shorter than other scales that assess multiple leadership functions, such as the one used by Grille & Kauffeld (2015). Furthermore, it showed good internal consistency, with a Cronbach's alpha of .86.

This study aims to test the construct validity and reliability of the Italian version of the scale. To investigate construct validity, we tested factorial validity by running an exploratory analysis and a confirmatory factor analysis with two different samples of respondents. Then, we tested the nomological validity by examining whether shared leadership is positively correlated with specific team processes and team outcomes, as suggested in the literature (Nicolaides et al., 2014; Wang et al., 2014). Nomological validity is a component of construct validity, and Nunnally & Bernstein (1994) state that "any proof of the extent to which a measure defines a construct would have to come from determining how well the measure fits lawfully into a network of expected relationships" (p. 91). Accordingly, in the case of team processes, we expect shared leadership to be related to: a) affective team commitment; b) team identification; c) a propensity to trust team members, and d) the elaboration of team information. For the team outcomes, we expect shared leadership to be related to: a) team performance and b) team satisfaction.

METHODS

Participants

The present research was conducted in an Italian university with university students working in teams to carry out academic projects (such as research papers, group projects, or internship projects in community services). Specifically, two studies were conducted, in the 2015-16 and 2017-18 academic years, with two different samples of respondents. The first sample, attending master programs at the school of Psychology, was used for the exploratory factor analysis. It was composed of 224 participants, 31% males, with an average age of 23.9 years (*range* = 21-48; *SD* = 2.5), belonging to 62 different work teams (average team size = 5.09, *SD* = 1.1, *range* = 2-8).

The second sample, attending bachelor and master programs in different schools (Psychology, Sociology,

Engineering, and Architecture), was used for the confirmatory factor analysis. It was composed of 220 participants, 30% males, with an average age of 21.9 years (*range* = 19-54; *SD* = 2.85), belonging to 56 different work teams (average team size = 5.01, *SD* = 2.16, *range* = 3-10).

Procedure

The Italian version of the shared leadership questionnaire was translated into Italian by two experts on the topic and back translated by three other people (a native English speaker and two non-Italians) into English. Professors who assigned team projects were contacted; after obtaining their approval, their students were contacted during lectures and invited to answer a paper and pencil questionnaire or its online version. Information about anonymity was given to all respondents; in order to maintain anonymity but aggregate data at the team level, participants were invited to agree on and share a fictitious name for their team to use when filling out the questionnaire.

Measures

The following three measures were used in both the first and second studies.

Shared leadership: Shared leadership (SL) was measured using the Italian version of the scale developed by Muethel and Gehrlein (2009). It consists of seven items rated on a 5-point Likert scale (from 1 "strongly disagree" to 5 "strongly agree"). Six items refer to anticipating team members' information needs and facilitating task interdependencies; the last item refers to how much the team relied on all the team members for leadership (the complete list of items is reported in Table 1).

Propensity to trust: the six-item subscale of the 21-item instrument developed by Costa & Anderson (2011) was used to measure trust within teams. The subscale refers to respondents' propensity to trust each other (item example: "Most people on this team do not hesitate to help a person in need").

Work group satisfaction: it was measured using Smith & Barclay's (1997) scale, composed of six items that assess the extent to which team members are satisfied with their teamwork. An example of an item is: "We are satisfied with

each other's contribution to the team".

The following two measures were used only in the first study:

Team performance: the nine-item scale developed by Hoegl & Gemuenden (2001) was used to assess the perception of team effectiveness and efficiency. An example of an item is: "Considering the results, this team can be considered a success".

Team identification: it was measured using a version adapted to the team of the Organizational Identification scale by Mael and Ashforth (1992), validated in the Italian language by Bergami and Bagozzi (2000). It consists of six items, and an example of an item is: "The success of this team is my success".

The following two measures were used only in the second study:

Team affective commitment: we used the five items from the Italian version (Battistelli, Mariani & Bellò, 2006) of the affective commitment subscale of Meyer & Allen's (1991) Organizational Commitment questionnaire. Items were adapted to the team context (e.g., "This group has a great deal of personal meaning for me").

Team information elaboration: we used the four-item scale developed by Kearney, Gebert & Voelpel (2009) to assess the sharing of task-relevant information among team members. An example of an item is: "The members of this team complement each other by openly sharing their knowledge".

All the above-mentioned scales were assessed on a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree".

Data analysis

To assess the factorial validity of the Italian version of the SL scale, we performed an exploratory factor analysis (EFA) using Maximum Likelihood parameter estimates with SPSS 23, and then a confirmatory factor analysis (CFA) with Amos 23. Based on the literature (Bollen & Long, 1993), the model was assessed by using several goodness-of-fit criteria: the chi-square value (χ^2); the Root Mean Square Error of Approximation (RMSEA); the Standardized Root Mean Square Residual (SRMR); the Comparative Fit Index (CFI); the Tucker-Lewis Index (TLI); the Adjusted Goodness of Fit (AGFI) and the Normed Fit Index (NFI). Cronbach's

Table 1 – Descriptive statistics of the items of the Shared leadership scale in Sample 1 (N = 224) and Sample 2 (N = 220)

Items	Sample 1			Sample 2		
	Mean (SD)	Skewness	Kurtosis	Mean (SD)	Skewness	Kurtosis
1. Tutti i membri del gruppo si impegnano in comportamenti di guida del gruppo [*All team members engaged in leadership behavior*]	2.96 (1.13)	−.01	−.74	3.08 (1.04)	.01	−.58
2. Tutti i membri del gruppo offrono suggerimenti agli altri membri del gruppo per migliorare la prestazione del team [*All team members offered advice to other team members to improve team performance*]	3.51 (1.06)	−.46	−.49	3.68 (.99)	−.44	−.21
3. Tutti i membri del gruppo vanno incontro ai bisogni degli altri membri affinché quest'ultimi possano agire nel migliore dei modi [*All team members anticipated action needs of other team members*]	3.57 (1.08)	−.45	−.52	3.66 (.99)	−.41	−.39
4. Ogni membro del gruppo agisce tempestivamente affinché lo stesso gruppo si adatti ad influenze esterne [*All team members initiated action*s to adapt to external influences]	3.26 (1.00)	−.24	−.43	3.33 (.94)	−.10	−.21
5. Tutti i membri del gruppo anticipano le necessità operative del gruppo nel suo complesso [*All team members anticipated action needs of the team as a whole]*	3.07 (.96)	.02	−.47	3.17 (.98)	.05	−.24
6. Tutti i membri del gruppo avviano azioni che vanno oltre quanto richiesto dagli obiettivi di lavoro al fine di favorire una migliore prestazione dello stesso gruppo [*All team members initiated actions to foster team performance beyond their own works scope*]	2.87 (1.14)	.01	−.87	3.02 (1.06)	.12	−.61
7. Il gruppo fa affidamento su tutti i suoi membri per potersi guidare [*The team relied on all team members for leadership*]	3.25 (1.28)	−.25	−1.05	3.42 (1.12)	−.36	−.47
Mean of the scale (SD)	3.21 (.87)			3.37 (.79)		

alpha was used to test reliability. To test the possibility of aggregating the Shared leadership scale at the team level, we computed the inter-rater agreement rwg(j) (James, Demaree & Wolf, 1984) and the intraclass correlation coefficients ICC1 and ICC2 (Bliese, 2000; James, 1982). Finally, correlations at the team level were performed separately for the two studies to verify the association between the SL scale and the other variables used in this study.

RESULTS

Table 1 shows the descriptive statistics for the seven items on the SL scale for both Sample 1 and Sample 2. All the skewness and kurtosis indices in the two samples are within the range of −1 and + 1, indicating the absence of violations of normality assumptions. Accordingly, EFA was performed on Sample 1 using Maximum Likelihood parameter estimates.

The Kaiser-Meyer-Olkin (KMO) value (.897) and the significant Bartlett test results (χ^2 = 879.5 (21), $p<.001$) indicated that the sample was adequate for factor analysis. The factor solution yielded one factor with an eigenvalue greater than one, explaining 63.7% of the variance. Loadings, reported in Table 2, ranged between .68 and .82.

A confirmatory factor analysis was conducted on the second sample of respondents. Factor loadings are reported in Table 2 and ranged between .65 and .78. The cut-off value for CFI and TLI indices is .95; it is .90 for AGFI and NFI and below .08 for SRMR (Hu & Bentler, 1999); the rule of thumb for RMSEA is .08 or less (Browne & Cudeck, 1993). The single factor model showed an acceptable fit to the data: (χ^2 (14, N = 220) = 40.86, $p<.001$; (χ^2/df = 2.92; RMSEA = .09, RMR = .04, CFI = .96 and TLI = .95 (see Table 3, Model 1). The scale also showed good reliability, with Cronbach's alphas equal to or greater than .88 in the two samples.

In order to improve the fit of the model, and particularly the RMSEA and AGFI, we considered two other models, taking into account: a) modification indices suggesting the addition of an error covariance between items 5 and 6 (Model 2) and b) the removal of item 6 because, although with a factor loading of .65, it has the lowest loading compared to the other items (Model 3). Table 3 shows an improvement in the goodness-of-fit indices from Model 1 to Model 2 to Model 3, with Model 3 reporting satisfactory indices; however, we notice that Model 2 already presents satisfactory and acceptable fit indices (Raykov & Marcoulides, 2011).

In order to assess nomological validity, a component of construct validity, we checked whether the SL scale had the expected correlations with other constructs. Descriptive

Table 2 – Factor loadings of exploratory and confirmatory factor analyses of the Shared leadership scale

Items	Sample 1 EFA	Sample 2 CFA
Item 1	.68	.74
Item 2	.78	.77
Item 3	.80	.78
Item 4	.75	.72
Item 5	.79	.74
Item 6	.69	.65
Item 7	.82	.75
Alpha	.90	.89
Explained variance (%)	63.7	60.2

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Table 3 – Fit indices of the confirmatory factor analysis of the Shared leadership scale (Sample 2, N = 220)

MODEL	χ^2	df	p	RMSEA (CI 90%)	SRMR	CFI	TLI	AGFI	NFI
Model 1 7 items	40.858	14	.000	.094 (.061 .128)	.039	.96	.95	.89	.95
Model 2 7 items Correlated errors: e5-e6	27.664	13	.01	.072 (.034 .109)	.032	.94	.97	.92	.96
Model 3 6 items	15.867	9	.07	.059 (.000 .106)	.025	.99	.98	.95	.97

Legenda. df = degree of freedom; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; AGFI = Adjusted Goodness of Fit Index; NFI = Normed Fit Index.

statistics and alphas of the variables that we expect to be conceptually related to the SL scale are reported in Table 4: reliabilities are satisfactory for all the measures. In any case, before computing their correlations, using a direct consensus model (Chan 1998), we tested whether there was enough agreement across team members to justify the aggregation of the individual scores to the team level.

First, from the data set, we removed teams in which less than 40% of the team members answered the questionnaire. Thus, Sample 1 had a total of N = 211 respondents, for a total of 54 teams, and Sample 2 had a total of N = 176 respondents and 52 teams. Second, we computed the interrater agreement index, rwg (James et al., 1984) and the intraclass correlations coefficients, ICC1 and ICC2 (Bliese, 2000) for the SL scale in both samples. Results of the SL scores show the following: in the first sample, rwg(j) = .82, ICC1 = .30, ICC2 = .63; in the second sample, results are: rwg(j) = .81, ICC1 = .21, ICC2 = .47. These results, and those for the other scales, show a high degree of consensus across team members, and so we aggregated our measures at the team level[1].

Table 4 – Means, standard deviations and Cronbach's alpha of examined variables

	Study 1			Study 2		
	M	**SD**	**Alpha**	**M**	**SD**	**Alfa**
1. Team satisfaction	3.48	.86	.90	3.60	.66	.84
2. Propensity to trust	3.31	.72	.67	3.53	.62	.73
3. Team identification	3.50	.59	.78			
4. Team performance	3.74	.78	.89			
5. Affective commitment				3.64	.74	.80
6. Team elaboration				3.70	.72	.82

1 Results of rwg(j) and ICC1 and ICC2 for the other scales in the study are available from the first author.

Tables 5 and 6 show, as expected, that SL is significantly and positively correlated with the team processes and team outcomes variables we considered. Specifically, the higher the shared leadership, the greater the team satisfaction ($r = .80$ and $r = .87$, respectively, in Samples 1 and 2) and team propensity to trust ($r = .51$ and $r = .77$, respectively, in Samples 1 and 2). In addition, SL is positively related to team identification and team performance (Table 5) and to team affective commitment and team information elaboration (Table 6).

CONCLUSIONS

The main goal of this study was to investigate the factorial validity of the Italian version of the Muethel and Gehrlein (2009) scale of Shared leadership, one of the first instruments to assess how much team members believe that their team relies on the overall cumulative leadership of its members. Results of the present study support the good psychometric properties of the SL questionnaire in the Italian context, confirming the seven-item, one-factor model proposed by the authors. In order to have very good fit indices of the model, we considered to remove item 6 because, although the very good factor loading of .65 (higher than the suggested .40; Raykov & Marcoulides, 2011), error covariance of item 6 was correlated to other items (among them, the higher value was with item

5). We observed improved fit indices but we consider this an excess of zeal. In fact, even the model with the covariance between items 5 and 6 presents so good internal consistency, fit indices, and reliability that, taking into account also the useful suggestions from an anonymous reviewer, we decided to maintain the full scale. The covariance between the error terms of items 5 and 6 seems reasonable because these two items refer to proactive behaviors designed to improve operational team performance. In addition, removal of item 6 decrease minimally the explained variance and Cronbach's alphas; all this suggests to maintain item 6 and to use the complete seven-item scale. However, future studies using the scale with other samples should take into account the fit of the seven- vs six-item version of the scale.

Our two studies also suggest good nomological validity. The SL scale shows significant and consistent correlations with team processes and team outcome indicators. Our results support the literature and show that shared leadership is related to team identification (Muethel & Gehrlein, 2009) and trust towards the team (Robert & You, 2018; Small & Rentsch, 2010), and it is also related to team performance and team satisfaction, as team outcomes (Nicolaides et al., 2014; Wang et al., 2014).

This study has some limitations. First, this validation of the SL scale is restricted to students. Although the students were engaged in real teamwork where team performance was assessed (and marked by professors), it is possible that

Table 5 – Study 1: correlations between shared leadership and team processes and outcomes variables (N = 54)

	Team satisfaction	Propensity to trust	Team identification	Team performance
Shared leadership	.80**	.51**	.48**	.52**

Note. **$p<.01$.

Table 6 – Study 2: correlations between shared leadership and team processes and outcomes variables (N = 52)

	Team satisfaction	Propensity to trust	Affective commitment	Team elaboration
Shared leadership	.87**	.77**	.62**	.80**

Note. **$p<.01$.

the academic setting and the short-term nature of the project might undermine the generalizability of the results. For this reason, this study should be replicated with other teams and, particularly, teams of employees, in order to examine whether the SL scale is generalizable and can be used in professional contexts. Second, the validity assessment of the Italian version of the SL scale was limited, in this study, to internal consistency and nomological validity. It is necessary to investigate validity by testing correlations with another Shared leadership scale and with a measure of shared leadership obtained with a different method, in addition to testing concurrent validity by using some external criterion such as project teams or dispersed teams where leadership roles are shared within the team. In addition, we did not consider constructs negatively

related to shared leadership, such as centralization. Third, interrater agreement and the intraclass coefficients showed that there was enough intra-team consensus to justify aggregating the answers at the team level; in addition, at the same time, ICCs suggested that there was also a group effect. Group comparison was not an aim of this paper, but future studies will have to examine the measurement invariance of this scale across different teams, by conducting, for instance, a multi-group confirmatory factor analysis.

Despite these limitations and considering the lack of similar scales in the Italian language, our results are promising. They suggest that the SL scale is a reliable and valid instrument to assess how much teams rely on the whole team for leadership.

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