

Psychometric Properties of the Multidimensional Sport Leadership Scale: Comparison to Multifactorial Leadership Questionnaire (MLQ-5X)



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INTRODUCTION

The full range leadership theory from Bass (1985) represents one of the most used proposals on understanding how leaders can produce extraordinary results on others (Bass, 2008). In order to evaluate these types of leadership, Bass and Avolio (1991, 2000) proposed the **Multifactor Leadership Questionnaire (MLQ-5X)**. The instrument evaluates **five transformational leadership factors**: (a) idealized influence (attributed): leaders' tendency to be perceived as charismatic; (b) idealized influence (behavior): acting according to the collective mission; (c) inspirational motivation; represent a positive vision; (d) intellectual stimulation challenge followers' beliefs and assumptions; and (e) individualized consideration: consider followers' individual needs; **three transactional leadership factors**: (f) contingent reward: rewards in exchange for followers' efforts; (g) management-by-exception (active): monitor and act if deviations occur; and (g) management-by-exception (passive): intervene only after errors being detected), and one **non-leadership or Laissez-Faire leadership factor** (see also, Antonakis et al., 2003; Avolio & Bass, 2004). The instrument is one of the most used in research (Hoch et al., 2018). However, along the years some main concerns exists about the understanding and measurement of constructs included in the model and derived versions of MLQ (Antonakis et al., 2016):

- ✓ Construct redundancy in defining and bounding leader behaviors, specifically between transformational leadership of the Full Range Leadership Theory and more recent approaches of leadership (e.g., authentic or ethical leadership) (cf. Banks et al., 2018; Hoch et al., 2018).
- ✓ MLQ overlap among idealized influence (attributes and behavior), and inspirational motivation with a measure of charismatic leadership (Antonakis et al., 2016).
- ✓ Transformational leadership depends mainly of the leader' ability to set a challenging and positive mission that should reflect a long-term vision of common-shared values (Rowold, 2006). This relation between the vision and subsequent inspiration is not seem very clear in the MLQ-5X instrument.
- ✓ MLQ-5X Idealized Influence includes the leaders' influence over the followers but also the stimulation of a positive vision for followers (also included in Inspirational Motivation).
- ✓ Transactional leadership of the full range leadership theory includes Contingent Reward and both forms of management-by-exception. This means that leaders seem to assume actions when things happen as desired (Contingent Reward) or when things deviate from the leaders' expectations (Management-by-Exception). However, leaders may also respond negatively when followers do not complete the tasks or when they execute tasks in an improperly way and, as consequence, levels of performance are below the expectations. In this case, Contingent Punishment (or Negative Feedback) may be a possibility, which MLQ-5X does not consider.
- ✓ The full range leadership theory and MLQ-5X do not provide any indications about how leaders make decisions. Bass (1998) recognized the importance of decision-making but assumed that decision-making is part of transformational and transactional leadership. However, it is quite difficult to assume as similar forms of transformational leadership the cases of one leader that listen and involves the followers toward the mission to accomplish (participative decision-making) to another leader that defines alone the mission to accomplish and then communicates to the followers what they are all trying to accomplish (autocratic decision-making)

Thus, this study aims to assess whether MSLS (Gomes & Resende, 2014) can be a good alternative to MLQ-5X for evaluating leadership.

METHOD

Participants: 379 athletes (79% male) from a variety of team sports, aged between 18 to 47 years- old ($M = 25.71$, $SD = 9.01$) and with high sport experience ($M = 13.36$, $SD = 7.34$; 65% playing in 1st division) participated in this study. 57% of athletes worked with their coach for more than one year, and 36% of athletes won at least one regional, national, or international trophy in the past five years with their current coach.

Measures: Participants completed 3 scales: Multidimensional Sport Leadership Scale (MSLS; Gomes & Resende, 2014; Gomes et al., 2021), Multifactorial Leadership Questionnaire (MLQ-5X; Avolio & Bass, 2004), and Athlete Satisfaction Questionnaire (ASQ; Reiner & Chelladurai, 1998), evaluating athletes' satisfaction with their coaches.

Correspondence between MSLS and MLQ-5X subscales. **Source:** Gomes et al., 2021.

MSLS	MLQ-5X
Transformational leadership	Transformational leadership
Vision ($\alpha = .92$)	Idealized influence: attributed ($\alpha = .77$) Idealized influence: behavior ($\alpha = .76$)
Inspiration ($\alpha = .88$)	Inspirational motivation ($\alpha = .85$)
Instruction ($\alpha = .83$)	--
Individualization ($\alpha = .82$)	Individualized consideration ($\alpha = .75$). Intellectual stimulation ($\alpha = .82$)
--	--
Support ($\alpha = .85$)	--
Transactional leadership	Transactional leadership
Positive feedback ($\alpha = .85$)	Contingent reward ($\alpha = .81$)
Negative feedback ($\alpha = .81$)	--
Decision-making leadership	Transactional leadership
Active management ($\alpha = .83$)	Management-by-exception: active ($\alpha = .69$)
Passive management ($\alpha = .76$)	Management-by-exception: passive ($\alpha = .70$)
	Non-leadership
	Laissez-faire ($\alpha = .81$).

RESULTS

We used a **two-step strategy** in order to analyze the psychometric properties of both leadership instruments and to compare their discriminant validity:

Step 1: assessing construct validity of each instrument using three analytical approaches: (1) confirmatory factor analysis; (2) instrument reliability; and (3) convergent and discriminant validity.

Confirmatory factor analysis: The latent structure of both instruments fitted the data well [MSLS: $\chi^2(558) = 1127.59$, $p < .001$, $\chi^2/df = 2.02$, RMSEA = .052, 90% CI [.048; .056], p (RMSEA $\leq .05$) = .226, SRMR = .057, CFI = .928, TLI = .919, IFI = .929, AIC = 1343.59, BIC = 1768.84; MLQ-5X: $\chi^2(558) = 1206.93$, $p < .001$, $\chi^2/df = 2.16$, RMSEA = .055, 90% CI [.051; .060], p (RMSEA $\leq .05$) = .018, SRMR = .059, CFI = .912, TLI = .900, IFI = .912, AIC = 1422.93, BIC = 1848.18]. However, the 9-factor model of the MSLS was considered most favorable due to their lower values of AIC and BIC.

Instrument reliability: Regarding construct reliability, and the composite reliability (CR) criteria, the MSLS and MLQ-5X did not present problems in this domain, showing a good reliability of the leadership subscales (CR $\geq .70$). Even though the Cronbach's alpha criteria of two of the MLQ-5X subscales (Management-by-Exception Active and Management-by-Exception Passive) assumed problems of internal consistency, their values were near the acceptable (i.e., $\alpha = .687$ and $\alpha = .696$, for this study). On the contrary, all MSLS subscales showed good levels of internal consistency (i.e., $.761 \leq \alpha \leq .921$, for this study).

Step 2: comparing the two instruments against each other, using: (1) convergent and divergent validity between the two instruments of leadership; (2) predictive validity of the MSLS and MLQ-5X, regarding athletes' Satisfaction with Leadership (ASQ).

Convergent and discriminant validity of leadership measures:

Leadership Instrument	Cronbach's α	CR	AVE	MSV
MSLS				
Vision	.921	.922	.748	.621
Inspiration	.876	.880	.648	.752
Instruction	.831	.835	.559	.752
Individualization	.824	.834	.557	.487
Support	.845	.848	.584	.486
Positive Feedback	.850	.858	.648	.489
Negative Feedback	.813	.820	.539	.074
Active Management	.830	.831	.552	.404
Passive Management	.761	.767	.456	.432
MLQ-5X				
Idealized influence: Attributed	.765	.770	.461	.970
Idealized influence: Behavior	.755	.771	.461	.899
Inspirational motivation	.848	.850	.586	.870
Intellectual Stimulation	.819	.821	.537	.966
Individualized Consideration	.749	.756	.445	.970
Contingent Reward	.814	.814	.523	.901
Management-by-exception: Active	.687	.703	.409	.939
Management-by-exception: Passive	.696	.713	.422	.870
Laissez-faire	.811	.811	.518	.870

Note: CR = Composite Reliability Measure. AVE = Average Variance Extracted. MSV = Maximum Shared Squared Variance. **Source:** Gomes et al., 2021.

Convergent validity conclusions: AVE lower than .50 means it is difficult to differentiate between variance due to construct and variance due to error of management – this happens for only one subscale of MSLS, but for 5 subscales of MLQ-5X.

Discriminant validity conclusions: all MLQ-5X revealed problems (as their AVE was lower than their own MSV), whilst 7 (out of 9) subscales of MSLS meet the criteria.

Predictive validity of MSLS and MLQ-5X regarding athletes' ASQ: Transformational constructs from both MSLS and MLQ-5X presented a positive and equally significant stronger correlation with athletes' ASQ ($\Delta r = 0.01$, $Z = 0.66$, $p = .508$, 95%CI [-0.06, 0.11]), thus discarding discriminant validity between those constructs.

CONCLUSION

Construct validity revealed original structures of MSLS and MLQ-5X, although MLQ-5X presented higher problems of internal consistency (Cronbach's alpha) and of convergent validity than MSLS. Transformational constructs of both instruments revealed convergent validity with satisfaction with leadership of ASQ instrument but MLQ-5X transactional constructs assumed stronger correlation with ASQ than the MSLS transactional constructs. **In conclusion, MSLS revealed better psychometric properties than MLQ-5X, representing a good alternative to evaluate leadership.**

Full manuscript: Gomes, A.R., Simões, C., Morais, C., & Resende, R. (2021). Psychometric properties of the Multidimensional Sport Leadership Scale comparison to Multifactorial Leadership Questionnaire. *International Journal of Sport Psychology*, 52(3), 189-212. <https://doi.org/10.7352/IJSP.2021.52.189>

FUNDING