Transformational Leadership and Group Climate—Empirical Results from Symphony Orchestras

Prof. Dr. Sabine Boerner-University of Konstanz
Christian Freiherr von Streit-Berlin Free University

The study investigates the degree to which the conductor's transformational leadership style and a cooperative climate in the orchestra favorably effect the orchestra's artistic quality. The authors study the assertion that the conductor's transformational leadership style promotes the orchestra's artistic quality only if there is a cooperative climate in the orchestra. An empirical study of 208 musicians from 22 professional German symphony orchestras confirms the assumed interaction effect of the conductor's transformational leadership style and the cooperative climate among the musicians on the orchestra's artistic quality. Conclusions for the effectiveness of transformational leadership in organizations are drawn.

Literature gives us several indications on how transformational leadership increases success in groups and organizations (Avolio et al., 1999; Bass, 1998; De Dreu & Weingart, 2003; Fuller et al., 1996; Lowe, Kroeck, & Sivasubramaniam, 1996). However, this positive impact of transformational leadership can not be generalized. Instead, the positive effects of transformational leadership in organizations seem to depend largely not only on the specific performance criteria, but on particular situational conditions (Gebert, 2002; Ehrhart & Klein, 2001). Since transformational leadership in organizations typically includes the leadership of groups of followers, it might not be sufficient to consider only characteristics of the individual follower. In order to identify additional conditions for the effectiveness of transformational leadership it seems rather beneficial to consider characteristics of the work group.

This paper investigates the question whether the climate in a group of followers is a

prerequisite for the success of transformational leadership. According to the construct organizational climate (Schneider, 1988), here, group climate is defined as the group's collective climate "based upon the perceptions of individuals who share common [...] descriptions of their work environment" (Joyce & Slocum, 1990, p. 133). Literature reveals that group climate is a multidimensional construct and that group climate contributes to work effectiveness (Koys & DeCotiis, 1991; Kopelman et al., p. 282).

The question of whether a cooperative group climate among the followers is a prerequisite for the success of transformational leadership is investigated in the context of symphony orchestras. We assume the conductor's transformational leadership promotes the artistic quality of a symphony orchestra only if there is a highly cooperative climate in the orchestra. Although rarely analyzed in leadership research (Hunt et al., 2004), leadership in the symphony orchestra seems particularly fruitful for the study of the above question. Existing literature allows us to make the assumption that transformational leadership is especially relevant in the context of symphony orchestras (Atik, 1994; Faulkner, 1973; Boerner, 2002; Boerner et al., 2004). Moreover, a cooperative climate in the orchestra seems to be of outstanding relevance for a symphony orchestra's artistic quality. First, due to the extraordinary high level of coordination demanded from the group members (Young & Colman, 1979), the interdependence of the musicians' tasks is very high. Therefore, intense cooperation is needed to attain a good performance. Second, the fluctuation of the members of professional orchestras tends to be low (Boerner, 2002), so symphony orchestras

can be regarded as groups with a high degree of stability over time. Since group climate is attained through the socialization process and through symbolic interaction among group members (Reichers & Schneider, 1990, p. 29), it is to be expected that a symphony orchestra, as do other organizational groups, develops a specific group climate.

In the remainder of the paper, we will initially explain in which way a transformationally leading conductor will positively influence the artistic quality of an orchestra. Subsequently, we will explain to what extent a cooperative group climate in the orchestra will be the determining condition for bringing in effect the transformational leadership of the conductor. Finally, we test this hypothesis in an empirical inquiry with $N = 208$ musicians from 22 professional German symphony orchestras.

The Conductor's Transformational Leadership and the Orchestra's Artistic Quality

According to literature, there is no doubt that a symphony orchestra's artistic quality largely depends on the interaction between the musicians and the conductor (Kamerman, 1983; Lebrecht, 2001). However, so far little is known about the particularities of leadership in the context of orchestras (Hunt et al., 2004). The conductor's competence, credibility, and charisma have been identified as influencing musicians' attitudes and performance (Atik, 1994; Faulkner, 1973). In a recent paper, Hunt et al. (2004) integrated the work on leadership of creative people with the Competing Values Framework (CVF) developed by Quinn (1988) in order to draw a more realistic picture of leadership in orchestras. Empirical data show that a conductor's non-participative, directive leadership can foster an orchestra's artistic quality particularly if the musicians also perceive the conductor as an indisputable authority in the field (Boerner et al., 2004). Moreover, it is empirically shown that the rating of an orchestra's artistic quality rises with the degree of expertise and power of identification the musicians attribute to the conductor (Krause, Boerner, Lanwehr, & Nachtigall, 2002). However, until now no investigation on the

effectiveness of transformational leadership in orchestras has been conducted.

The content and the empirical factor structure of the construct transformational leadership, which is to be distinguished from the idea of transactional leadership, are controversial in literature (Den Hartog et al., 1997; Gebert, 2002). This study draws on the concept introduced by Avolio et al. (1999), according to which transformational leadership consists of three facets: charisma, inspirational motivation, and intellectual stimulation. The charismatic leader provides vision and a sense of mission, instills pride, gains respect and trust, and increases optimism (Den Hartog et al., 1997, p. 21). Inspirational motivation is concerned "with the capacity of the leader to act as a model for subordinates, the communication of a vision and the use of symbols to focus efforts" (Den Hartog et al., 1997, p. 22). An intellectually stimulating leader provides subordinates with a flow of challenging new ideas that are supposed to stimulate the rethinking of old ways of doing things. Hence, we speak of transformational leadership, if (1) the led experience the leader and the proximity towards him as emotionally attractive, (2) the leader imparts the led by help of a vision to orientation and meaning and thus causes enthusiasm, and (3) when the leader is able to stimulate the led to rethink their old perceptions and replace them with new ones. One success-enhancing effect of a transformational conductor in an orchestra could be that he or she fosters the musicians' motivation and efforts more than a non-transformational leader would.

The particular need for a motivating leadership style in the orchestra becomes clear once one considers the special nature of the leadership constellation in an orchestra. Even if there may be a range of more or less directive conductors, the musicians in a big symphony orchestra usually do not have much freedom to develop and realize their own interpretations (Boerner et al., 2004). Generally, musicians do not participate in developing the orchestra's conception for the interpretation of the composition and they don't have much freedom in following this adaptation. Instead, they mainly have to realize the conductor's ideas for interpretation as he controls and immediately criticizes them (Boerner et al., 2004; Couch

1983, p. 10; Weeks, 1995; Levine & Levine, 1996). Individualistic decisions are basically restricted to technical aspects (Hunt et al., 2004, p. 152): "As an orchestral musician, they must solve creatively the individual technical issues in the music individually while remaining flexible and motivated enough to change artistic direction at the request of a conductor and coordinated enough to perform simultaneously in seamless tandem with 100 or more of their colleagues."

This leadership constellation can cause problems because there is the possibility that the conductor's usage of directive leadership endangers the musicians' motivation. Orchestra musicians are well trained professionals with a high degree of intrinsic motivation (Allmendinger, Hackman, & Lehman, 1996). Provided that, according to the findings of leadership theory, the led do not need further direction and controlling (Bass, 1985; Boerner, 2002). On the contrary: Since an intrinsic motivation is associated with a high need for autonomy and performance of the led (referring to the employment of personal capabilities), a directive leadership style would endanger the followers' intrinsic motivation, and thus the quality of performance. For this constellation a delegative or participative leadership style is therefore recommended. Empirical results show that in fields where creativity is crucial (e.g., research and development), generally a non-directive style of leadership is considered functional to success (Amabile & Gryskiewicz, 1989; Amabile, 1994).

We assume that a conductor with a transformational leadership style is successful because he fosters the musicians' motivation and hence also their effort in three ways: First, the conductor, who is perceived as charismatic, conveys trust and optimism, because the musicians accredit him with high artistic competence (Lebrecht, 2001). As the musicians identify with the charismatic conductor (Bass, 1985), there is a higher probability that they will also assess his artistic conception for the interpretation of an orchestral piece positively and, therefore, are motivated to participate in the realization of this adaptation. Second, a conductor with a transformational leadership style conveys his artistic conception as a vision. A vision can be defined as a prospect, that is

collectively aspired to (House & Shamir, 1993). Compared to objectives, visions are characterized by an additional emotional quality that enhances the followers' inspiration. If the conductor acts as a model and his artistic concept is presented as a vision, the musicians anticipate a high artistic quality if they help realize this conception. Thus, they are highly motivated to follow the conductor's instructions. Third, a transformationally leading conductor enhances the musicians' intellectual stimulation. In the context of an orchestra, intellectual stimulation may consist especially of interpreting familiar works in a novel way. The freshness or originality of a conductor's concept will be highly stimulating to the orchestra musicians, mostly because they are generally confronted with a limited canon of familiar repertoire pieces (Auvinen, 2001, p. 270; Mehta, 2003, p. 6). This is why we assume that a novel interpretation of a familiar work will raise the musicians' motivation.

In summary, we assume that the musicians' motivation is not endangered but supported by a transformationally leading conductor, despite the limitations to their artistic freedom. A conductor, using a transformational leadership style, therefore supports the musicians' alignment to his vision. Hence he has a positive influence on the artistic quality of the orchestra.

Cooperative Climate and Artistic Quality in the Orchestra

One should not suppose, however, that a conductor's transformational leadership by itself is sufficient to ensure a high level of artistic achievement in an orchestra. The members of the orchestra must also experience a cooperative group climate before the effect of transformational leadership can develop.

Orchestras are comparatively large and heterogeneous ensembles (Couch, 1983). The musicians of the various instruments and sections differ somewhat in their self-concepts and frequently feel greater affiliation with their section than with the orchestra. It cannot be assumed that a shared social identity (Tajfel, 1981) forms on its own among the orchestra musicians. Within the orchestra there are also differences between the rank-and-file members

(tutti). section leaders, and soloists as far as hierarchy and remuneration are concerned. Other differences exist in terms of seniority, age, nationality, as well as artistic, and technical level of the individual musicians. According to findings from diversity research, heterogeneous teams can be advantageous for group performance, but serious barriers to cooperation can rise, which complicate group achievement (Gebert, 2004; Williams & O'Reilly, 1998).

Because the musicians execute their respective tasks at the same time, there is simultaneous task interdependence (Shea & Guzzo, 1987; Wageman, 1995, p. 146). This circumstance necessitates a particular kind of coordination (Saavedra, Earley, & Van Dyne, 1993, p. 62): With sequential task interdependence, only the partial *results* of the individuals have to be coordinated, whereas simultaneous interdependence requires the direct coordination of the contributing *processes*, executed by the various musicians. "The moment-by-moment of cooperation between feedback to and from co-performers and audience is necessary in order to co-ordinate the production and reception of the performance" (Davidson & Good, 2002, p. 186). Indeed, the degree of the musicians' synchronization is the very seal of an orchestra's artistic quality (Boerner, 2004) because the coherence of the interpretation is a key feature defining the quality of a performance (Dahlhaus, 1973, p. 11). A unified overall sound, for example, is achievable only if all the participating musicians precisely match their intonation and dynamics as they play (Weeks, 1996). A uniform intensification of volume (crescendo) requires all the musicians to increase their volume at the same pace. If individual musicians increase their volume too quickly or too slowly, the crescendo would destroy the unity of the orchestral sound.

In substance, then, the coordination of music-making cannot be reduced to apparently "technical" aspects such as coming in and ending the playing together. A major part of orchestral achievement is coordination in the artistic sense. Coordinating a crescendo or playing with the same articulation requires the musicians to be in unison not only technically, but emotionally (Boerner, 2004; Williamon & Davidson, 2002).

This is where cooperative climate in the orchestra comes in, defined as a collective climate that refers to the orchestra (see above). Generally, group climate effects the behavior of people in the group (Reichers & Schneider, 1990, p. 29). It is understood as a multidimensional construct (Kopelman et al., 1990; Reichers & Schneider, 1990). In order to analyze the relation between group climate and the respective group performance, context specific group climates are being constructed. Schneider (1990, p. 383), for example, constructs a specific "service climate" for the service sector. Analogue to this, we thought of what a group climate needs to consist of, that influences the performance of an orchestra positively.

In literature, there is little agreement on the dimensionality of the concept group climate (Koys & DeCotiis 1991, p. 265). Based on the specific task of the orchestra members and the above described specific leadership constellation, many of the dimensions for climate discussed in literature, like autonomy, structurization, hierarchization (Neuberger 1980), reward orientation (Campbell et al. 1970) or pressure and recognition (Koys & DeCotiis 1991) should all be constant and thus not relevant to success. In this paper we define the construct, cooperative climate, by use of the dimensions "warmth and support" and "cooperation" (Neuberger 1980) or cohesion (Koys & DeCotiis 1991). Accordingly a cooperative climate in an orchestra is on hand, if the climate is shaped by the musicians' mutual estimation and the absence of conflicts within the group of musicians.

We presume that, on condition of a cooperative climate within the orchestra, the musicians' willingness to integrate themselves into collaborative music making in the particular orchestra is higher than it would be in an uncooperative climate. The musicians' mutual estimation reduces the emergence of social loafing often observed in groups (Brickner et al., 1986). Taking a look at the perspective of fairness of results, for the individual musician the performance in coordinating is worthwhile. To begin with, he stands up for those colleagues he estimates. In return he is also valued by these colleagues for his artistic contribution. If, in addition, the climate is not charged with

conflicts between the orchestra members, the reward for the individual's filing into the collective orchestra increases; a kind of collective flow evolves (Csikszentmihalyi, 1997). A musician described this state as the following (Boerner, 2002), "(...) Here people downright whoop it up with their fantasy. That's a pleasure (...) and something reconvenes (...) this cooperation, four people having fun with each other, enjoying and just making music, this feeling is also possible to be experienced within the orchestra; it is also possible to experience it with the chief conductor (...) If one then has played in a team the group can also 'whoop it up'".

On that condition it is imaginable that the musicians aren't just motivated concerning their own parts, but in sense of organizational citizenship behavior (Podsakoff et al., 1997) also in support of the respective orchestra fellows. For example, musicians assist one another with job-related or even personal matters. They pitch in and help those who have been absent or who are new in the ensemble; they assist those experiencing especially heavy work loads.

We assume that with a cooperative group climate the barriers to coordination resulting from size and heterogeneity mentioned above are likely to be overcome. Correspondingly empirical results show that string quartets, in which the musicians get along with each other fine, are more successful than those in which they do not (Murnighan & Conlon, 1999, p. 180).

To sum up, collaborative music making in an orchestra requires, first, the musicians' willingness to adapt to the conductor's artistic vision. Second, it is necessary for the musicians to carefully synchronize their individual contributions with the play of their fellow musicians in the orchestra and, in this respect, to arrange with the collective orchestra. Whereas a transformational style of leadership by the conductor in particular promotes the adaptation to the conductor's vision, a cooperative climate within an orchestra contributes to synchronization with the respective colleagues.

The preceding arguments and information led to the formulation of the following hypothesis: *Transformational leadership by the conductor will be positively related with the artistic quality of an orchestra's achievement*

only if it is accompanied by a highly cooperative group climate in the orchestra.

Method

Participants

The hypothesis was tested through written questionnaires completed by 208 musicians from 22 German symphony orchestras, most of which were part of opera companies (von Streit, 2003). Because the managing boards of the orchestras were personally contacted for this purpose, the return rate of the questionnaires was 76 percent. The participating orchestras have an average membership of 98 musicians (S.D. = 17). In order to receive a ten percent sample of every orchestra, we included no more than 12 musicians per orchestra in the study. The average age of the respondents was 40 years (S.D. = 8.83), with the average length of professional experience in an orchestra of 15 years (S.D. = 9.39). The sample corresponds largely to the actual composition of an orchestra in terms of the section of the musicians (62 percent strings, 36 percent woodwind and brass, 2 percent percussion) and in terms of the position in the orchestra. More than half of the musicians (67 percent) were tutti players; 33 percent were soloists or principals, i.e., leaders of an instrument group.

Measures

The same leadership style can trigger different effects in different contexts and in respect to different performance criteria (Gebert, 2002). Therefore, an orchestra-specific instrument to measure leadership, group climate, and quality is called for. Since a particular instrument to investigate leadership behavior, group climate, and leadership success in the orchestra was not available, we self-designed the questionnaire for the given context and used it for the first time during our research.

The group climate in the orchestra and the artistic quality of a performance are purposefully ascertainable only at group level, the orchestra as a whole (Joyce and Slocum, 1990, p. 133). Therefore, the data were not calculated at the individual level. Instead, for each orchestra, the responses by the musicians (scored on a seven-point Likert scale) were aggregated into a mean

score on the constructs of interest in this study (transformational leadership, group climate in the orchestra, and the artistic quality of the ensemble). The coefficient $r_{WG(J)}$ (James, Demaree, & Wolf, 1984) was used to test the admissibility of the aggregation of the individual responses at the orchestral level. This procedure permits the aggregation of data as a function of the agreement between the responses of the participants per orchestra (Kozlowski & Hattrup, 1992, p. 162).

The conductor's transformational leadership was operationalized by the three facets of transformational leadership identified by Avolio et al. (1999)—charisma (...has charisma; we are proud to work with him), inspirational motivation (...clarifies his objectives with imagery and gestures; makes it clearly understandable to us what he wants us to do), and intellectual stimulation (...often makes completely new, convincing suggestions for interpretation; enables us to see familiar works in a new light). Since the three scales correlate at about $r = .80$ in the literature (Avolio et al., 1999, p. 455), in this study the construct 'transformational leadership' was assumed to be one-dimensional.

Participants' perceptions of the group climate in the orchestra were assessed with eight items concerning how the colleagues in the orchestra rated their mutual estimation and the level of conflict in their orchestra (...at variance^R; likable; incapable^R; hold to each other well; pleasant; lazy^R; there are tensions here between the sections^R; the various groups in the orchestra hold to each other well; ^R = polarity reversed).

Since quality is commonly used as a measure of success of arts organizations (Auvinen, 2001, p. 274), in this investigation the artistic quality of the orchestra served as the measure of the ensemble's achievement. As in earlier studies (Boerner et al., 2004; Krause et al., 2002), the attempt was not to measure the artistic quality itself but rather the perceived reaction to the orchestra's achievement. Three items were used: The public generally judges the quality of our orchestra as ...; others who play with us (e.g., soloists) generally judge the quality of our orchestra as...; Compared to other orchestras in the same quality category¹, the artistic quality of our orchestra is... For each of the 22 orchestras represented in the study, this last assessment was undertaken by at least two additional musicians who had not already rated the conductor's transformational leadership and the group climate in the orchestra.

Results

Table 1 shows descriptive statistics and intercorrelations of all variables.

To test the hypothesis, we conducted a multiple hierarchical regression analysis with artistic quality of the orchestra regressed on cooperative group climate, transformational leadership, and their interaction (see table 2). To avoid multicollinearity between the predictors and the interaction terms, we centered the predictor variables around zero and multiplied them to form the interaction term (Aiken & West, 1991).

Table 1. Descriptive statistics, intercorrelations, reliabilities and $r_{WG(J)}$ of all variables

Variable	1	2	3	4
1. Artistic quality				
2. The conductor's transformational leadership	.38#			
3. Cooperative group climate in the orchestra	.56**	.42#		
$\bar{x}$	5.58	4.57	4.64	
SD	.59	1.45	.84	
Cronbach's alpha	.73	.94	.94	
$r_{WG(J)}$	.92	.82	.88	

Notes. N = 22.

** p< .01.

p< .10

Table 2. Multiple regression analyses. Dependent variable: Artistic quality of the orchestra

	Model 1	Model 2
Step and variable		
1. Cooperative group climate	.48**	.48**
2. Transformational leadership	.18	.14
3. Cooperative group climate please insert the sign for multiplication "x" transformational leadership		.51**
R ²	.34*	.60**
please insert the sign for delta R ²		.26**

Notes. *N* = 22. Standardized regression coefficients are reported.

In the first step, group climate and transformational leadership were included in the regression (model 1). The second step (model 2) additionally includes the interaction effect between group climate and transformational leadership on the orchestra's quality. There is no significant main effect of transformational leadership on the artistic quality of the orchestra

in both model 1 and model 2. Instead, as predicted, model 2 reveals a significant interaction effect between transformational leadership and group climate on the artistic quality of the orchestra. Its form is shown in figure 1. Additionally, both models reveal a significant main effect of the musicians' group climate on the artistic quality of the orchestra.

Figure 1. Interaction of the conductor's transformational leadership and the cooperative group climate in the orchestra on the artistic quality of an orchestra.

Discussion

Our results support the notion that a conductor's transformational leadership style in an orchestra does not generally increase the artistic quality of a symphony orchestra. In particular, results show that the conductor's transformational leadership style is positively related with the artistic quality of the orchestra only if it is accompanied by highly cooperative group climate in the orchestra. Given a high degree of cooperative group climate in the orchestra, high artistic quality can be predicted by the degree of the conductor's transformational leadership.

The first methodological limitation of this study is the following: The chosen cross-sectional design allows no assumptions to be made about the causality of the discovered correlations. Alternatively to our interpretation, it is possible that orchestra musicians in higher quality categories develop a cooperative climate and thus rate their conductor as charismatic for example. Hence, a longitudinal design for measuring dependent and independent variables at different times over an extended period would have been more revealing than a cross-sectional study.

Another lingering problem is the measurement of an orchestra's artistic quality. The within-person rating of group climate and orchestra quality in terms of single subject method consistency bias (McDonald, 1999) can lead to a systematic overestimation of the relation between the variables. However, the correlation does not have to turn out categorically and not considerably higher than if it is being categorized by different persons; an autocorrelative overestimation is not coercive (cf. Fuller et al., 1996, p. 282 ; Keller 1992, p. 495). Building on experience from earlier studies (Boerner et al., 2004; Krause et al., 2002), this study included additional independent ratings of artistic quality. This change did not completely circumvent a single subject method consistency bias, though it did at least mitigate the problem. To examine carefully whether the within-person rating of group climate and orchestra quality is really a measure of the same thing, a factor analysis was calculated across all items of the study. A general factor (G factor) in this factor analysis

would indicate the common method bias. However, no trace of a G factor was derived. Instead, the factor analysis (Kaiser Normalization with Varimax Rotation) generated three factors (group climate; transformational leadership, and artistic quality). Together they explained 77% of the variance.

Additionally we revised our measurement of orchestra quality: In Germany, there are four orchestral levels, from A (highest) to D (lowest). Symphony orchestras are rated according to their artistic quality by the „Deutsche Orchestervereinigung“, the association of professional musicians in Germany. All the orchestras participating in this study were classified A+, A or B. (A+ is above level A and implies corresponding increments in reputation and income.) A one-factor variance analysis (with Scheffé's post hoc test) reveals significant quality differences in the expected direction between all three orchestral levels ($F(2, 19) = 5,251$; $p < .005$): The artistic quality of orchestras in higher level is accordingly judged better than those of lower level. The fact that artistic quality differs depending on the level of the orchestra speaks for the validity of our quality measurement.

All the same it would be desirable for future studies to measure artistic quality exclusively from the perspective of additional sources. Moreover, it would be desirable to control for other variables that might affect the artistic quality of the orchestra such as funding, location, the quality of the individual performers, or program content.

It must be said that our sample of German orchestras does not stem from random selection. This raises the question to what extent the results found for German musicians are representative for orchestras from other countries. However, since no scientifically founded results exist so far, we cannot answer this question satisfactorily. It would be interesting for further studies to test whether the relationships that were found between leadership behavior, cooperative climate in the orchestra, and artistic quality of the orchestra are valid for orchestras in other countries as well, or if the results only represent specific German characteristics. To receive hints on this question, however, cross-cultural comparative studies in

the field of orchestras would have to be conducted.

For theoretical conclusions of the study, the most important finding is that a conductor's transformational leadership by itself does not generally predict high artistic quality of the orchestra, but only on condition of a highly cooperative group climate in the orchestra. This question is particularly interesting in the tradition of the contingency theories of leadership (Yukl, 2002). The main idea of the contingency theories of leadership is that there isn't "one best leadership style" which is functional in every context. Instead, they assume that the relation between leadership style and leadership success varies from one context to another (Yukl, 2002).

In a similar way, as meta-analyses reveal, the relationship between transformational leadership and success varies considerably (Lowe et al., 1996; Fuller et al., 1996). The effectiveness of transformational leadership depends in part on context variables like the followers' demand for orientation and security (de Vries et al., 1999). With this in mind, it can be argued that in the symphony orchestra, due to particular context variables, a cooperative group climate of the followers is a prerequisite for the effectiveness of a transformational leader. According to contingency theories of leadership, the particular situational conditions in the symphony orchestra have to be identified systematically. We assume the most relevant context variables in the orchestra are its size, the heterogeneity of its members, and the high interdependence and emotionality of the tasks.

To conclude with, this collection of particularities in professional symphony orchestras raises the question of whether the results of the present study can be generalized to other types of groups in organizations. Since the combination of situational conditions in the orchestra is very particular, it seems reasonable to consider the context variables separately.

First, orchestras are especially large and heterogeneous groups, which call for an analogy with the collaboration not in, but between organizational groups. Another analogue field can be the analysis of organizations with flat hierarchies (Hunt et al., 2004). Second, since orchestra musicians are highly professionalized and their tasks demand creativity and emotion,

the result can be revealing for leadership studies in new-wave organizations (Hunt et al., 2004). Third, there is an extremely high task interdependence in the orchestra. As a permanent characteristic, this aspect is only applicable to other organizations like, e.g., in the field of civil protection (such as fire brigades, emergency civil services or technical services) to a limited degree. However, a temporary high task interdependence may be characteristic for many professional teams like physicians in hospitals or research teams.

References

- Aiken, L. S. & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Allmendinger, J., Hackman, R. J., & Lehman, E. V. (1996). Life and Work in Symphony Orchestras. *The Musical Quarterly*, 80, 194–219.
- Amabile, T. M. (1994). The „atmosphere of pure work“: Creativity in research and development. In W. S. Shadish and S. Fuller (eds.), *The social psychology of science*. New York/ London: The Guilford Press, pp. 316–328.
- Amabile, T. M. & Gryskiewicz, S. S. (1989). The creative environment scales: Work environment inventory. *Creativity Research Journal*, 2, 231–253.
- Atik, Y. (1994). The conductor and the orchestra: Interactive aspects of the leadership process. *Leadership and Organization Development Journal*, 15 (1), 22–28.
- Auvinen, T. (2001). Why is it difficult to manage an Opera House? The artistic-economic dichotomy and its manifestations in organizational structures of five opera organizations. *The Journal of Arts Management, Law and Society*, 30 (4), 268–282.
- Avolio, B. J., Bass, B. M., and Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. *Journal of Occupational and Organizational Psychology*, 72, 441–462.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, B. M. (1998). *Transformational leadership: Industrial, military, and educational impact*. Rahwah, NY: Erlbaum.
- Boerner, S. (2002). *Führungsverhalten und Führungserfolg – ein Beitrag zu einer Theorie der Führung am Beispiel des Musiktheaters*. Wiesbaden: Gabler.

- Boerner, S. (2004). Artistic quality in an opera company – Towards the development of a concept. *Nonprofit Management and Leadership* 4 (4), 425-436.
- Boerner, S., Krause, D., & Gebert, D. (2004). Leadership and cooperation in an orchestra – An empirical study. *Human Resource Development International* 7 (4), 465-479.
- Brickner, M. A., Harkins, S. G. & Ostrom, T. A. (1986). Effects of personal involvement: Thought-provoking implications for social loafing. *Journal of Personality and Social Psychology*, 53, 763-769.
- Campbell, J.P., Dunnette, M.D., Lawler, E.E.III & Weick, K.E. (1970). *Managerial behavior, performance, and effectiveness*. New York: McGraw-Hill.
- Csikszentmihalyi, M. (1997). *Learning flow: The psychology of engagement with everyday life*. New York: Basic Books.
- Couch, S. R. (1983). Patronage and organizational structure in symphony orchestras in London and New York. In J. B. Kamerman and R. Martorella (eds), *Performers & performances. The social organization of artistic work* (pp. 109-122). South Hadlye, Mass: Bergin Publishers.
- Dahlhaus, C. (1973). Über musikalische Werturteile. In W. Krützfeld (ed.) *Wert-problematik der Musikdidaktik*, pp. 9–18. Ratingen: Henn.
- Davidson, J. W. and Good, J. M. M. (2002). Social and musical co-ordination between members of a string quartet: An exploratory study. *Psychology of Music*. 30, 186-201.
- De Dreu, C. K. W. and Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A Meta-Analysis. *Journal of Applied Psychology*, 88, 741-749.
- Den Hartog, D. N.; Van Muijen, J. J., and Koopman, P. L. (1997). Transactional versus transformational leadership: An analysis of the MLQ. *Journal of Occupational and Organizational Psychology*, 70, 19-34.
- De Vries, R., Roe, R. A. & Taillieu, T. C. B. (1999). On charisma and need for leadership. *European Journal of Work and Organizational Psychology*. 8 (1). 109-133.
- Ehrhart, M. G. & Klein, K. J. (2001): Predicting followers' preferences for charismatic leadership: The influence of follower values and personality. *The Leadership Quarterly*. 12, 153–179.
- Faulkner, R. (1973). Orchestra interaction: Some features of communication and authority in an artistic organization. *The Sociological Quarterly*. 14. 147-157.
- Fuller, J. B., Coleman, E. P., Patterson, K. H., & Stringer, D. (1996). A Quantitative review of research on charismatic leadership. *Psychological Reports*. 78, 271-287.
- Gebert, D. (2002). *Führung und Innovation*. Stuttgart: Kohlhammer.
- Gebert, D. (2004). *Innovation durch Teamarbeit – eine kritische Bestandsaufnahme*. Stuttgart: Kohlhammer.
- House & Shamir (1993). Toward the integration of transformational, charismatic and visionary theories. In M. M. Chemers & R. Ayman (Eds.), *Leadership theory and research. Perspectives and directions* (pp.81-107.). San Diego. Hunt, J. G., Stelluto, G. E. & Hooijberg, R. (2004). Toward new-wave organization creativity: Beyond romance and analogy in the relationship between orchestra-conductor leadership and musician creativity. *The Leadership Quarterly*. 15. 154–162.
- James, L. R., Demaree, R. G., and Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. 69. 85–98.
- Joyce, W. F. and Slocum, J. W. (1990). Strategic context and organizational climate. In B. Schneider (ed.), *Organizational climate and culture*. San Francisco. Jossey-Bass. (pp. 130-150).
- Kamerman, J. B. (1983). Symphony conducting as an occupation. In J. B. Kamerman and R. Martorella (eds), *Performers & performances. The social organization of artistic work* (pp. 43-56). South Hadlye, Mass: Bergin Publishers.
- Keller, R. T. (1992). Transformational Leadership and the Performance of Research and development project groups. *Journal of Management*. 18, 489-501.
- Kopelman, R. E., Brief, A. P., and Guzzo, R. A. (1990). The role of climate and culture in productivity. In B. Schneider (ed.), *Organizational climate and culture*. San Francisco. Jossey-Bass (pp. 282-318).
- Koys, D. J. & DeCotiis, T. A. (1991). Inductive Measures of Psychological Climate. *Human Relations*. 44 (3), 265-285.
- Kozlowski, S. W. and Hattrup, K. (1992). A disagreement about within-group agreement: Disentangling issues of consistency versus consensus. 77. 161–167.
- Krause, D. E., Boerner, S., Lanwehr, R., and Nachtigall, C. (2002). Strukturgleichungsmodelle zur Analyse von Macht und Führungserfolg im Orchester. *Zeitschrift für Personalpsychologie*. 1. 124–137.
- Lebrecht, N. (2001). *Maestro myth: Great conductors in pursuit of power*. Kensington Publishing.

- Levine, S. and Levine, R. (1996). Why they're not smiling: Stress and discontent in the orchestra workplace. *Harmony*, 2, 15-25.
- Lowe, K. B., Kroeck, K. G., and Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *The Leadership Quarterly*, 7 (3), 385-425.
- McDonald, R. P. (1999). *Test theory: A unified treatment*. Mahwah, NJ: Lawrence Erlbaum.
- Mehta, Z. (2003). Managing the New York Philharmonic in today's world. *International Journal of Arts Management*, 5 (3), 4-11.
- Murnighan, J. K. und Conlon, D. E. (1991). The dynamics of intense work groups. A Study of British String Quartets. *Administrative Science Quarterly*, 36, 165-186.
- Mulvey, P.W. & Klein, H. J. (1998). The impact of perceived loafing and collective efficacy on group goal processes and group performance. *Organizational Behavior and Human Decision Processes*, 74 (1), 62-87.
- Neuberger, O. (1980). Organisationsklima als Einstellung zur Organisation. In G.C. Hoyos et al. (eds). *Grundzüge der Wirtschaftspsychologie*, München (pp.128-136).
- Quinn, R. E. (1998). *Beyond rational management: Mastering the paradoxes and competing demands of high performance*. San Francisco, CA: Jossey-Bass.
- Podsakoff, P. M., Ahearne, M. and MacKenzie, S.B. (1997). Organizational Citizenship and the quantity and quality of work group performance. *Journal of Applied Psychology*, 82 (2), 262-270.
- Reichers, A. E. and Schneider, B. (1990). Climate and culture: an evolution of constructs. In B. Schneider (ed.), *Organizational climate and culture*. San Francisco. Jossey-Bass (pp. 5-39).
- Saavedra, R., Earley, P. C., and Van Dyne, L. (1993). Complex interdependence in task-performing groups. *Journal of Applied Behavioral Psychology*, 78 (1), 61-72.
- Schneider, B. (1990). The climate for service: An application of the climate construct. In B. Schneider (ed.), *Organizational climate and culture*. San Francisco. Jossey-Bass (pp. 383-412).
- Shea, G. P. and Guzzo, R. A. (1987). Groups as human resources. In K.M. Rowland and G. P. Ferris (eds) *Research in human resources and personal management* (pp. 323-356). Greenwich, CT: JAI Press.
- Tajfel, H. (1981). *Human groups and social categories: Studies in social psychology*. Cambridge: Cambridge University Press.
- Von Streit, C. (2003). *Untersuchung zum Arbeitsklima in deutschen Kulturorchestern – eine bundesweite Fragebogenstudie*. Unpublished master's thesis. Free University of Berlin, Germany.
- Wageman, R. (1995). Interdependence and group effectiveness. *Administrative Science Quarterly*, 40, 145-180.
- Weeks, P. (1995). A rehearsal of a Beethoven passage: An analysis of correction talk. *Research in Language and Social Interaction*, 29 (3): 247-290.
- Weeks, P. (1996). 'Synchrony lost, synchrony regained. The achievement of musical co-ordination. *Human Studies*, 19, 199-228.
- Williamon, A. and Davidson, J.W. (2002). Exploring co-performer communication. *Musicae Scientiae*, 1(1), 53-72.
- Williams, K.Y. and O'Reilly (1998). Demography and diversity in organizations. 20, 77-140.
- Young, V. M. and Colman, A.M. (1979). Some psychological processes in string quartets. *Psychology of Music* 7, 12-18.
- Yukl, G. (2002). *Leadership in organizations* (5th ed.), New Jersey: Prentice Hall.

Notes

¹ In Germany, there are basically four tariff classes for professional symphony orchestras ranging from "A" (highest quality, largest ensemble) to "D" (lowest quality, smallest ensemble).

* This article benefited immeasurably from the comments and suggestions of Diether Gebert, Berlin Technical University, and anonymous reviewers. We are grateful to them.