THE BEHAVIOURAL AND PERSONALITY CORRELATES OF TRANSACTIONAL AND TRANSFORMATIONAL LEADERSHIP

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ABSTRACT

The article argues that there is a statistically significant positive relationship between leadership style and creativity. It was found that there is a higher statistically significant positive relation between transformational leadership style and creativity than between creativity and the other leadership styles. Creativity (fluency of thought and originality) can partially be accounted for by the Multifactor Leadership Questionnaire. To demonstrate this in the study, the researcher uses, firstly the Multifactor Leadership Questionnaire to identify leadership style, and secondly three measuring instruments that measure creativity. The argument is substantiated by the results of a statistical analysis of leadership style and creativity.

OPSOMMING

Hierdie artikel argumenteer dat daar 'n statisities-beduidende positiewe verband bestaan tussen leierskapstyl en kreatiwiteit. Daar is bevind dat daar 'n hoër statisties-beduidende positiewe verband tussen transformasionele leierskapstyl en kreatiwiteit is as tussen kreatiwiteit en die ander leierskapstyle. Kreatiwiteit (vlotheid van denke en oorspronklikheid) kan gedeeltelik verklaar word deur die Veelfaktorleierskapvraelys (MLQ). Om dit te illustreer, gebruik die navorsers in hierdie studie die Veelfaktorleierskapvraelys ten einde leierskapstyl te identifiseer en tweedens drie meetinstrumente wat kreatiwiteit meet. Die argument word gesubstansieer deur die resultate van 'n statistiese ontleding van leierskapstyle en kreatiwiteit.

Leadership and creativity have been studied extensively but separately; it seems that there is a void in the literature with regard to the correlation between the two (Kirkpatrick, 1991). Furthermore, research on the importance of leadership as a key to success in business has been established. Roodt (2001) and Schlechter (2001) showed that creative traits can explain an increase in profits, a decrease in stock losses and also labour turnover. Based on personal experience the researcher has found that one of the biggest challenges in leadership development is to identify specific developmental needs, and focus training accordingly. Even more problematic is the selection of creative people.

Leadership traits

According to Ackermann, Schepers, Lessing, and Dannhauser (2000) research has made it clear that successful leaders are not like other people. The evidence indicates that there are certain core traits that significantly contribute to a business leader's success. While none of the traits reviewed by Stogdill (1948, 1974) were found in all studies to be associated with leadership, the consistency with which some traits were found to be associated with leadership and the magnitudes of these associations are impressive. For example, the traits that most consistently showed high correlations with leadership were intelligence (Mann, 1959); dominance (Dyson, Fleitas and Scioli, 1972; Rychlak, 1963); self-esteem (Bass, 1957); task ability (Marak, 1964, Bass, 1961); and sociability (Kaess, Witryol and Nolan, 1961). Kreitner and Kinicki (2001, p. 555) states that we can no longer afford to ignore the implications of leadership traits because traits play a central role in how we perceive leaders. Kirkpatrick and Locke (1991) argue that there is less clear evidence for traits such as creativity, originality and flexibility. These authors believe that the key leadership traits help the leader to
- acquire the necessary skills;
- formulate an organisational vision, and an effective plan for pursuing it;

- and take the necessary steps to implement the vision.

If a positive correlation can be found between creativity and leadership style then the question arises as to whether some leaders are more creative than others.

Transformational and Transactional Leadership

It appears from the literature that Transformational Leadership as conceptualised by Burns (1978), is currently a major focus area. According to Ackerman et al., (2000, p.58) Transformational Leadership, probably serves as the most appropriate style in managing the changes presently taking place in South African organisations.

Transactional Leadership style focuses on interpersonal transactions between managers and employees. Leaders are seen as engaging in behaviours that maintain a quality interaction between themselves and followers (Kreitner & Kinicki, 2001, p. 567). According to Gibson (1997, p.313) the leader helps the followers identify what must be done to accomplish the desired results, i.e. better quality output, more sales or services and reduced cost of production. In helping the followers identify what must be done, the leader takes into consideration each person's self-concept and esteem needs.

Transformational Leadership is viewed as a special case of Transactional Leadership, and unlike the external rewards promised by Transactional Leaders, the employee's reward is internal (Gibson, 1997).

Transformational Leadership

According to Bass and Avolio (1985) Transformational Leaders motivate others to do more than they originally intended and often even more that they thought possible. They set more challenging expectations and typically achieve higher performance. Transformational Leaders do more with colleagues and followers than set up simple exchange agreements.

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Creativity

Although there is seemingly less clear evidence of creativity as a trait that leaders possess, an abundance of research have been done on creativity as such (Getzels, 1964; Greeno, 1978; Sternberg, 1999).

Divergent thinking and ideational fluency of thought

According to Guilford (1957) it is in divergent thinking that we find the most obvious indications of creativity. Divergent thinking ability require individuals to produce several responses to a specific prompt. The more responses the individual produces, the higher the ideational fluency ability of the person (Guilford,1962).

Associational fluency of thought

Creative thinking has been viewed by Mednick (1962) as the recombining of associative elements that either meet specified requirements or are in some way useful. He argues that solutions may occur through mediation (combination via common elements). Mednick (1967) argues that the greater the number of associations that an individual has with the requisite elements of a problem, the greater the probability of his reaching a creative solution. To assess creativity, Mednick (1962) devised the Remote Associates Test (RAT).

Originality of thought

Originality of thought is defined by Cougar (1995, p.370) as 'the capacity to produce unusual ideas, solve problems in unusual ways, and use things and situations in an unusual manner'. Originality consists of uniqueness and nonconformity with thought and action. Barron (1955) argues that original must be defined relative to usual, and the degree of originality must be specified in terms of incidence of occurrence. Thus the first criterion of an original response is that it should have a certain specifiable uncommonness. Sternberg (1999, p.450) states that there appears to be consensus that the two defining characteristics of creativity are originality and usefulness.

Creativity and Problem Solving

Guilford (1957) argues that creative steps are necessary in solving new problems. A problem only exists because the situation presents the necessity for new productions of some kind. Factors are abstractions of components from total activities. Some of the components are recognised as being more creative than others, for example, qualities of originality and fluency. Creativity is therefore not a gift possessed by rare and exceptional individuals (though some components are undeniably more creative), but all individuals are creative to some extent.

This study has attempted to establish whether a correlation exists between creativity and behavioural leadership style.

METHOD

This section describes the method that was employed in the study, including a description of the target population, raters and measuring instruments.

Participants/respondents

All students currently enrolled for their MBA and M.Com. degrees comprised the population of interest. The unit of study (Cooper, 1998, p.215) consisted of students who are busy with their master's degrees in three different universities in the Gauteng area in South Africa. The sampling method used is non-probability sampling as defined by Cooper (1998, p.237). For the purpose of this research judgement sampling was used as a type of purposive sampling. The researcher selected sample members who conformed to some attributes. The most common attribute of masters' students is their work experience on managerial level. The researcher believes that although the use of students may imply homogeneous groups, this sample is more heterogeneous due to the fact that the

respondents have managerial experience as a common attribute. The sample size (N) was 196.

Measuring instruments

Transformational Leadership was measured by the Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio (1985). The MLQ measures a broad range of leadership style from Laissez-fair to Idealised influence. The MLQ consists of 45 items loading on four factors that represent the Full Range Model. Ideational fluency and originality of thought were measured by two divergent thinking ability tests similar to those developed by Chand and Runco (1993).

The first test assessed ideational fluency and originality of thought in respect of a concrete concept, eg.
- List the uses of a paper clip, and the second test assessed ideational fluency and originality of thought in respect of an abstract concept, eg.
- List the possible solutions for crime in SA.

Associational fluency of thought was measured by the Remote Associates Test as developed by Thompson (1993).

Complete records were obtained in respect of 178 participants.

Procedure

The research procedure comprised the following steps:
- The researcher administered the questionnaires in person.
- Respondents were told that confidentiality would be maintained.
- Respondents were asked to complete the Multifactor Leadership Questionnaire answer sheet. It was explained to the respondents that the questionnaire consists of statements about typical leadership behaviour and they were asked to indicate how often they behave in a certain way. The items required that the respondents should indicate how strongly they identify with the behaviour. Because the questionnaire was self-explanatory the respondents did not have to provide their names. This took approximately 20 minutes.
- Respondents then completed the Remote Associates Test. A number of practice examples were given before beginning the test. The amount of time allocated for the Remote Associates Test was 20 minutes.
- Respondents then completed the two divergent thinking ability tests. Explicit instructions were given in order to ensure that respondents understood that the alternatives generated should be different from one another. The respondents were asked to be as creative as possible when generating alternatives. The amount of time allocated was three minutes for each test.
- All four sets of tests were stapled together for each respondent.
- The researcher and two independent raters then evaluated the divergent thinking ability tests in order to establish originality of thought. A five-point scale for individual components was used where 1= very common and 5= very original.
- The researcher evaluated the Remote Associates Test.
- All four tests were sent to the Statistical Consultation Service at the Rand Afrikaans University for processing.

RESULTS

The factor analysis of the MLQ

Two different types of instruments were used. Firstly the MLQ was used to identify leadership style and secondly, three creativity measuring instruments, measuring fluency and originality of thought were used. The 45 items of the MLQ were subjected to a principal factor analysis. The analysis was beased on 196 complete records. As a first step, the items were intercorrelated and the eigenvalues of the unreduced intercorrelation matrix were computed. As fifteen of the eigenvalues were greater than unity, fifteen factors were extracted and rotated to simple structure by means of a Varimax rotation.

To overcome the effect of differential skewness of items, subscores in respect of each factor were computed by adding the items with high loadings on a factor, together. The subscores were then intercorrelated and subjected to a principal factor analysis. The eigenvalues of the unreduced intercorrelation matrix are presented in Table 1.

TABLE 1
EIGENVALUES OF UNREDUCED INTERCORRELATION MATRIX IN RESPECT OF THE MLQ

Root	Eigenvalue	% of Variance	Cumulative %
1	3,911	26,071	26,071
2	1,411	9,406	35,477
3	1,233	8,218	43,695
4	1,182	7,881	51,576
5	0,958	6,384	57,960
6	0,910	6,069	64,029
7	0,787	5,247	69,276
8	0,769	5,128	74,405
9	0,730	4,865	79,270
10	0,648	4,319	83,588
11	0,628	4,188	87,776
12	0,575	3,835	91,611
13	0,483	3,217	94,829
14	0,434	2,892	97,721
15	0,342	2,279	100,000

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Four factors were extracted, as four of the eigenvalues were greater than unity. Factor 1 had substantial loadings on 16 items and Factor 4 on 19 items yielding Cronbach alphas of 0,767 and 0,885 respectively. Factors 2 and 3 were poorly determined, having loadings on four and six items respectively. The reliability of the corresponding scales were 0,55 for Factor 2 and 0,479 for Factor 3. Accordingly a three-factor solution was tried. Factors 3 and 4 combined into a single factor with a reliability of 0,84. No items were lost. The reliability of Factor 4 fell, however, from 0,88 to 0,847. The obtained factor matrix was rotated to simple structure by means of a Direct Oblimin Rotation, as given in Table 2.

TABLE 2
ROTATED FACTOR MATRIX OF THE MLQ (DIRECT OBLIMIN ROTATION)

VARIABLES	ITEMS	K	FACTOR 1	FACTOR 2	FACTOR 3	h²j
Subtest 10	5,29	2	**0,635**	-0,252	0,178	0,679
Subtest 8	9	1	**0,577**	0,018	-0,003	0,349
Subtest 5	19,23,6	3	**0,526**	0,080	0,070	0,023
Subtest 7	2,8,25	3	**0,489**	0,077	0,030	0,435
Subtest 9	18,40	2	**0,450**	0,095	0,204	0,312
Subtest 2	13,11,14,33,1	5	**0,439**	-0,040	0,222	0,428
Subtest 15	7	1	**-0,116**	0,085	-0,066	0,253
Subtest 4	12,28,20	3	-0,209	**0,578**	-0,087	0,329
Subtest 14	3	1	0,061	**0,511**	-0,109	0,339
Subtest 13	17	1	0,034	**0,191**	0,139	0,424
Subtest 6	41,42	2	0,056	-0,030	**0,623**	0,416
Subtest 1	31,36,44,16, 37,35,30,38,32, 34,43,45,39	13	0,336	-0,050	**0,593**	0,225
Subtest 12	15	1	-0,070	-0,112	**0,489**	0,060
Subtest 11	10,26,21	3	0,240	-0,090	**0,486**	0,260
Subtest 3	27,22,24,4	4	0,018	0,034	**0,141**	0,035
Number of items per factor		45	17	5	23	4,547

Note: Factor 3 has been reflected

Table 2 shows that three factors are reasonably well determined, with substantial loadings on all three. However, from an inspection of the communalities it is apparent that several of the subscores share only a small proportion of their variance with the other subscores. In order to identify the obtained factors, the items associated with each factoe were grouped into categories as given by Bass (1999). Bass's classification (1999) is presented in Table 3.

TABLE 3
ITEMS ASSOCIATED WITH THE THREE FACTORS OF THE MLQ

ITEMS	FACTOR 1	FACTOR 2	FACTOR 3
Transformational leadership	9,10,15,21,25, 26,30,31,32	13 (with a negative loading)	2,6,8,14,18,19, 23,29,34 and 36
Transactional leadership	16,25	3,4,12,20,22,24 and 27	1,11 and 17
Non-Transactional leadership	None	5,7 and 33	28
Leadership outcome	37,38,39,40,41, 42,43,44 and 45	None	None
Total number of items	20	11	14

Note: Categorisation of items according to Bass (1999)

Table 3 shows that Factor 1 is strongly representative of items categorised as Transformational Leadership and Leadership Outcome. There are only two items categorised as Transactional Leadership. Factor 1 can therefore be identified as Transformational Leadership/Leadership outcome.

Factor 2 is representative of items categorised as Transactional Leadership and Non-Transactional Leadership (Laissez Faire). There is also one item with a negative loading, categorised as Transformational Leadership. The items listed as Transactional Leadership, all deal with failure to take action when required, and keeping track of mistakes, irregularities, failures and complaints. Factor 2 was identified as Non-Transactional Leadership.

Factor 3 is representative of items categorised as Transformational Leadership. There are three items categorised as Transactional Leadership. Factor 3 is therefore identified as *Transformational/Transactional Leadership*.

For the purpose of this research the items in respect of each factor were compared to the items as given in Table 3. The three factors of this research differ from those of Bass (1999) in the sense that the factor analysis revealed some differences in the items grouped under the different factors. Although this research also postulated three factors, the items that make up the three factors differ in minor ways:
- Bass (1999) argues that Factor 1 represents Transformational Leadership/Leadership outcome. The items are similar to Factor 3 of this research.
- According to Bass's research (1999), Factor 2 represents the Laissez Faire leadership style (a finding confirmed by this research). However, the fact that only five items remained in Factor 2 (after the three factor solution was done) decreased the reliability coefficients of both Factors 2 and 3. These items focus more on the leaders' ability to solve problems and rectify mistakes. When problems are solved and mistakes rectified, the leader achieves an outcome. These items therefore do not focus on any specific leadership style.

Bass (1999) states that his Factor 3 represents the Transformational/Transactional Leadership style. The items are similar to Factor 1 of this research. It is interesting to note that 65% of the items under Factor 1 represent the Transformational Leadership style in its pure form. The researcher came to the

conclusion that the three factors of this research produced essentially the same categories of information as those produced by Bass (1999) on leadership i.e. Transformational/ Transactional, Laissez faire and Transformational/Leadership outcome. The intercorrelations between the factors are presented in Table 4.

TABLE 4
FACTOR CORRELATION MATRIX OF THE MLQ

FACTOR	1	2	3
1	1,000	-0,134	**0,522**
2	-0,134	1,000	0,010
3	**0,522**	0,010	1,000

Table 4 shows that Factors 1 and 3 are positively correlated. Three scales were formed corresponding to the three factors obtained.

To determine the reliability of these scales, they were subjected to item analysis, using the NP 50 program. The item statistics in respect of the first scale are presented in Table 5.

TABLE 5
ITEM ANALYSIS OF SCALE 1 OF THE MLQ

ITEM	N	Mean of item $\overline{X}_g$	Standard deviation of item S_g	Reliability index of item $r_{gx}s_g$	Item total correlation r_{gx}
A1	196.	2,526	1,139	0,407	0,345
A2	196.	2,816	0,881	0,352	0,400
A5	196.	3,393	1,064	0,482	0,453
A6	196.	2,740	1,042	0,338	0,324
A7	196.	3,439	1,008	0,290	0,288
A8	196.	3,168	0,938	0,460	0,491
A9	196.	3,184	0,904	0,493	0,545
A11	196.	2,888	1,090	0,571	0,524
A13	196.	3,291	0,896	0,547	0,610
A14	196.	3,265	0,823	0,506	0,615
A18	196.	3,087	0,927	0,365	0,394
A19	196.	3,010	1,146	0,475	0,414
A23	196.	3,143	0,911	0,560	0,615
A25	196.	3,010	0,982	0,339	0,345
A29	196.	3,464	0,774	0,372	0,481
A33	196.	2,801	1,299	0,515	0,396
A40	196.	3,051	0,802	0,464	0,578

Cronbach alpha	= 0,752
Mean of test	= 52,276
Standard deviation of test	= 7,536
Number of items	= 17

Table 5 shows that the obtained reliability in respect of Scale 1, is 0,752. The item total-correlations range from 0,288 to 0,615. The scale is internally consistent. No items were rejected. The reliability coefficient is sufficient for the purpose of this research. The item statistics in respect of the second scale are presented in Table 6.

Table 6 shows that the obtained reliability, in respect of Scale 2, is 0,494. The item- total correlations range from 0,482 to 0,628. None of the items were rejected, but there are too few items. The item statistics of the third scale are presented in Table 7.

TABLE 6
ITEM ANALYSIS OF SCALE 2 OF THE MLQ

ITEM	N	Mean of item $\overline{X}_g$	Standard deviation of item S_g	Reliability index of item $r_{gx}s_g$	Item total correlation r_{gx}
A3	196.	1,204	1,163	0,672	0,578
A12	196.	0,582	1,032	0,693	0,672
A17	196.	1,628	1,244	0,599	0,482
A20	196.	0,888	1,197	0,752	0,628
A28	196.	0,628	0,960	0,517	0,538

Cronbach alpha	= 0,494
Mean of test	= 4,929
Standard deviation of test	= 3,234
Number of items	= 5

TABLE 7
ITEM ANALYSIS OF SCALE 3 OF THE MLQ

ITEM	N	Mean of item $\overline{X}_g$	Standard deviation of item S_g	Reliability index of item $r_{gx}s_g$	Item total correlation r_{gx}
A4	196.	2,245	1,203	0,264	0,219
A10	196.	2,673	1,098	0,467	0,425
A15	196.	2,867	0,973	0,425	0,437
A16	196.	3,199	0,869	0,532	0,612
A21	196.	3,296	0,919	0,415	0,452
A22	196.	2,209	1,270	0,351	0,277
A24	196.	2,010	1,203	0,359	0,298
A26	196.	3,036	0,936	0,579	0,619
A27	196.	1,898	1,240	0,409	0,330
A30	196.	3,291	0,812	0,442	0,544
A31	196.	3,352	0,697	0,453	0,649
A32	196.	3,082	0,867	0,439	0,506
A34	196.	3,046	0,867	0,402	0,464
A35	196.	3,469	0,825	0,521	0,631
A36	196.	3,423	0,716	0,429	0,600
A37	196.	3,077	0,784	0,468	0,596
A38	196.	3,219	0,743	0,435	0,585
A39	196.	2,719	0,976	0,520	0,533
A41	196.	3,454	0,682	0,320	0,469
A42	196.	3,158	0,945	0,585	0,619
A43	196.	3,393	0,675	0,372	0,552
A44	196.	3,240	0,715	0,400	0,559
A45	196.	3,036	0,914	0,386	0,423

Cronbach alpha	= 0,837
Mean of test	= 68,393
Standard deviation of test	= 9,971
Number of items	= 23

Table 7 shows that the obtained reliability of Scale 3 is 0,837. The item-total correlations range form 0,219 to 0,649. None of the items were rejected. The scale consists of 23 items.

Factor analysis of creativity measures
The three creativity ability tests measure fluency and originality of thought. The two divergent thinking ability tests measure fluency and originality of thought. The fluency of thought scores (Scores 2 and 4) were calculated by adding the number of responses, and these responses were then subjected to an evaluation of originality (Scores 1 and 3) by independent raters. Four scores were derived from these fluency tests.

Secondly, the Remote Associate test (RAT) measures associational fluency of thought. This ability test is divided into two sections (Scores 5 and 6) and comprises 15 items per section. Scores are calculated by adding the number of correct responses for each item. Two scores were derived from this test.

The six derived scores of the creativity tests were subjected to a factor analysis. The analysis was based on a sample of 178 participants. As a first step, the six scores were intercorrelated and the eigenvalues of the intercorrelation matrix were determined. The obtained eigenvalues are given in Table 8.

TABLE 8
EIGENVALUES OF UNREDUCED INTERCORRELATION MATRIX OF THE CREATIVITY MEASURES

Root	Eigenvalue	% of Variance	Cumulative %
1	**2,764**	**46,064**	**46,064**
2	0,943	15,723	61,787
3	0,731	12,187	73,974
4	0,609	10,147	84,120
5	0,559	9,309	93,429
6	0,394	6,571	100,000

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From Table 8 it is clear that only one eigenvalue is greater than unity. Accordingly only one factor was extracted and is given in Table 9.

TABLE 9
FACTOR MATRIX OF THE CREATIVITY MEASURES

	Factor 1	h²j
Score 1: Paperclip (originality)	0,714	0,509
Score 2: Paperclip (fluency)	0,678	0,459
Score 3: Crime (originality)	0,670	0,449
Score 4: Crime (fluency)	0,477	0,228
Score 5: RAT 1	0,476	0,227
Score 6: RAT 2	0,532	0,283

From Table 9 it is evident that all six scores have substantial loadings on the same factor. This factor represents fluency and originality of thought. Scores 1 and 3 are comparable (originality of thought). Scores 2 and 4 are comparable (fluency of thought). Scores 5 and 6 are coded. The communalities of the six scores vary from 0,227 to 0,509. Scores 4, 5 and 6 have the lowest communalities, indicating that they have less in common with the other measures, but are not necessarily poor measures of creativity.

The means and standard deviations in respect of the creativity measures are presented in Table 10.

Table 10 shows that the obtained reliability of the Creativity Scale is 0,735. None of the scores were rejected. The mean of the Remote Associates Test 1 was lower than that of the other measuring instruments. Fewer correct answers were found in respect of this measuring instrument. The mean of the Crime Rater total (originality) is slightly less than that of the other measuring instruments.

Table 11 shows the Pearson product moment (Cooper,1998) correlations between the three scales of the MLQ and the seven scores of creativity. Some of the variables are positively related and others are negatively related.

TABLE 10
MEANS AND STANDARD DEVIATIONS IN RESPECT OF THE CREATIVITY MEASURES

	Mean	Std Dev	N
1. Paperclip (originality)	8,9719	4,4702	178
2. Paperclip (fluency)	8,8371	5,2196	178
3. Crime (originality)	**6,1517**	3,0018	178
4. Crime (fluency)	8,5225	3,5815	178
5. RAT 1	**1,0337**	0,9909	178
6. RAT 2	9,1124	3,5668	178

Cronbach alpha = 0,735

Scale 1 (Transformational/transactional) of the MLQ correlated positively with all three creativity tests. Although this scale represents both the Transformational and Transactional Leadership styles, 65% of the items loaded on Transformational Leadership style. The lowest correlation was found between Scale 1 (Transformational/Transactional) and Score 3 (Crime originality). There is a positive relation between Scores 1 and 3 (r=0,481; p=0,01). Scale 1 (Transformational/Transactional) has a positive relation with both scales of the RAT. A positive relation was also found between Scale 3 (Transformational/Leader outcome) and Scale 1 (Transformational/Transactional) of the MLQ (r=0,593; p=0,01). It is the researcher's contention that the reason for this phenomenon can be found in the fact that both the scales are made up of items that measure Transactional and Transformational Leadership styles. As would be expected Scales 1 (Transformational/Transactional) and 2 (Laissez faire leadership) are inversely related (r= –0.192; p=0,01).

Scale 3 (Transformational/Leadership outcome) is inversely related to the six fluency/originality scores, but should be *reflected* because factor 3 of the MLQ has been reflected.

Two stepwise regression analyses were done. In the first analysis, Scale 1 (Transformational/Transactional) of the MLQ served as the independent variable and in the second analysis Scales 1 (Transformational/Transactional) and 3 (Transformational/ Leader outcome) of the MLQ were used. Table 12 provides a model summary of the regression analysis of the independent variables on the dependent variable.

The regression analyses indicate that only two predictor variables Scales 1 and 2 hold promise of the MLQ. A multiple correlation of 0,263 was obtained in terms of the first model, which indicates that 6,4% of the variance of fluency/originality can be accounted for by the first predictor variable, i.e. Scale 1. A multiple correlation of 0,332 was obtained in terms of the second model, indicating that 10% of the variance in fluency/originality can be accounted for by Scales 1 and 3. The combination of Scales 1 and 3 therefore accounts for a greater proportion of the variance of creativity. Table 13 gives the analysis of variance.

From the analysis of variance it is clear that the linear regression accounts for a statistically significant proportion of the total variance.

$F_{(2,175)} = 10,855$; $p(F) < 0,01$.

All the regression coefficients are statistically significant. An estimate of creativity can be obtained from the following regression equation:

$$\hat{Y} = 26,677 + 13,269 \text{ (MLQ 1)} - 8,319 \text{ (MLQ 3)}$$

TABLE 11
PEARSON'S PRODUCT MOMENT CORRELATIONS
OF MLQ AND MEASURES OF CREATIVITY

		Paperclip Rater Total	Paperclip: Total	Crime in SA Rater Total	Crime in SA: Total	Remote Associates Test 1	Remote Associates Test 2	R_TOT	MLQ1	MLQ2	MLQ3
Correlations											
Paperclip Rater Total	Pearson Correlation	1	0,486 **	0,481 **	0,240 **	0,339 **	0,425 **	0,772 **	0,208 **	0,006	0,025
	N	196	193	196	192	185	196	178	196	196	196
Paperclip: Total	Pearson Correlation	0,486 **	1	0,391 **	0,405 **	0,340 **	0,318 **	0,792 **	0,158 *	0,049	-0,094
	N	193	193	193	189	182	193	178	193	193	193
Crime in SA Rater Total	Pearson Correlation	0,481 **	0,391 **	1	0,439 **	0,295 **	0,279 **	0,704 **	0,144 *	0,040	-0,016
	N	196	193	196	192	185	196	178	196	196	196
Crime in SA: Total	Pearson Correlation	0,240 **	0,405 **	0,439 **	1	0,175 *	0,152 *	0,610 **	0,167 *	0,105	0,001
	N	192	189	192	192	181	192	178	192	192	192
Remote Associates Test 1	Pearson Correlation	0,339 **	0,340 **	0,295 **	0,175 *	1	0,301 **	0,472 **	0,194 **	-0,046	0,092
	N	185	182	185	181	185	185	178	185	185	185
Remote Associates Test 2	Pearson Correlation	0,425 **	0,318 **	0,279 **	0,152 *	0,301 **	1	0,634 **	0,225 **	-0,069	0,007
	N	196	193	196	192	185	196	178	196	196	196
R_TOT	Pearson Correlation	0,772 **	0,792 **	0,704 **	0,610 **	0,472 **	0,634 **	1	0,263 **	0,009	-0,013
	N	178	178	178	178	178	178	178	178	178	178
MLQ1	Pearson Correlation	0,208 **	.158 *	0,144 *	0,167 *	0,194 **	0,225 **	0,263 **	1	-0,192 **	0,593 **
	N	196	193	196	192	185	196	178	196	196	196
MLQ2	Pearson Correlation	0,006	0,049	0,040	0,105	-0,046	-0,069	0,009	-0,192 **	1	-0,153 *
	N	196	193	196	192	185	196	178	196	196	196
MLQ3	Pearson Correlation	0,025	-0,094	-0,016	0,001	0,092	0,007	-0,013	0,593 **	-0,153 *	1
	N	196	193	196	192	185	196	178	196	196	196

**Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

TABLE 12
REGERSSION ANALYSIS OF THE INDEPENDENT VARIABLES
ON THE DEPENDENT VARIABLE

		Model Summary		
Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0,263(a)	0,069	0,064	14,132
2	0,332(b)	0,110	0,100	13,86

a Predictors: (Constant), MLQ 1

b Predictors: (Constant), MLQ 1, MLQ 3

From the standardised regression coefficients (ßeta coefficients) as given in Table 13 it is clear that Transformational/Transactional Leadership (MLQ 1) carries a greater weight in the equation than the Transformational/Leader outcome (MLQ 3).

TABLE 13
ANALYSIS OF VARIANCE

Multiple R:	0,332
R Square:	0,110
Adjusted R Square:	0,100

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE
Regression	2	4171,017	2085,51
Residual	175	33620,51	192,117

F (2,175)=10,885; p (F) < 0,01

	Regression coefficients				
MODEL	REGRESSION COEFFICIENTS B	Std Error of B	STANDARDISED COEFFICIENTS Beta	t	p(t)
(Constant)	26,677	8,075		3,304	0,001
MLQ 1	13,269	2,850	0,407	4,656	0,000
MLQ 3	-8,319	2,932	-0,248	-2,838	0,005

Dependent variable: R TOT

Predictors (Constant) MLQ 1, MLQ 3

DISCUSSION

The researcher concludes that there is a statistically significant positive relationship between leadership style and creativity. There is a higher statistically significant positive relation between Transformational Leadership style and creativity than between creativity and the other leadership styles. Approximately 10% of the variance of creativity (fluency and originality of thought) can be accounted for by the MLQ.

In the light of the above-mentioned finding the MLQ can be recommended as a test in the selection process. It would also be worthwhile pursuing means of upgrading the MLQ. For the purpose of this investigation respondents were asked to rate themselves in respect of the MLQ. It is recommended that if similar research is to be done in future, the superiors of the respondents should also complete the instrument and rate the respondents from their perspective (360° approach).

Despite the positive results obtained with the battery of creativity measures, certain reservations concerning them must be mentioned. Two of the measuring instruments were pertinent to divergent thinking ability. The main drawback from a psychometric point of view, is that the measurement of divergent thinking necessitates an element of subjectivity in the scoring of the tests. Even where the actual scoring procedure is objective, a subjective assumption is made to the effect that the score so obtained provides a measure of whatever the test is supposed to measure. Even more questionable is the assumption that originality can be gauged by weighting responses in terms of the rarity of their occurrence in the population. The possibility of rater bias must also be recognised. The correlations obtained by intercorrelating the creativity measures are generally so high as to suggest that the measures overlap to a considerable extent. This was also borne out by the general factor of creativity obtained in the factor analysis of the measures. Since the measuring instruments were not designed for factor analysis per se, the finding of a general factor cannot be cited as proof that a general creativity factor exists, but it does suggest that the different instruments used do not measure separate factors beyond fluency of thought and originality. Though there is evidence that creativity is manifested in leadership style, accurate judgements of creative ability can only be made with reference to an individual's actual output. Ideally the dependent variable should be validated against real life work performance. This can only be achieved if use can be made of experts, who have the knowledge and skills required. But given such an opportunity, one must recognise the possibility of rater bias. The Remote Associates Test has shown promise as a predictor of associational fluency, an element of creativity. The biggest problem with this measuring instrument is the difficulty of establishing an objective and reliable scoring system for the South African context. Problem – solving is a concept that relates to both leadership style and creativity. A problem – solving orientation was identified by the MLQ (Factor 3), but the ability to solve problems as such was not measured in this research as the instruments focussed on fluency of thought and originality. It is therefore recommended that a test that measures problem – solving ability should be included in future research.

REFERENCES

Ackermann, C.P., Schepers, J.M., Lessing, B.C., Dannhauser, Z. (2000). Die faktorstruktuur van Bass se veelfaktor-leierskapvraelys in die Suid-Afrikaanse konteks. *Journal of Industrial Psychology*, *26* (2), 58-65.

Bass, B.M. (1957). *Leadership opinions and related characteristics of salesmen and sales managers*, in R.M. Stogdill and A. E. Coons (Eds.), Leader behavior its description and measurement, Columbus: Ohio State University, Bureau of Business Research.

Bass, M.M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.

Bass, B.M., Waldman, D.A., Avolio, B.J., Bebb, M. (1987). Transformational Leaders: The falling dominoes effect. *Group and Organization Studies*, *12* pp.73-87.

Bass, B.M. (1999). Two decades of research and development in Transformational Leaders. *European Journal of Work and Organisational Psychology*, *9* (1), 9-23

Burns, J.M. (1978). *Leadership*. New York: Harper and Row.

Chand, I, Runco, M.A. (1993). Problem finding skills as components of the creative process. *Journal of Personality and Individual Differences*, *14*, 155-162.

Cooper, D. R. (1998). *Business Research Methods*. Singapoure: McGraw-Hill. pp. 30-32.

Couger, J. D. (1995). *Creative problem solving and opportunity finding*, USA: Boyd and Fraser Publishing company.

Dyson, J.W., Fleitas, D.W., and Scioli, F.P. (1972). The interaction between Leadership Personality and Decisional Environments, *Journal of Social Psychology*, *86* pp. 29-33.

Getzels, J.W. (1964). Creative thinking, problem solving and instruction. In Hilgard, E.R. (Ed), *Theories of learning and instruction*. Chicago, IL: University of Chicago press.

Gibson, J.L, Ivancevich, J. M. Donnelly, J. H. (1997). *Organisations: behaviour, structure, process*. USA: Rob Zwettler. p. 315-319.

Gill, J. and Johnson, P. (1991). *Research methods for managers*, London: Paul Chapman Publishing Ltd.

Guilford, J.P. (1957). Creative Abilities in the Arts. *Psychological Review*, *64*, 110-118.

Guilford, J.P. (1962). Creativity: Its measurement and Development, p.156-168. In: *A source book for creative thinking*. Parnes, S.J. and Harding, H.F., (Eds). New York: Charles Scribner's Sons.

Jankowitz, A.D. (1991). *Business Research Projects*, London: Chapman and Hall.

Kaess, W.A., Witryol, S.L. and Nolan, R.E. (1961). Reliability, sex differences and validity in the leadership discussion group, *Journal of Applied Psychology*, 45 pp. 345-350.

Kirkpatrick, S.A., Locke, E.A. (1991). Leadership: do traits matter? *Academy of Management Executive*, 5 (2) p. 48.

Kreitner, R., Kinicki, A. (2001). *Organizational Behavior*. (5th ed.) New York: Mc Graw -Hill, pp. 548-571.

Mann, R.D. (1959). A review of the relationships between personality and performance in small groups. *Psychological Bulletin*, *56*, 4 pp.241-270.

Marak, G.E. (1964). The evolution of leadership structure, *Sociometry*, 27 pp. 174-182.

Mednick, S.A. (1962). The associative basis for the creative process. *Psychological Review*, *69*, pp. 220-232.

Roodt, G. (2001). Leadership still the cornerstone of success. *Management Today*, *17*, (3), 8.

Schlechter, A. (2001). Achieve performance excellence by practicing leadership effectively. *Management Today*, *17* (3), pp. 42-45.

Sternberg, R. J. (1999). *Handbook of creativity*. United Kingdom: Cambridge University Press.

Stogdill, R.M. (1948). Personal factors associated with leadership: A survey of the literature. *Journal of Psychology*, *25* pp.35-71.

Thompson, T. (1993). Remote associate problem sets in performance feedback paradigms. *Journal of Personal and Individual Differences*, *14*, (1), pp.11-14.

Torrance, E.P. (1984). *Torrance tests of creative thinking*, Chicago: University of Chicago Press, p. 3.