Multifactor Leadership Questionnaire

Psychometric properties of the German translation by Jens Rowold

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Published by Mind Garden, Inc.
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Summary

The state-of-the-art paradigm within leadership is the theory of transformational – transactional leadership proposed by Burns (Burns, 1978) and further developed Bass and Avolio (Bass & Avolio, 2000). Over the last two decades, the Multifactor leadership Questionnaire (MLQ) has been developed and validated (Avolio & Bass, 2004). It is now the standard instrument for assessing a range of transformational, transactional and nonleadership scales. The effectiveness of transformational leadership has been proven in a number of settings and in many countries around the world (Judge & Piccolo, 2004). However, as there had been no validated German translation of the MLQ, the application of transformational leadership in German-speaking countries had been limited in a number of ways. In this paper, we report about a new translation of the MLQ into the German language (Rowold, 2004b) and provide empirical evidence for its sound psychometric properties. The newly translated instrument was administered to subordinates in a number of heterogeneous samples. The results demonstrate high factorial and convergent validity as well as internal consistency, test-retest-reliability, and interrater agreement. In sum, the MLQ with its nine leadership scales and three outcome scales is now applicable in German contexts.

Introduction

Within the last two decades, both researchers and practitioners have explored the transformational and transactional leadership paradigm. Starting with Bass' seminal work on the theory of transformational leadership (Bass, 1985), consistent empirical evidence demonstrated the positive impact this leadership approach has on both subjective and objective performance. Recently, several meta analysis summarized these empirical studies (Fuller, Patterson, Hester & Stringer, 1996; Lowe, Kroeck & Sivasubramaniam, 1996; Judge & Piccolo, 2004).
Within transformational leadership, leaders emphasize higher motive development, and arouse followers' motivation and positive emotions by means of creating and representing an inspiring vision of the future (Bass, 1997). In contrast, transactional leaders rely on a clear defined system of contracts and rewards.

The MLQ-5X

The Multifactor Leadership Questionnaire (MLQ-5X) is the standard instrument for assessing transformational and transactional leadership behavior (Bass & Avolio, 2000; Avolio & Bass, 2004). It has been translated into many languages and used successfully by both researchers and practitioners around the world. The MLQ-5X and its various translations are available from Mind Garden, Inc.
Mind Garden provides services for both researchers and consultants. Researchers will want to use just the MLQ forms as survey instruments (Avolio & Bass, 2004). To use the MLQ for research it is essential to contact Mind Garden, Inc. to purchase or license reproduction of these forms. Mind Garden also provides Web based collection of multi-rater data for researchers interested in using the web[1].
For consultants, Mind Garden provides both paper form-based and Web-based multi-rater (360 degree) collection of ratings about a leader as well as a comprehensive feedback report. The MLQ feedback is an individualized, computer-generated report, that provides an in-depth summary of how often leaders are perceived to exhibit specific behaviors along a full range of leadership performance. These specific behaviors are described in the next section.

MLQ-5X subscales of transformational and transactional leadership

In detail, five transformational, three transactional, one laissez-faire, and three outcome scales are included in the MLQ-5X. The first of the transformational scales is Inspirational Motivation. Central to this subscale of transformational leadership is the articulation and representation of a vision by the leader. Consequently, by viewing the future with a positive attitude, followers are motivated. Idealized Influence (attributed) refers to the attribution of charisma to the leader. Because of the leaders` positive attributes (e. g. perceived power, focusing on higher-order ideals and values), followers built close emotional ties to the leader. Trust and confidence is likely to be built in followers. Idealized Influence (behavior) emphasizes a collective sense of mission and values, as well as acting upon these values. Next, Intellectual Stimulation includes challenging the assumptions of followers` beliefs, their analysis of problems they face and solutions they generate. Individualized Consideration is defined by considering individual needs of followers and developing their individual strengths. On the side of the transactional leadership scales, Contingent Reward is a

[1] www.mindgarden.com

leadership behavior by which the leader focuses on clear defined tasks, while providing followers with rewards (material or psychological) on the fulfillment of these tasks. In Active Management-by-Exception, the leader watches and searches actively for deviations from rules and standards in order to avoid these deviations; if necessary, corrective actions are taken. In contrast, in Management-by-Exception passive intervening only occurs after errors have been detected or if standards have not been met. An even more passive approach is Laissez-Faire, which is basically defined as the absence of leadership. As such, Laissez-faire is used as a nonleadership contrast to the more active forms of transformational and transactional leadership approaches.
The three outcome criteria which are included in the MLQ are followers' Extra Effort (EEF), the Effectiveness of leader's behavior (EFF), and followers' Satisfaction (SAT) with their respective leader.
In combination, these scales form the Full Range of Leadership, a comprehensive model developed by Avolio and Bass (2002). In addition, the Full Range of Leadership Development Program (FRLD) has proven its effectiveness (Bass & Avolio, 1997; Barling, Weber & Kelloway, 1996). Leaders in profit and non-profit organizations around the world enhance their leadership skills by means of the FRLD and thus apply successfully the transformational - transactional leadership paradigm.
It is important to notice that the Full Range model offers a variety of leadership styles for many situations. Their effectiveness has been documented in several meta-analysis (Judge & Piccolo, 2004; Lowe et al., 1996). As a consequence, the Full Range model is unique within the field of leadership (Antonakis & House, 2002; Avolio & Bass, 2002).

The German translation of the MLQ-5X

The MLQ-5X (short version) has been translated in numerous languages. Mind Garden provides these translations as well as norms[2]. However, until now, the Full Range model of Leadership described above failed to show in German translations. For example, Geyer and Steyrer (1998) explored leadership behavior of bank branches' managers. Factor analysis failed to replicate several of the above mentioned factors. The reader is referred to Rowold and Grabbe (2004) for more details on earlier attempts to translate the MLQ into the German language and validate the respective translation.
In consequence, it was deemed necessary to translate the MLQ-5X more carefully into the German language. In turn, we made a considerable effort to translate the MLQ-items (c.f. Brislin, 1980). First, a native English speaker translated the items into German. Next, a professional translator backtranslated the items. Two independent experts in the fields of I/O psychology compared the two sets of English items. They agreed that there were virtually no differences between the two English translations. Thus, the translation was deemed successful. The majority of scales used for research in Germany range from 1 to 5, contrary to the 0 to 4 range of the MLQ. For reasons of standardization, we chose to assign a five-point response scale ranging from 1 (strongly disagree) to 5 (strongly agree) to each of the MLQ-5X items. The instrument is under copyright[3] and available from Mind Garden (Rowold, 2004b).

[2] F or international norms, see Mind Gardens' website: www.mindgarden.com/docs/MLQinternationalnorms.pdf

[3] Research Edition Translation performed by Dr. Jens Rowold on July 7, 2004. Translated and reproduced by special permission of the Publisher, MIND GARDEN, Inc., Redwood City, CA 94061 www.mindgarden.com from Multifactor Leadership Questionnaire for Research by Bernhard M Bass and Bruce J Avolio. Copyright 1995, 2000 by Bernhard M Bass and Bruce J Avolio. All rights reserved. Further reproduction is prohibited without the Publisher's written consent.

Samples

Diverse sample were chosen in order to evaluate the psychometric properties of the new German translation of the MLQ-5X (Rowold, 2004b). Table 1 provides with an overview of these samples.

Table 1
Description of samples

Sample	Number of raters	Number of leaders	Rater level percentage (%)
(1) Government	267	74	Lower (100.0)
(2) Manufacturing A	262	65	Self (40.8), Higher (31.7), Lower (27.5)
(3) Manufacturing B	25	14	Self (52.0), Higher (48.0)
(4) Manufacturing C	112	22	Self (36.6), Lower (63.4)
(5) Public transport	203	34	Lower (100)
(6) Convenience sample	238	120	Lower (100)
(7) Student sample	416	38	Lower (100)

First, within a government agency in western Germany, subordinates assessed their superiors' leadership styles. Second, in a german-speaking Swiss manufacturing firm, focal managers' leadership style was evaluated by their respective subordinates, superiors as well as from their own perspective. Third, for feedback purposes, a sample of German managers assessed their own leadership behaviors. In addition, they were assessed by their respective superiors. Fourth, within a mid-sized manufacturing company, managers rated their own leadership behavior and were evaluated by their respective subordinates. Fifth, managers from three hierarchical levels of a large public transport company in Germany were assessed by their subordinates. Sixth, a convenience sample included a representative selection of managers with different demographic characteristics working within different companies. Finally, the seventh sample was a student sample. Students rated world-class leaders' behavior as if they were their subordinates (c.f. Bass, Avolio & Goodheim, 1987).
These heterogeneous samples were chosen for evaluating the validity and reliability of the German translation of the MLQ-5X. In the following section, we report about the results of our psychometric analyses.

Validity

Construct validity

We conducted confirmatory factor analyses (CFAs) in order to test the factorial validity of the MLQ-5X. In accordance with earlier research (Antonakis, Avolio & Sivasubramaniam, 2003; Avolio & Bass, 2004), we tested different competing models which had been identified by other scholars and are summarized in Table 2. For more detail about the factorial validity of the MLQ-5X, the reader is referred to Antonakis et al. (2003) and to the new MLQ manual available from Mind Garden (Avolio & Bass, 2004).

Table 2
Competing factorial models of MLQ

Model	Description
(1)	*Null model*
(2)	One general first-order factor
(3)	Two correlated first-order factors (active vs. passive leadership); (c.f. Avolio, Bass & Jung, 1999; Bycio, Hackett & Allen, 1995)
(4)	Three correlated first-order factors (transformational, transactional, and laissez-faire leadership); (c.f. Den Hartog & Van Muijen, 1997)
(5)	Three correlated first-order factors (transformational, transactional, and passive leadership); (Avolio et al., 1999)
(6)	Five correlated first-order factors (transformational leadership, contingent reward, active management-by-exception, management-by-exception passive and laissez-faire leadership); (Howell & Avolio, 1993)
(7)	Six correlated first-order factors (charisma, intellectual stimulation, individualized consideration, contingent reward, active management-by-exception and passive leadership); (Bass, 1985; Avolio et al., 1999)
(8)	Seven correlated first-order factors (charisma, intellectual stimulation, individualized consideration, contingent reward, active management-by-exception, management-by-exception passive and laissez-faire leadership); (Avolio et al., 1999)
(9)	Eight correlated first-order factors (inspirational motivation, idealized influence, intellectual stimulation, individualized consideration, contingent reward, active management-by-exception, management-by-exception passive and laissez-faire leadership); (Avolio et al., 1999)
(10)	Nine correlated first-order factors (inspirational motivation, idealized influence attributed, idealized influence behavior, intellectual stimulation, individualized consideration, contingent reward, active management-by-exception, management-by-exception passive and laissez-faire leadership); (Avolio et al., 1999; Antonakis et al., 2003)

A series of multi-sample CFAs using AMOS V5.0 (Arbuckle & Wothke, 1999) was performed on the data sets described in Table 1. We only included one type of raters, namely followers, in order to minimize variance. This yielded a sample size of N = 1267. Full-information maximum likelihood (FIML) CFA was used to estimate the model parameters (Bollen, 1989; Antonakis et al., 2003).

Table 3
Overall fit measures among competing factor models

Model	χ^2	*df*	TLI	CFI	RMSEA	$\Delta\chi^2$	Δdf
(1)	109733,7	2664	NA	NA	0.193	43302.61 ***	107
(2)	4281.8	595	0.909	0.948	0.115	1766.84 ***	36
(3)	3464.5	593	0.929	0.957	0.102	949.49 ***	34
(4)	3480.2	593	0.928	0.956	0.102	965.15 ***	34
(5)	3450.3	591	0.929	0.957	0.042	935.3 ***	32
(6)	3178.2	588	0.935	0.962	0.040	663.2 ***	29
(7)	3152.4	584	0.935	0.963	0.040	637.36 ***	25
(8)	5742,9	2316	0,963	0.968	0.037	432.17 ***	21
(9)	2920.6	574	0.940	0.968	0.037	405.63 ***	15
(10)	5087,2	2232	0.968	0.973	0.035		

Notes. For model description, c.f. Table 2.
For computing $\Delta\chi^2$, the χ^2 of a respective model was subtracted from the χ^2-value of the nine-factor (target) model.
*** $p < .001$.

As can be seen from Table 3, the nine-factor model of the MLQ-5X was clearly supported. Additional χ^2-difference tests provided evidence that this nine-factor model significantly fitted the data better than any other model. These results are in line with recent large-scale analysis (Antonakis et al., 2003). In sum, the German translation of the MLQ-5X (Rowold, 2004b) used here was able to replicate the original factor structure. In consequence, the nine factors of transformational, transactional, and nonleadership are valid in german-speaking countries. Both researchers and practitioners are now equipped with an instrument ready to apply the state-of-the-art paradigm of transformational and transactional leadership in German-speaking countries.

Factor loadings

In addition to the fit indices, the CFAs provided information about the factor loadings for the different subscales of the MLQ-5X. Tables 4.1 and 4.2 present the item loadings. That is, for each of the nine leadership factors, the loading of their respective four indicators are shown.

Table 4.1
Item loadings with the nine-factor model

	Factor		Factor		Factor		Factor		Factor
Item	IM	Item	II(A)	Item	II(B)	Item	IS	Item	IC
IM9	0.74	II(A)10	0.72	II(B)6	0.41	IS32	0.56	IC31	0.76
IM13	0.63	II(A)18	0.55	II(B)14	0.52	IS30	0.78	IC29	0.68
IM26	0.65	II(A)21	0.69	II(B)23	0.67	IS8	0.74	IC19	0.39
IM36	0.66	II(A)25	0.73	II(B)34	0.64	IS2	0.32	IC15	0.45

Table 4.2
Item loadings with the nine-factor model

	Factor		Factor		Factor		Factor
Item	CR	Item	AMbE	Item	MbEP	Item	LF
CR35	0.61	AMbE27	0.49	MbEP3	0.54	LF5	0.64
CR16	0.48	AMbE24	0.60	MbEP12	0.82	LF7	0.49
CR11	0.56	AMbE22	0.67	MbEP17	0.27	LF28	0.69
CR1	0.62	AMbE4	0.53	MbEP20	0.56	LF33	0.71

Intercorrelations among MLQ factor scores

Exploring the factorial validity of the MLQ-5X, the latent intercorrelations of the nine leadership scales are of interest. It has been noted earlier that the five transformational factors are highly intercorrelated. In addition, Contingent Reward, one of the three transactional factors, showed a relatively high correlation with the five transformational factors in earlier research.

To further explore this issue, we present the intercorrelations of the MLQ-5X subscales from our samples described in Table 1. On the following pages, Table 5.1 presents the intercorrelations for raters which are lower than the focal leader; Table 5.2 presents the intercorrelations for raters which are at the same level; and Table 5.3 presents the intercorrelations for raters which are at a higher level than the focal leader.

Comparing these results with the ones reported in the MLQ manual (Avolio & Bass, 2004) we only found minor variations. In sum, the intercorrelations reported here are comparable to results from other samples around the world[4].

[4] c.f. international norms on Mind Gardens' website: www.mindgarden.com/docs/MLQinternationalnorms.pdf

Table 5.1
Intercorrelations among MLQ factor scores (raters at a lower level than the focal leader)

	Inspirational Motivation	Idealized Influence attributed	Idealized Influence behavior	Intellectual Stimulation	Individualized Consideration	Contingent Reward	Active Management-by-Exception	Management-by-Exception passive	Laissez-Faire	Extra Effort	Effectiveness	Satisfaction
Inspirational Motivation	-											
Idealized Influence attributed	.60**	-										
Idealized Influence behavior	.64**	.69**	-									
Intellectual Stimulation	.35**	.56**	.54**	-								
Individualized Consideration	.40**	.61**	.53**	.70**	-							
Contingent Reward	.61**	.64**	.64**	.53**	.61**	-						
Active Management-by-Exception	.17**	.13**	.22**	.13**	.05	.21**	-					
Management-by-Exception passiv	-.21**	-.43**	-.28**	-.39**	-.34**	-.34**	.01	-				
Laissez-Faire	-.32**	-.54**	-.43**	-.48**	-.48**	-.49**	-.07*	.64**	-			
Extra Effort	.63**	.72**	.66**	.49**	.56**	.67**	.18**	-.36**	-.45**	-		
Effectiveness	.42**	.62**	.51**	.63**	.69**	.62**	.16**	-.45**	-.52**	.65**	-	
Satisfaction	.39**	.64**	.50**	.62**	.69**	.58**	.04	-.45**	-.49**	.58**	.74**	-

**. p < .01 (two-tailed).

*. p < .05 (two-tailed) .

Table 5.2
Intercorrelations among MLQ factor scores (raters at the same level than the focal leader)

	Inspirational Motivation	Idealized Influence attributed	Idealized Influence behavior	Intellectual Stimulation	Individualized Consideration	Contingent Reward	Active Management-by-Exception	Management-by-Exception passive	Laissez-Faire	Extra Effort	Effectiveness	Satisfaction
Inspirational Motivation	-											
Idealized Influence attributed	.50**	-										
Idealized Influence behavior	.49**	.40**	-									
Intellectual Stimulation	.49**	.45**	.59**	-								
Individualized Consideration	.39**	.33**	.43**	.47**	-							
Contingent Reward	.30**	.28**	.32**	.21**	.21**	-						
Active Management-by-Exception	.02	.17*	.18*	.14	.03	.09	-					
Management-by-Exception passive	.01	-.08	-.11	-.27**	.06	-.22**	.04	-				
Laissez-Faire	-.23**	-.18*	-.22**	-.37**	-.16*	-.28**	-.07	.30**	-			
Extra Effort	.66**	.53**	.60**	.64**	.51**	.26**	-.01	-.15	-.32**	-		
Effectiveness	.38**	.39**	.31**	.42**	.37**	.24**	.07	-.11	-.33**	.56**	-	
Satisfaction	.19*	.34**	.20*	.32**	.16*	.15	.05	-.17*	-.32**	.40**	.49**	-

**. p < .01 (two-tailed).

*. p < .05 (two-tailed) .

Table 5.3
Intercorrelations among MLQ factor scores (raters at a higher level than the focal leader)

	Inspirational Motivation	Idealized Influence attributed	Idealized Influence behavior	Intellectual Stimulation	Individualized Consideration	Contingent Reward	Active Management-by-Exception	Management-by-Exception passive	Laissez-Faire	Extra Effort	Effectiveness	Satisfaction
Inspirational Motivation	-											
Idealized Influence attributed	.55**	-										
Idealized Influence behavior	.54**	.43**	-									
Intellectual Stimulation	.42**	.55**	.40**	-								
Individualized Consideration	.34**	.44**	.29**	.46**	-							
Contingent Reward	.61**	.61**	.47**	.38**	.51**	-						
Active Management-by-Exception	.16	.22*	.29**	.33**	.06	.16	-					
Management-by-Exception passive	-.10	-.28**	-.21*	-.22*	-.26*	-.33**	-.23*	-				
Laissez-Faire	-.30**	-.60**	-.43**	-.35**	-.25*	-.50**	-.16	.59**	-			
Extra Effort	.51**	.51**	.37**	.36**	.47**	.64**	.11	-.30**	-.46**	-		
Effectiveness	.51**	.61**	.22*	.34**	.48**	.49**	.23*	-.21*	-.38**	.54**	-	
Satisfaction	.32**	.67**	.36**	.36**	.42**	.44**	.05	-.30**	-.49**	.52**	.60**	-

**. p < .01 (two-tailed).

*. p < .05 (two-tailed) .

Convergent validity

The MLQ-5X is the standard instrument for assessing a range of transformational and transactional leadership behaviors. Despite its predominance, other instruments were developed in order to tap different aspect of transformational leadership. One of these instruments is the Transformational Leadership Inventory (TLI), developed by Podsakoff and colleagues (Podsakoff, Niehoff, MacKenzie & Williams, 1993; Podsakoff, MacKenzie & Bommer, 1996).

For the purpose of assessing the convergent validity of the MLQ-5X, both the MLQ-5X and the TLI were administered to subordinates evaluating their respective superiors' leadership styles. All of the participants from sample 1 described in Table 1 (government sample) were included in this study (N = 267). The transformational scales of the MLQ-5X showed high and significant convergent validity to the transformational leadership scales of the TLI ($.22 < r < .79$). This lends further credibility to the validity of the MLQ-5X. For more details, the reader is referred to Tartler and Rowold (2004).

Reliability

In order to evaluate aspects of reliability, the following three independent approaches were chosen. In addition to internal consistency (Cronbach's Alpha), the interrater agreement (ICC) and the test-retest-reliability (r_{tt}) were calculated.

First, internal consistency was calculated for each of the MLQ-5X subscales. As a standard, Cronbach's Alpha was calculated for each subscale of the MLQ-5X (Cortina, 1993). Tables 7.1 - 7.3 present the reliabilities for each of the sample listed in Table 1 separately. In sum, the internal consistencies of the MLQ-5X scales as indicated by Cronbach's Alpha are good. Given the fact that the nine leadership scales consist of only four indicators, the internal consistencies can be categorized as very good (Cortina, 1993).

Next, we calculated the interrater agreement for each of the nine subscales. The intraclass correlation (*ICC*) is one possible indicator for interrater agreement (James, Demaree & Wolf, 1984). Agreement is high if several subordinates observe the same frequency of superiors' behavior. Within the manufacturing sample C described in Table 1, for each focal leader, two of his/her subordinates assessed leadership behavior. In turn, it was possible to calculate the *ICC(1)*. As can be seen from Table 6, the *ICC*s for each of the nine leadership scales are satisfactory or high (.74 < *ICC* < .97). Thus, these results provide evidence for the interrater agreement for the MLQ-5X.

Finally, attempts were made to estimate the test-retest reliabilities of the MLQ-5X leadership scales. Test-retest reliability r_{tt} is an indicator of a constructs' temporal stability. Within the manufacturing A sample (c. f. Table 1), $N = 17$ managers were evaluated two times. The time interval between these two points in time was three months. Table 6 shows that the test-retest reliabilities were generally high and significant. The exceptions are the subscales Individualized Consideration, Management-by-Exception passive, and Laissez-Faire. Further research is necessary to explore the stability of leaders' behavior as measured with the MLQ-5X.

Table 6
ICCs and test-retest reliabilities

MLQ-5X scale	*ICC(1)*	Test-retest reliability r_{tt}
IM	0.85	0.58**
IIa	0.97	0.70**
IIb	0.89	0.49**
IS	0.95	0.57**
IC	0.93	0.32
CR	0.87	0.69**
AMbE	0.84	0.65**
MbEP	0.74	0.21
LF	0.82	0.32

Notes. IM = Inspirational Motivation; IIa = Idealized Influence attributed; IIb = Idealized Influence behavior; IS = Intellectual Stimulation; IC = Individualized Consideration; CR = Contingent Reward; AMbE = Active Management by Exception; MbEP = Management by Exception Passive; LF = Laissez-Faire

* $p < .05$; ** $p < .01$

Norms and descriptive statistics

In cross-cultural research, it is important to have descriptive data in order to compare different cultures. Consequently, in this section we present descriptive statistics for the samples used in our research (c. f. Table 1). Tables 7.1 – 7.3 show the descriptive statistics for each of the samples used in our analyses. Note that the means are relatively high, due to the different scaling format (1 - 5). In accordance with earlier research, transformational leadership was observed more frequently than transactional or nonleadership behavior (Bass & Avolio, 2000; Avolio & Bass, 2004).

Table 7.1
Means, standard deviations, and internal consistency estimates

	Sample					
	Government (N = 267)			Manufacturing A (N = 203)		
	M	*SD*	α	*M*	*SD*	α
Transformational leadership						
1. IM	3.14	.79	.77	3.79	.63	.79
2. IIa	3.22	.89	.84	3.78	.56	.67
3. IIb	3.22	.79	.75	3.77	.59	.69
4. IS	3.39	.77	.79	3.89	.57	.66
5. IC	3.29	.81	.76	3.78	.55	.62
Transactional leadership						
6.CR	3.34	.79	.76	3.69	.50	.66
7. AMbE	2.68	.76	.71	3.23	.72	.67
8. MbEP	2.25	.82	.69	2.38	.58	.61
9. LF	2.23	.81	.69	1.84	.61	.73
Dependent Measures						
10. EEF	3.00	.86	.88	3.60	.67	.85
11. EFF	3.47	.77	.81	3.88	.46	.75
12. SAT	3.51	.86	.75	3.89	.57	.84

Notes. IM = Inspirational Motivation; IIa = Idealized Influence attributed; IIb = Idealized Influence behavior; IS = Intellectual Stimulation; IC = Individualized Consideration; CR = Contingent Reward; AMbE = Active Management by Exception; MbEP = Management by Exception Passive; LF = Laissez-Faire; EEF = Extra Effort; EFF = Effectiveness; SAT = Satisfaction

Table 7.2
Means, standard deviations, and internal consistency estimates

	Sample					
	Manufacturing C (*N* = 413)			Public transport (*N* = 203)		
	M	*SD*	*α*	*M*	*SD*	*α*
Transformational leadership						
1. IM	3.79	.63	.71	3.16	.66	.67
2. IIa	3.78	.56	.79	3.28	.80	.79
3. IIb	3.77	.59	.65	3.33	.74	.69
4. IS	3.89	.57	.68	3.48	.85	.78
5. IC	3.78	.55	.77	3.40	.77	.67
Transactional leadership						
6.CR	3.69	.50	.58	3.43	.77	.70
7. AMbE	3.23	.72	.67	3.01	.82	.69
8. MbEP	2.38	.58	.66	2.28	.71	.65
9. LF	1.84	.61	.71	2.09	.76	.74
Dependent Measures						
10. EEF	3.60	.67	.79	3.19	.84	.80
11. EFF	3.88	.46	.74	3.56	.76	.70
12. SAT	3.89	.57	.65	3.50	.91	.77

Notes. IM = Inspirational Motivation; IIa = Idealized Influence attributed; IIb = Idealized Influence behavior; IS = Intellectual Stimulation; IC = Individualized Consideration; CR = Contingent Reward; AMbE = Active Management by Exception; MbEP = Management by Exception Passive; LF = Laissez-Faire; EEF = Extra Effort; EFF = Effectiveness; SAT = Satisfaction

Table 7.3
Means, standard deviations, and internal consistency estimates

	Sample					
	Convenience sample (N = 267)			Student sample (N = 416)		
	M	*SD*	α	*M*	*SD*	α
Transformational leadership						
1. IM	3.37	0.84	.73	3.37	0.84	.81
2. IIa	3.13	1.03	.82	3.13	1.03	.70
3. IIb	3.45	0.84	.66	3.45	0.84	.65
4. IS	3.36	0.90	.78	3.36	0.90	.83
5. IC	3.30	1.02	.81	3.30	1.02	.77
Transactional leadership						
6.CR	3.59	0.86	.71	3.59	0.86	.58
7. AMbE	3.07	0.80	.67	3.07	0.80	.67
8. MbEP	2.62	0.91	.66	2.62	0.91	.66
9. LF	2.38	1.05	.78	2.38	1.05	.71
Dependent Measures						
10. EEF	3.21	0.99	.79	3.21	0.99	.71
11. EFF	3.44	0.94	.80	3.44	0.94	.61
12. SAT	3.23	1.18	.82	3.23	1.18	.92

Notes. IM = Inspirational Motivation; IIa = Idealized Influence attributed; IIb = Idealized Influence behavior; IS = Intellectual Stimulation; IC = Individualized Consideration; CR = Contingent Reward; AMbE = Active Management by Exception; MbEP = Management by Exception Passive; LF = Laissez-Faire; EEF = Extra Effort; EFF = Effectiveness; SAT = Satisfaction

Moreover, we were interested in the norm for each of the nine leadership behaviors. Thus, Tables 8.1 – 8.3 present the percentiles for the three different rater perspectives. That is, Table 8.1 includes only raters that were at a lower level than the focal leader; Table 8.2. includes only same-level raters; Table 8.3. presents results for higher-level raters. In general, the results are comparable to norms from other continents and nations (Avolio & Bass, 2004). As a tendency, leaders from German-speaking countries were exhibiting less transformational leadership than their U.S. colleagues. The reverse is true for transactional and nonleadership. That is, managers from the U.S show less of this passive leadership behavior than their German-speaking colleagues. Thus, the results presented here replicate findings from earlier research (Kuchinke, 1999). It should be kept in mind, however, that the cross-culturally differences are very small and should be treated with caution. Further research is needed to clarify the nation-specific differences.

In sum, the following pages (Tables 8.1 – 8.3) present for the first time specific norms for German-speaking nations. As such, they can be viewed as an important step toward language-specific norms that will help for a more norm-based assessment and development of managers effective leadership behaviors (Avolio, Waldman & Yammarino, 1991; Avolio, 1999).

Table 8.1
Percentiles for individual scores based on ratings at a lower level than focal leader

		Inspirational Motivation	Idealized Influence attributed	Idealized Influence behavior	Intellectual Stimulation	Individualized Consideration	Contingent Reward	Active Management-by-Exception	Management-by-Exception passive	Laissez-Faire	Extra Effort	Effectiveness	Satisfaction
N		1267	1267	1267	1267	1267	1266	1266	1267	1267	1261	1267	1265
Mean		3.51	3.51	3.58	3.41	3.29	3.56	3.05	2.35	2.15	3.39	3.50	3.78
Standard Deviation		.83	.93	.81	.91	.89	.75	.81	.81	.86	.89	.78	.89
Range		4.00	5.00	4.00	4.00	5.00	5.00	4.00	4.50	4.00	5.00	4.00	3.51
Percentile	5	2.25	1.75	2.25	1.75	1.75	2.25	1.75	1.25	1.00	2.00	2.00	.83
	10	2.50	2.25	2.50	2.25	2.00	2.50	2.00	1.25	1.00	2.33	2.50	4.00
	20	2.75	2.75	3.00	2.50	2.50	3.00	2.25	1.75	1.38	2.67	2.75	2.25
	30	3.00	3.00	3.25	3.00	2.75	3.25	2.75	2.00	1.50	3.00	3.00	2.50
	40	3.25	3.50	3.50	3.25	3.25	3.50	2.75	2.00	1.75	3.33	3.33	2.75
	50	3.50	3.50	3.75	3.50	3.25	3.67	3.00	2.25	2.00	3.33	3.50	3.00
	60	3.75	3.88	3.75	3.75	3.50	3.75	3.25	2.50	2.25	3.67	3.75	3.25
	70	4.00	4.00	4.00	4.00	3.75	4.00	3.50	2.75	2.50	4.00	4.00	3.50
	80	4.25	4.25	4.25	4.25	4.00	4.25	3.75	3.00	2.75	4.00	4.25	3.75
	90	4.75	4.75	4.75	4.50	4.50	4.50	4.00	3.50	3.50	4.67	4.50	4.00
	95	5.00	5.00	4.75	4.75	4.75	4.75	4.38	3.75	3.75	5.00	4.75	4.25

Table 8.2
Percentiles for individual scores based on ratings at the same level than focal leader

		Inspirational Motivation	Idealized Influence attributed	Idealized Influence behavior	Intellectual Stimulation	Individualized Consideration	Contingent Reward	Active Management-by-Exception	Management-by-Exception passive	Laissez-Faire	Extra Effort	Effectiveness	Satisfaction
N		155	155	155	155	155	155	155	155	155	155	155	154
Mean		3.93	3.90	3.94	4.05	4.00	3.74	3.09	2.22	1.60	3.73	3.95	4.10
Standard Deviation		.60	.40	.58	.54	.52	.48	.80	.60	.53	.65	.48	.50
Range		2.75	2.00	3.00	2.75	2.50	2.75	4.00	3.75	2.75	4.00	3.25	3.00
Percentile	5	2.98	3.25	2.75	3.25	3.23	3.00	1.75	1.25	1.00	2.67	3.20	3.00
	10	3.25	3.38	3.25	3.48	3.28	3.13	2.00	1.50	1.00	3.00	3.25	3.50
	20	3.50	3.50	3.50	3.65	3.50	3.25	2.50	1.75	1.00	3.33	3.63	3.95
	30	3.63	3.75	3.75	3.75	3.75	3.50	2.74	2.00	1.25	3.50	3.75	4.00
	40	3.75	3.75	3.85	4.00	3.75	3.63	3.00	2.00	1.25	3.67	3.88	4.00
	50	4.00	4.00	4.00	4.00	4.00	3.75	3.25	2.00	1.50	3.67	4.00	4.00
	60	4.05	4.00	4.25	4.25	4.00	3.82	3.25	2.25	1.75	4.00	4.00	4.00
	70	4.25	4.00	4.25	4.25	4.25	4.00	3.50	2.50	1.75	4.00	4.25	4.50
	80	4.48	4.25	4.38	4.50	4.50	4.00	3.75	2.75	2.00	4.33	4.25	4.50
	90	4.75	4.50	4.50	4.75	4.75	4.40	4.25	3.00	2.43	4.33	4.50	4.55
	95	5.00	4.50	4.75	5.00	5.00	4.68	4.37	3.25	2.50	4.73	4.75	5.00

Table 8.3
Percentiles for individual scores based on ratings at a higher level than focal leader

		Inspirational Motivation	Idealized Influence attributed	Idealized Influence behavior	Intellectual Stimulation	Individualized Consideration	Contingent Reward	Active Management-by-Exception	Management-by-Exception passive	Laissez-Faire	Extra Effort	Effectiveness	Satisfaction
N		91	90	91	91	90	91	91	91	91	90	90	90
Mean		3.74	3.74	3.73	3.77	3.75	3.77	3.19	2.38	1.96	3.42	3.86	3.75
Standard Devaition		.67	.64	.64	.60	.52	.48	.68	.65	.68	.62	.43	.63
Range		3.00	2.50	2.75	2.75	2.25	2.25	3.00	3.00	2.75	3.00	2.00	2.90
Percentile	5	2.40	2.75	2.25	2.75	3.00	3.00	2.00	1.15	1.00	2.18	3.25	2.50
	10	3.00	2.88	2.80	3.00	3.00	3.04	2.25	1.50	1.25	2.67	3.25	2.91
	20	3.25	3.03	3.25	3.25	3.25	3.25	2.50	1.75	1.25	2.95	3.50	3.50
	30	3.50	3.25	3.50	3.50	3.50	3.50	2.75	2.00	1.50	3.00	3.52	3.50
	40	3.60	3.50	3.75	3.62	3.66	3.73	3.00	2.25	1.50	3.33	3.75	3.50
	50	3.75	3.90	3.75	3.75	3.75	3.88	3.25	2.50	1.88	3.42	3.81	4.00
	60	4.00	4.00	4.00	4.00	3.90	4.00	3.50	2.50	2.25	3.67	4.00	4.00
	70	4.25	4.25	4.00	4.10	4.00	4.00	3.75	2.75	2.50	3.67	4.00	4.00
	80	4.25	4.25	4.25	4.25	4.25	4.25	3.75	3.00	2.50	4.00	4.25	4.40
	90	4.50	4.50	4.50	4.50	4.50	4.32	4.00	3.25	2.96	4.30	4.50	4.50
	95	4.75	4.75	4.75	4.75	4.75	4.50	4.25	3.25	3.25	4.33	4.50	4.73

Discussion

Summary of results

The results presented underline the good psychometric qualities of the German translation of the MLQ-5X (Rowold, 2004b). Several analyses provided support for high construct and convergent validity. Moreover, three independent methods were applied and yielded good reliabilities for the MLQ-5X. In sum, this translation of the MLQ-5X is a valid and reliable instrument for assessing leaders' behavior. Both researchers and practitioners in German-speaking countries are now equipped with an instrument ready to apply the state-of-the-art paradigm of transformational and transactional leadership available from Mind Garden, Inc.

As has been shown in the validity section, our results lend further support for the nine-factor model of the MLQ-5X. Thus, results of recent large sample-size research (Antonakis et al., 2003; Avolio & Bass, 2004) have been replicated by our confirmatory factor analyses. As a consequence, the Full Range Model of Leadership (Antonakis & House, 2002; Avolio & Bass, 2002) seems a valid approach to leadership in German-speaking countries. This is especially important for leadership training and development, one of the key factors for organizations' long-term economic success (Fuller et al., 1996).

The universality of the transformational – transactional leadership paradigm

Theory of transformational leadership states that both transformational and transactional leadership styles are applicable in a variety of settings. It has been observed in the military, hospital, industry, government, education, church, and many more (Bass, 1998). The universality of the transformational – transactional leadership paradigm can help leaders to be more successful, both in terms of economic success, but also in terms of their followers' satisfaction and commitment (Barling et al., 1996; Den Hartog, VanMuijen & Koopman, 1996).

Many areas of application are still waiting to be explored by leadership research. These areas might benefit from the application of the transformational – transactional leadership paradigm. At present, we conduct research with sport leaders (Rowold, 2004a), with clergy (Rowold, 2004c), and with musical conductors (Rowold, 2004d). As we are validating modified versions of the MLQ-5X in these contexts, we are excited about the possible positive impact transformational leadership might have on followers' satisfaction, extra effort, and leaders' effectiveness. It is our intention to help leaders in a variety of settings to learn more about effective leadership styles.

Implications for theory

More research with additional samples is needed to further support these results. The author is conducting research projects that aim at providing more empirical data on the psychometric properties of the MLQ-5X. This is especially important for more differentiated norms based on larger sample sizes. As the sample sizes for a) the lower level rater form and b) the higher level rater form were limited, it seems eligible to obtain larger sample for a better empirical foundation of the respective norms.

Moreover, although we were able to show high convergent validity between different approach to measuring transformational leadership (TLI and MLQ-5X), still other instruments need to be considered. More specifically, the approach to charismatic leadership as proposed

by Conger and Kanungo (1998) shows some theoretical overlap with the transformational leadership approach. As a consequence, the convergent validity between charismatic and transformational leadership should be explored (Hunt & Conger, 1999; Conger & Hunt, 1999).

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