Transformational Leadership in the Estonian Defence Forces
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Abstract:
Purpose – The study is a contribution to the validation of the 15 items and 5 subscales Transformational Leadership Scale (TLS) proposed by Rafferty and Griffin (2004).

Design/methodology/approach – The sample includes participants from different levels of the Estonian Defence Forces (EDF) military hierarchy (N=2570). The structure of the TLS was examined by using exploratory and confirmatory factor analyses. Additionally ANOVA was used to compare the results between different subsamples.

Findings – TLS showed satisfactory reliability. Confirmatory factor analyses found TLS as valid five dimensions instrument to measure transformational leadership in the Estonian military context. Different management levels showed different emphases among the dimensions of transformational leadership.

Research and practical limitations/implications – TLS will be an important tool to use in transformational leadership research in the Estonian military context and beyond. Additionally, the current research contributes to the development of alternative measurement tools besides the most commonly used MLQ. The limitation of the work will be the rather homogenous sample from the Estonian military, however it will open the door for the subsequent research using different samplings.

Originality/value – The current research found TLS to be a reliable and valid instrument, very short and therefore easy to administrate, having the possibility to use it with five dimensional and as one general transformational instrument as well.
1. Introduction

The model of transformational leadership is currently one of the most popular approaches to describe leadership as such (Northouse, 2010, p. 171). It goes back to J. Burns, who distinguished between two separate leadership behaviours: transformational and transactional (Burns, 1978). The first one focuses on the exchange which takes place between the leader and the follower. In contrast, the second one concentrates on the engagement and creates a connection that raises the level of the follower’s motivation. Transformational leadership was found to be positively correlated with the quantity of effort followers are contributing to the work, satisfaction with the leader, perceived effectiveness and ratings of job performance (Bass, 1998).

The most popular model of transformational leadership has been B. Bass and B. Avolio’s Full Range Leadership Model (FRLM), which incorporated dimensions of laissez-faire, transactional and transformational leadership (Gill, 2011, p. 82). It explains that transformational leaders influence followers’ values, attitudes, ethics and emotions (Antonakis, 2012). Despite popularity among researchers, the model has got some theoretical and empirical issues. Most importantly, it is difficult to differentiate between the sub-dimensions and moreover, there has been a lack of empirical support to the hypothesized factor structure and to the discriminant validity of the components of the model (Carless, 1998). At the same time, the alternative transformational leadership models (and instruments) have not been used so widely, for example instruments proposed by: Rafferty and Griffin (2004), Conger and Kanungo (1994), Podsakoff et al. (1990), Alimo-Metcalfe and Alban-Metcalfe (2001), Kouzes and Posner (1987) and Bennis and Nanus (1985). The examples listed above have been considered as promising in some cases, but sometimes lack the research reports from independent research groups from different cultures and contexts to confirm the validity of the model/instrument (Antonakis, 2012, pp. 269–274). Therefore there is a clear gap in the literature to investigate alternative approaches of transformational leadership and to compare
them in order to get a better understanding exactly what one or another instrument is measuring.

So, based on the aforementioned explanation, the current research is motivated by the aspect that the adaptation of the measurement instruments to the European languages, including Estonian, could have several benefits: (1) it will allow for conducting research within the respective cultural context using a properly validated instrument; (2) it will contribute to the general validation of the concept adding another cultural context where the instrument is empirically adopted.

The current study has selected the instrument proposed by Rafferty and Griffin (2004) as the basis of the research. This selection has mostly been driven by the following reasons: (1) the instrument is openly available; (2) it is reasonably short and easy to administrate; and (3) it is assessed as promising in the literature (Antonakis, 2012, pp. 273–274). Therefore, as a summary, the aim of the current study is to adopt an alternative (from MLQ) transformational leadership research instrument (TLS) which is openly available, reasonably short and easy to administrate into the Estonian language. The sample of the current study is from the military, so the results additionally contribute to transformational leadership research among military hierarchy. The method applied to analyse the data includes explorative and confirmative factor analysis procedures.

2. Transformational Leadership

According to the Northouse (2010) “transformational leaders are recognized as change agents who are good role models, who can create and articulate a clear vision for an organisation, who empower followers to meet higher standards, who act in ways that make others want to trust them, who give meaning to organisational life”. The key idea of this approach is based on the hierarchical nature of human development. It means that people progress from a lower level through to more complicated understandings about themselves and about the world (Haslam et al., 2011, p. 38). Based on the works of Burns (1978) and House (1977) the model of transformational leadership was proposed by B. Bass (1985). This model is described as continuum between non-leadership and transformational leadership. He argued (Bass, 1985, p. 20) that transformational leaders motivate followers to contribute more than
expected by emphasizing the importance and value of specified and idealized goals, influencing followers to overcome their own self-interests for the benefits of the organisation or group, and prompting followers to address higher level needs. The model (FRLM) consists of seven factors: (1) Idealized influence, (2) Inspirational motivation, (3) Intellectual stimulation and (4) Individualized consideration – all of these form transformational leadership; (5) Contingent reward, (6) Management-by-exception active and passive form – these constitute transactional leadership; and as a final factor (7) Laissez-faire, which is also called non-leadership (Bass and Riggio, 2006, p. 9).

The key to understand transformational leadership as expressed by FRLM is change. It means that transformational leaders set up the conditions for the followers and empower them in change. They also offer strong role models for their followers, they are confident, competent, and they express strong ideals, they listen to the followers and tolerate opposing viewpoints, they create a vision, and make clear values and norms for organisation (Northouse, 2010, pp. 185–186). There has been a remarkable amount of empirical evidence to show the effectiveness of transformational leadership (Bass and Riggio, 2006, p. 26).

3. Empirical Support for the Transformational Leadership Model

The most popular instrument to measure transformational leadership has been Bass and Avolio’s (1997) Multifactor Leadership Questionnaire (MLQ) (Haslam, et al., 2011, p. 38). Nevertheless, several authors have doubts about its psychometric properties. For instance Yukl (1999) is concerned about differentiation of the sub-dimensions of transformational and contingency reward leadership. Careless (1998) and Tejeda et al. (2001) did not find the support of the discriminant validity of the MLQ components.

The second instrument according to popularity is Podsakoff et al.’s (1990) Transformational Leaders Behaviour model, which measures six behaviours: Articulating a Vision, Providing an Appropriate Model, Fostering the Acceptance of Group Goals, High Performance Expectations, Individualized Support and Intellectual Stimulation. However, taking into account the criticism of the MLQ and other models proposed in literature, Rafferty and Griffin (2004) proposed a theoretically
driven approach to transformational leadership, which could demonstrate discriminant validity with sub-dimensions and with outcomes. As a result of their work with the theory they suggested a five factors model, which is different from the FRLM. This model had five transformational leadership factors: (1) vision; (2) inspirational communication; (3) supportive leadership; (4) intellectual stimulation; and (5) personal recognition. Using a sample from the Australian public sector, they found empirical support for the suggested model. The questionnaire which was used had 15 items, 3 items for each factor, which, as they argued, had better psychometrical characteristics than the MLQ. However, their approach has not been widely researched by separate research groups, including groups from different cultures (Antonakis, 2012, p. 274). Additionally, the sample they used was rather homogenous, which might open up the question about the full validity of the model as such.

The descriptions/definitions of the sub-dimensions of the TLS have been exposed subsequently (based on Rafferty and Griffin (2004)): (1) Vision – The expression of an idealized picture of the future based organisational values; (2) Inspirational communication – The expression of positive and encouraging messages about the organisation, and statements that build motivation and confidence; (3) Supportive leadership – Expressing concern for followers and taking account of their individual needs; (4) Intellectual stimulation – Enhancing employees’ interest in, and awareness of problems, and increasing their ability to think about the problems in new ways; and (5) Personal recognition – The provision of rewards such as praise and acknowledgement of effort for achievement of specified goals.

So, as was mentioned above, the current article analyses the statistical properties of the TLS using the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) procedures in order to prove the relevance of the translation of the items into the Estonian language. This analysis is based on the following propositions: (1) the original five factor model fits better to the data compared to the alternative models which were analysed; (2) the questionnaire allows the summarization of all 15 items in order to measure transformational leadership as a single construct; (3) all transformational leadership factors are positively and statistically significantly correlated with the outcome variables: satisfaction with superior, extra effort and effectiveness (Bass and Avolio, 1997).
4. Method

Sample
The main sample for the research consisted of 2570 military servicemen from the EDF\(^1\). The questionnaire was sent to the 3351\(^2\) Estonian military personnel between the rank of private and captain in winter 2012\(^3\). The response rate was 77% (2584), however 14 of them were not usable for the statistical analysis. The final sample included 350 full contract servicemen (officers, non-commissioned officers and professional soldiers) and 2220 conscripts (privates, junior NCOs and officer candidates). The majority of the respondents were male (more than 99%), the mean age was 22.4 years (SD = 3.1), by nationality 90% were Estonians and 87% had secondary education. By the time of the survey participation the conscripts had passed 6 or 9 months of their mandatory service out of 8 or 11 months. Professional serviceman had served in the EDF for an average of 6.5 years. The final sample represented 12 battalions or equivalents, divided between 29 companies and respectively 94 platoons.

Instruments and procedure
Leadership: A transformational leadership questionnaire (TLS) proposed by Rafferty and Griffin (2004) was used in this study, including five subscales, each of them containing three items. A 4-point Likert type scale was used, where point 1 represented *strongly disagree* and point 4 represented *strongly agree*. The respondents were asked to keep in mind the leader who had been posted as a commander of their units or subunits (for instance platoon members evaluated the platoon leader, etc.). The subscales of the questionnaire were the following: articulating a vision, intellectual stimulation, inspirational communication, supportive leadership and personal recognition. This questionnaire (or parts of it) had been used before, for instance by Raffery and Griffin (2006) and Strauss et al. (2009).

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\(^1\) More detailed description is available: Meerits et al. (2015).

\(^2\) The amount of conscripts called to the service in 2012 was 3141 (https://www.riigiteataja.ee/akt/118112011012). Visited 05.08.2015.

\(^3\) Data were collected by the magistrates of the Estonian Defence College A. Meerits and S. Vuntus.
TLS was translated into the Estonian language using backwards translations, following the procedures proposed by De Vellis (2012). Two items were changed in order to adopt them to be more suitable for military context: Both cases the word organisation was replaced by the more suitable unit (explanation of terms was also provided). A pilot study was also conducted among the potential respondents in order to be sure of the clarity of the items. All meaningful recommendations were taken into account before the administering the questionnaire to the main sample.

Outcome measures: Several outcome variables were measured (Bass and Avolio, 1997). In case of all the outcome items the 4-point Likert type scale, where 1 represented strongly disagree and 4 represented strongly agree, was used. The first outcome variable was a two items instrument which measured satisfaction with a direct leader (for example platoon members with platoon leader etc.). The Cronbach’s alpha was .77 (M=2.91; SD=.78). The second outcome variable was extra effort subordinates are willing to contribute with the α=.77 (M=2.69; SD=.72). The third outcome variable was effectiveness of the superior as perceived by the subordinates α=.78 (M=2.92; SD=.60).

The questionnaire was administrated in the following way: platoon members (majority of them were conscripts, except for one professional battalion) evaluated platoon commanders, platoon commanders evaluated company commanders and company commanders together with the battalion staff members evaluated battalion commanders. Paper and pencil administration was used, and participation in the survey was voluntary.

5. Analysis procedures

The first task was to verify the psychometric properties of the scale. It was done as a series of exploratory and confirmatory factor analyses. The aim of the EFA was to identify the suitable model(s) for CFA. The following model fit indices was used as proposed by Kline (2011, p. 204) for the CFA: \( \chi^2 \), RMSEA (with intervals), GFI, SRMR. Firstly \( \chi^2 \), which is required not to be significant in order to demonstrate the model fit (\( p > .05 \)), however this requirement is rather unrealistic (Hu and Bentler, 1999). Secondly, the Root Mean Square Error of Approximation
(RMSEA) was used. It is a badness-of-fit index where a value of zero indicated the best fit (Kline, 2011, p. 205). Threshold for the RMSEA is < .05 (Kelley and Lai, 2011). Additionally, the confidence interval for RMSEA was evaluated. Ideally, at the 90% confidence level, the lower boundary equals zero and the upper boundary is < .10. Thirdly, Goodness-of-Fit Index (GFI) was calculated. Jöreskog’s GFI is an absolute fit index, which evaluates the proportion of covariance in the sample data matrix explained by the model (Kline, 2011, p. 207). GFI normally varies between 0 and 1, sometimes over 1 (when the sample size is too small or fit is very poor), having the proposed threshold for GFI < .95. The next index was the Root Mean Square Residual (RMR), it is based on the differences between observed and predicted covariance, however standardized RMR (SRMR) is more precise to use (Kline, 2011, p. 208). Ideally SRMR has to be approximately zero to indicate the perfect fit of the model, however Furr and Bacharach (2014, p. 343) concluded suitable cut-off value as ≤ .06. Kline (2011, p. 209) also recommends that it has to be reported together with the correlation residuals (especially absolute values exceeding the value .10). Additionally, Δχ² difference test was used in order to compare different models. As a summary, the aim of the CFA analysis is not to find out the model which fits the best to the data, but to test a theory (Kline, 2011, p. 228). Diagonally Weighted Least Squares as a method was used for CFA, because Likert type scale responses between 1 and 4 were used.

The second step was a reliability analysis of the subscales identified (confirmed) by the CFA. It was conducted by the Cronbach alphas analysis comparing the different subsamples as well: (1) conscripts (all conscripts); (2) platoon members level (evaluating platoon leaders, both conscripts and professionals); (3) professional soldiers; (4) supervisors (evaluated company and battalion commanders). Additionally, the descriptive statistics and correlations between subscales and outcome variables were analysed and means of different subsamples were also compared by ANOVA.

6. Results

The first step was to analyse the five factor model fit to the data by using EFA and CFA procedures. Principal Component analysis with direct oblimin rotation indicated a two factor solution (Eigenvalue > 1),
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where one item (number 11) formed a second factor, however the scree plot demonstrated clearly a one factor solution. The model described ca 52% of variance of data. In the second model tested, the number of factors was forced up to five, the model described ca 71% of the variance of the data. Factor loadings were not clear, however the only problematic factor was vision, especially the item 11. The next step was to analyse one and five factors model in CFA. All three models tested (see table 1) showed at least satisfactory level fit indices. The five factor model suited the data the best: $\chi^2$ 476.52 (df 80), RMSEA .046, SRMR .043 and GFI .99. These results indicated clearly that a five factor model is appropriate to use in the Estonian military context. Additionally, both alternative models: (1) all 15 items included to the TL as general construct, and; (2) hierarchical model which nested all TL factors to the general TL factor showed an acceptable fit, therefore indicated that both methods might be implemented in the future, using the TLS in the Estonian context.

**Table 1.** Confirmatory Factor Analysis results

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>RMSEA</th>
<th>RMSEA interval</th>
<th>GFI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1: One factor model</td>
<td>1714.476</td>
<td>90</td>
<td>.087</td>
<td>.084−.091</td>
<td>.99</td>
<td>.064</td>
</tr>
<tr>
<td>M2: Five factor model</td>
<td>476.52</td>
<td>80</td>
<td>.046</td>
<td>.042−.050</td>
<td>.99</td>
<td>.043</td>
</tr>
<tr>
<td>M3: Five factor model nested to</td>
<td>682.18</td>
<td>86</td>
<td>.054</td>
<td>.050−.058</td>
<td>.98</td>
<td>.078</td>
</tr>
<tr>
<td>general TLS*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * – TLS is general transformational leadership factor.

The second task was to evaluate descriptive statistics and reliability coefficients and to compare them between different subscales and subsamples. The results are shown in Table 2. In general, the highest was inspirational motivation ($m = 2.97$) and the lowest intellectual stimulation ($m = 2.43$). Internal reliability coefficients for the majority of factors demonstrated at least a satisfactory level. Only Vision was below the acceptable level ($\alpha = .50$), however the rest of the subscales were above .69, which might be considered acceptable (Noar, 2003) for the first administration of the instrument. Statistics for subsamples were
also calculated, the results indicated that Vision as the dimension of the transformational leadership was not comparably understood within all subsamples. Additionally, the mean of Vision for the conscripts subsample was significantly lower that professional soldiers and supervisors subsample.

Table 2. Comparison of Means, Standard Deviations and Cronbach alphas between subsamples

<table>
<thead>
<tr>
<th></th>
<th>Conscripts (N=2220)</th>
<th>Soldiers (N=134)</th>
<th>Superiors (N=168)</th>
<th>All sample (N=2570)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision</td>
<td>2.77 0.55 0.43</td>
<td>3.00 0.58 0.61</td>
<td>3.05 0.59 0.78</td>
<td>2.80 0.57 0.50</td>
</tr>
<tr>
<td>Supportive</td>
<td>2.54 0.66 0.73</td>
<td>3.07 0.48 0.61</td>
<td>2.96 0.52 0.73</td>
<td>2.60 0.66 0.74</td>
</tr>
<tr>
<td>Inspirational</td>
<td>2.95 0.62 0.71</td>
<td>3.24 0.53 0.78</td>
<td>3.06 0.51 0.73</td>
<td>2.97 0.62 0.71</td>
</tr>
<tr>
<td>Intellectual</td>
<td>2.41 0.65 0.69</td>
<td>2.60 0.60 0.72</td>
<td>2.50 0.55 0.71</td>
<td>2.43 0.64 0.69</td>
</tr>
<tr>
<td>Personal</td>
<td>2.66 0.77 0.85</td>
<td>3.06 0.62 0.89</td>
<td>2.90 0.66 0.90</td>
<td>2.70 0.76 0.86</td>
</tr>
<tr>
<td>recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Scale</td>
<td>2.66 0.52 0.89</td>
<td>2.99 0.45 0.90</td>
<td>2.89 0.46 0.92</td>
<td>2.70 0.52 0.90</td>
</tr>
</tbody>
</table>

Note: All scale – all 15 items as one transformational leadership scale.

Supportive leadership on the contrary, seemed to be more understandable for the conscripts (m = .73) and superiors (m = .73) and not so much for professional soldiers (α = .61), however the latter group demonstrated the highest mean value (m = 3.07). Inspirational motivation and personal recognition seemed to be perceived consistently throughout all the subsamples. The first one also showed the highest mean value, between 2.95 and 3.24. These results were fully consistent with the literature (Northouse, 2010). The mean of intellectual stimulation, however, showed the lowest values for all subsamples (between 2.41 and 2.60). Additionally ANOVA was used to compare means between professional serviceman (all ranks4) (N=350) and conscripts (N=2220). All comparisons throughout all transformational leadership subscales were statistically significant at the level of p ≤ 0.01. The second comparison of means was calculated between soldiers (including

4 The reason to use pairwise comparison was inequality of the groups presented in table no 2.
professional solders) (N=2343) and superiors (N=227), two subscales (inspirational motivation and intellectual stimulation) did not demonstrate mean differences at the level of p ≤ 0.01.

Due to the low internal reliability of the Vision subscale, the second set of CFA was conducted (Table 3). Three models were tested using similar procedures to those explained above: (1) one factor model without the one item (the most problematic) from Vision; (2) four factors model (without Vision), and; (3) four factors hierarchical model (without Vision). All models showed at least an acceptable level fit to the data. The comparison of the models from Table 1 and from Table 3 indicated that models without the problematic item from the Vision subscale, or without Vision subscale at all, showed better fit indices.

Table 3. Confirmatory Factor Analysis results without Vision

<table>
<thead>
<tr>
<th>Model</th>
<th>(\chi^2)</th>
<th>df</th>
<th>RMSEA</th>
<th>RMSEA interval</th>
<th>GFI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>M4: One factor model*</td>
<td>1376.47</td>
<td>77</td>
<td>0.084</td>
<td>0.080–0.088</td>
<td>0.99</td>
<td>0.056</td>
</tr>
<tr>
<td>M5: Four factor model</td>
<td>198.436</td>
<td>48</td>
<td>0.036</td>
<td>0.031–0.042</td>
<td>1.00</td>
<td>0.027</td>
</tr>
<tr>
<td>M6: Four factor model nested to general TLS**</td>
<td>212.961</td>
<td>50</td>
<td>0.037</td>
<td>0.032–0.042</td>
<td>1.00</td>
<td>0.028</td>
</tr>
</tbody>
</table>

Note: * – without item no 11 from Vision factor. ** – TLS is general transformational leadership factor.

Table 4 demonstrates correlations between subscales and also between subscales and outcome variables (extra effort, satisfaction with supervisor and effectiveness). All correlations showed the expected pattern, subscales between each other and also with outcome variables.

Table 4. Correlations between subscales and outcome variables

<table>
<thead>
<tr>
<th></th>
<th>Support</th>
<th>Inspirat</th>
<th>Intellect</th>
<th>Pers Rec</th>
<th>TLS</th>
<th>Extra effort</th>
<th>Satisfact</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision</td>
<td>0.49</td>
<td>0.58</td>
<td>0.36</td>
<td>0.42</td>
<td>0.69</td>
<td>0.43</td>
<td>0.49</td>
<td>0.54</td>
</tr>
<tr>
<td>Supportive</td>
<td>1.00</td>
<td>0.63</td>
<td>0.58</td>
<td>0.66</td>
<td>0.85</td>
<td>0.58</td>
<td>0.63</td>
<td>0.62</td>
</tr>
<tr>
<td>Inspirational</td>
<td>1.00</td>
<td>0.54</td>
<td>0.58</td>
<td>0.83</td>
<td>0.58</td>
<td>0.58</td>
<td>0.58</td>
<td>0.62</td>
</tr>
</tbody>
</table>
### 7. Discussion

The aim of the article was to examine the psychometric properties of the transformational leadership subscale. As a conclusion, the scale proposed by Rafferty and Griffin (2004) demonstrated at least a satisfactory level of fit to the data and therefore might be used in the Estonian military context as a reasonable instrument. However, there might be some limitations as well. For example the subscale of Vision did not work well. It might be caused by the rather specific sample (military and conscript), or by the wording of the items. We could explain it through the lower importance of Vision for the conscripts, because they are perhaps simply not interested about long term approach, etc. The conscription service is, nevertheless to the other characteristics, somehow coercive and therefore these soldiers do not perceive themselves as a part of the long term organisational goals. At the same time, Vision seemed to be very understandable for the professionals and for the supervisors subsample, indicating that there are differences between subsamples about some transformational leadership factors. We also manipulated the different item wordings (replacing battalion with the Estonian Defence Forces), however the results remain similar, the only difference being that internal reliability of this new subscale among the supervisors subsample was .95, which should be considered remarkably high. The second subscale which needs further development was intellectual stimulation, due to the rather low internal reliability. Although reliability was not very high, the results might be influenced also by the conscription service, because perhaps this dimension of transformational leadership is not so important for this subsample.
References


