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Original Article

ORC-Q

Toward the Multidimensional Measurement of Organizational Readiness for Change

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Abstract: Organizational changes as a method for ensuring competitiveness are an integral part of an organization's daily life. A comprehensive understanding of organizational readiness for change is essential for managing change successfully and in a goal-oriented manner. Yet, established measures for mapping organizational readiness for change are often based on a unidimensional construct definition. Therefore, the goal of this study was to construct and validate a measure of a well-defined organizational readiness for change construct. Based on a systematic development process, the measure was constructed and tested in two samples for its psychometric properties and validity. A five-factor structure aligned with theoretical assumptions was identified that enabled the interpretation of the factors Organizational Valence, Individual Valence, Positive Affect, Negative Affect, and Change Behavior, which in turn constitute a second-order factor Organizational Readiness for Change. Further results indicated satisfactory values for the reliability of the measure as well as its convergent, discriminant, criterion, and construct validity. Implications and limitations are discussed and the outlook for potential future research questions is given.

Keywords: questionnaire development, organizational change readiness, change management, factor analysis, scale validation

Konstruktion und psychometrische Überprüfung eines Messinstrumentes zur Abbildung organisationaler Veränderungsbereitschaft

Zusammenfassung: Organisationale Veränderungen als Maßnahme zur Sicherstellung der Wettbewerbsfähigkeit gehören zum organisationalen Alltag. Ein Verständnis organisationaler Veränderungsbereitschaft ist wesentlich, um organisationale Veränderungen erfolgreich und zielgerichtet zu steuern. Etablierte Messinstrumente organisationaler Veränderungsbereitschaft beruhen auf einem eindimensionalen Konstruktverständnis. Ziel des Artikels ist die Konstruktion und Validierung eines Messinstrumentes zur Abbildung eines definierten Konstruktes der organisationalen Veränderungsbereitschaft. Auf Basis eines systematischen Konstruktionsprozesses wird ein Messinstrument entwickelt und in zwei Stichproben auf seine psychometrischen Eigenschaften und Validität geprüft. Es kann eine theoriekonforme 5-Faktoren-Stuktur identifiziert werden, die die Interpretation der Faktoren *Organisationale Valenz*, *Individuelle Valenz*, *Positiver Affekt*, *Negativer Affekt* und *Veränderungsverhalten* zulässt, die wiederum einen übergeordneten Faktor *Organisationale Veränderungsbereitschaft* konstituieren. Weitere Ergebnisse indizieren zufriedenstellende Werte für die Reliabilität des Messinstrumentes sowie die konvergente, diskriminante, Kriteriums- und Konstruktvalidität. Implikationen und Einsatzmöglichkeiten des Messintrumentes werden diskutiert.

Schlüsselwörter: Fragebogenentwicklung, Organisationale Veränderungsbereitschaft, Veränderungsmanagement, Faktorenanalyse, Validierung

Organizational change and an organization's abilities to adapt to it are crucial to ensure competitiveness and innovation (e.g., Boga & Ensari, 2009). Driving forces can be geopolitical in nature (e.g., political tensions), environmental (e.g., climate-related impacts on production), societal (e.g., demographic change), technological (e.g., digitization of products and processes), and economic (e.g., shortening of technology and product life cycles; Kauffeld et al., 2019). Despite this, many organizational changes fail or do not achieve the intended effectiveness (Klein & Sorra, 1996; Meaney & Pung, 2008). In particular, the *organizational readiness for change* (ORC) of individuals has been reported to be critical for the success of organizational change (e.g., Oreg et al., 2011; Oreg et al., 2018; Rafferty et al., 2013). Accordingly, organizational change is successful if individuals are engaged in it (Armenakis et al., 2007). Thus, a comprehensive understanding of ORC is essential for managing organizational change successfully (Rafferty et al., 2013). ORC is an established construct (Armenakis et al., 1993). Yet, research suggests conceiving change-related attitudes multidimensionally, taking into account an affective and behavioral component as well (Oreg et al., 2018; Piderit, 2000). To date, respective ORC measures only operationalize it as cognition (e.g., Armenakis et al., 2007; Holt, Armenakis, Feild, et al., 2007). Also, to the best of our knowledge, no psychometrically proved ORC measure exists in the German language. Therefore, the Organizational Readiness for

Change Questionnaire (ORC-Q) presented in this article aims to fill this gap by defining and operationalizing ORC including a cognitive, affective, and behavioral component.

In this article, ORC is defined as a change-related attitude (Bouckenooghe et al., 2009; Elizur & Guttman, 1976; Holt, Armenakis, Harris, et al., 2007; Piderit, 2000; Rafferty et al., 2013), describing the extent to which individuals or a group of individuals are cognitively, affectively, and behaviorally ready to engage in the implementation of a particular organizational change, influenced by context-, content-, and process-related aspects of the respective change as well as by individual dispositions. This definition is embedded in a framework model of ORC (Armenakis & Bedeian, 1999; Holt, Armenakis, Feild, et al., 2007; Armenakis, Harris, & Feild, 1999), linking the construct to antecedents and consequences. Two main sources are considered for the measure: First, the established ORC facets Discrepancy, Appropriateness, Change Self-Efficacy, Top Management Support, and Personal Valence (Armenakis et al., 2007; Holt, Armenakis, Harris, et al., 2007) were used for the cognitive component of the construct. Second, the affect-based model (Oreg et al., 2018) was used to derive further cognitive facets, but especially to have a theoretical foundation for the affective and behavioral component of the construct. The affect-based model stems from appraisal theory (Folkman et al., 1986; Lazarus, 1982, 1991). It assumes that cognitive evaluations regarding coping potential, goal relevance, and organizational and individual goal congruence of a particular organizational change lead to corresponding affective reactions of varying positive and negative activation and valence, which then in turn result in the respective behavioral responses to the respective organizational change. The affect-based model was used for various reasons: (1) The cognitive component of the affect-based model can be used to enrich ORC by additional cognitive facets. (2) The model offers a sound base on which to derive affective and behavioral facets within their respective components: Distinct affect states form affective facets (cf. Rafferty et al., 2013), whereas behavioral facets are defined by model-implied behaviors representing a broad spectrum to account for the complexity of subject area (Oreg & Sverdlik, 2011). (3) The model makes it possible to conceptualize the construct as a change-related attitude (Bouckenooghe, 2010; Elizur & Guttman, 1976; Oreg & Sverdlik, 2011). Therefore, a multidimensional approach was pursued considering aspects of valence, strength (as affective activation), and ambivalence (by taking both positive and negative affect into account). Psychometric testing itself aimed at identifying a multidimensional factor structure that can be interpreted in terms of a cognitive, affective, and behavioral component via the defined facets (H1). In addition, validation was conducted by taking further psychometrically validated constructs into account that were considered to be correlates of change-related attitudes (cf. Oreg et al., 2011). These constructs were theoretically divided into antecedents and consequences by the aforementioned framework model. Among the most important constructs conceived as consequences of ORC are affective organizational commitment, job satisfaction, and turnover intention (Oreg et al., 2011). It was therefore assumed that individuals who express stronger ORC exhibit more organizational commitment, more job satisfaction, and less turnover intention (H2a–c). In addition, and in light of respective findings (Oreg, 2006), the affective component of ORC should particularly be related to job satisfaction, while the behavioral component should primarily be related to turnover intention (H2d).

Also, antecedents of ORC were considered and divided into factors of context (e.g., supportive organizational environment), content (e.g., job design changes), process (e.g., participation and communication), and individual disposition (e.g., personality), aligned with the framework model of ORC (cf. Armenakis & Bedeian, 1999; Holt, Armenakis, Field, et al., 2007; Oreg et al., 2011). For organizational context, transformational leadership was taken into account (Oreg & Berson, 2019; Rafferty et al., 2013). Transformational leaders aim to change individual attitudes and values and can become drivers of organizational change by acting as role models in the change process (cf. Oreg & Berson, 2019). Individuals therefore experience more positive emotions toward organizational change (Seo et al., 2012), show less resistance to change (Oreg & Berson, 2011) and less change cynicism (Bommer et al., 2005) and more readiness to change (Herold et al., 2008). Therefore, transformational leadership was expected to be positively related to ORC (H3). To address both content and process aspects, organizational justice was considered (Oreg et al., 2011). This construct can be further divided into (1) distributive justice, (2) procedural justice, and (3) interactional justice, which in turn is composed of an interpersonal and an informational dimension (Colquitt, 2001; Colquitt et al., 2001). Organizational justice has a positive effect on individual commitment to change and reduces change cynicism (Armenakis et al., 2007; Bernerth et al., 2007). Thus, organizational justice was expected to be positively related to ORC (H4a). Distributive justice served as an antecedent of content, whereas both procedural and interactional justice served as antecedents of process. Further, it was suggested that distributive justice is primarily related to the cognitive component of a change-related attitude whereas procedural and interactional justice have particular relationships with the behavioral component (H4b). To ad-

dress individual dispositions, dispositional resistance to change was taken into account (Oreg et al., 2008; Oreg et al., 2011). The construct refers to a cross-cultural interindividually varying personality trait that describes the extent to which individuals are predisposed to respond positively or negatively to change (Oreg, 2003). Findings suggest that the construct is related to change-related attitudes and behaviors, with particular links to affect, behavior, and personality (Oreg, 2003, 2006). Therefore, dispositional resistance to change was expected to be negatively related to the affective and behavioral component of ORC (H5).

In sum, first, the ORC-Q was investigated regarding its assumed psychometric structure (H1). Second, validity assessment was conducted with organizational commitment, job satisfaction, and turnover intention serving as theoretically assumed outcomes (H2a–d), as well as transformational leadership (H3), organizational justice (H4a–b), and dispositional resistance to change (H5) serving as theoretically assumed antecedents of ORC. The emerging relationships were assessed for the total scale of the ORC-Q and all of its subscales. Ultimately, the aim of this approach was to answer the overall leading research question addressing whether the ORC-Q is psychometrically suitable for application to practical and research questions.

Method

Item Development

A holistic overview of the development process is displayed in ESM 1. For the cognitive component, items from existing ORC measures were adapted and modified to address established facets (cf. Armenakis et al., 2007; Holt, Armenakis, Feild, et al., 2007). Also, further items were derived from the affect-based model and by adapting items from established measures (Herscovitch & Meyer, 2002; Straatmann et al., 2018; Wanberg & Banas, 2000). For the affective component, items from the Positive and Negative Affective Schedule (PANAS; Krohne et al., 1996) were adapted to fit ORC, accounting for aspects of valence and activation proposed by the affect-based model. To derive items for the behavioral component, a workshop was conducted with change management experts (N = 11) from a large automotive company, holding master's or doctoral degrees in work and organizational psychology or social sciences while also having many years of practical experience with organizational change. All items were formulated to be as short as possible, easy to understand, and appropriate for addressees. Conjunctive statements within an item as well as subtle and ambiguous content were avoided. Within each content facet, inverted formulations were avoided to prevent indiscriminate items and method artifacts in factor analyses (Zickar, 2020). Items were formulated in a way such that the item stem is adaptable to a specific organizational change (i.e., by changing formulations in regard to a specific change initiative) and to measure ORC on the individual level (Holt, Armenakis, Harris, et al., 2007; Weiner et al., 2008). All items were reviewed by two workshop participants and one additional psychologist, all holding master's or doctoral degrees in work and organizational psychology, for content validity, comprehensibility, and wording. To further check content validity, items were then assigned to either the cognitive, affective, or behavioral component of the ORC-Q by a part of the workshop participants (n = 5; cf. MacKenzie et al., 1991). Items that were not assigned to their intended component by the majority ($n \geq 3$) were revised or excluded to avoid unclarities. Evaluation objectivity was ensured by a closed response format using a 5-point Likert scale. Verbal anchor wording was based on recommendations by Casper and colleagues (2020) with a range of 1 (*strongly disagree*) to 5 (*strongly agree*). This resulted in a total of 56 items that were used in the first survey and then reduced in number according to psychometrical assessment.

Data Collection and Analysis

Two data collections were conducted via online surveys. The goal for the first survey was to determine the ORC-Q factor structure using exploratory factor analysis (EFA). In the second survey, a revised version of the ORC-Q was used to validate the previously identified factor structure using confirmatory factor analysis (CFA), to check its psychometric properties on item and scale level, and to calculate correlations with the selected validity constructs (see "Validity Measures" section). Review of histograms indicated a bi-model distribution for one item in the first survey, which was then excluded from EFA, resulting in an initial 55-item version. Besides that, no severe violation of the normal distribution assumption occurred. Also, all items were within the recommended range of univariate kurtosis ≤ |7| and skewness ≤ |2| (Curran et al., 1996, p. 26). Data analyses were performed with R version 4.0.2.

Samples

The first sample consisted of 224 individuals, the second one of 384 individuals. The target population included individuals that were between the ages of 18 and 69 years,

employed at least 20 hr per week, and experienced or were about to experience an organizational change at the time of the survey. These criteria were pre-screened via a check-box the participants had to fill in before they were given access to the respective survey. An overview of the types of organizational change referenced (cf. Smith, 2002) and their distributions in both samples is provided in ESM 2. While conducting the survey, participants were then asked to refer to the particular organizational change they mentioned. Sample acquisition was conducted by a market research company. Participants were paid a small fee for their participation. Individuals taking part in the first survey were excluded from the second survey by their participant codes to ensure sample independence. The data sets did not contain any missing values, and therefore no handling of missing data was needed.

Validity Measures

Established measures were used to tap the validity constructs. All reliabilities reported were achieved in the second sample. Also, for each measure the full set of items was used. Affective organizational commitment was mapped by the respective affective commitment scale of the COMMIT (Felfe & Franke, 2012; α = .89). Job satisfaction was mapped with Neuberger and Allerbeck's (1978) *Arbeitsbeschreibungsbogen* (ABB, Job Description Questionnaire; α = .84). Turnover intention was mapped with Baillod and Semmer's (1994) Turnover Intention Questionnaire (α = .80). Organizational justice was mapped with the GEO (Fragebogen zu Gerechtigkeitseinschätzungen in Organisationen, Maier et al., 2007; α = .94) with the scales (1) Distributive Justice (α = .92), (2) Procedural Justice (α = .86), (3) Interpersonal Justice (α = .85), and (4) Informational Justice (α = .91). Transformational leadership was maped with the German version of the Multifactor Leadership Questionnaire (MLQ5 x Short; Felfe, 2006; α = .97). Dispositional resistance to change was mapped with the Resistance to Change Scale (RTC) using the German version by Ohly (Oreg et al., 2008; α = .85). Again, a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for all measures so as to avoid method artifacts in data analyses.

Results

First Survey

To explore the underlying factor structure of the ORC-Q, an EFA was conducted on the initial 55-item version. EFA was implemented using a maximum likelihood estimator and oblique rotation by direct oblimin rotation. Parallel analysis and minimum average partial test (MAP test) were computed to determine the number of factors. Parallel analysis tests extracted principal components through principal component analysis (PCA) against components randomly simulated based on the data at a significance level of $p \leq .05$. The MAP test extracts principal components by iteratively conducting PCAs and partializing out their influence relative to the consecutively extracted components until the squared and averaged partial correlations above and below the principal diagonals increase rather than decrease. All factors are extracted until this minimum is reached. Parallel analysis indicated five factors, whereas the MAP test suggested eight factors. Therefore, iterative EFAs were computed for all factor solutions. In each step, items with factor loadings of $\lambda \leq .50$ and cross-loading distances of $d \leq .20$ were excluded from the analysis (cf. Kauffeld et al., 2004). Also, only such factors were considered that were indicated by at least three items holding up to the defined selection criteria since three items are considered to be the minimum number of items to sufficiently indicate a scale (Fabrigar et al., 1999). This led to a reduction from 55 to 25 items. The thereby identified and interpretable 5-factor model solution explained approximately 64 % of the existing variance. Factor 1 explained 17 % of the variance, described the need for and appropriateness of organizational change and the benefits that accompany it, and was interpreted as Organizational Valence. Factor 2 explained 9 % of the variance, described the extent to which individuals expect to benefit from the change, and was interpreted as Individual Valence. Factor 3 explained 11 % of the variance, described the extent of positive affect toward the change, and was interpreted as Positive Affect. Factor 4 explained 16 % of the variance, described the extent of negative affect toward the change, and was interpreted as Negative Affect. Factor 5 explained 10 % of the variance, described change behaviors (seeking information about the change, supporting colleagues, expressing one's opinion about change), and was interpreted as Change Behavior. To check for hints pointing to a second-order factor, the inter-factor correlations were considered (Table 1).

Descriptively (i. e., no significance test was conducted), the cognitive factors Organizational Valence and Individual Valence were correlated with each other, as were the affective factors Positive Affect and Negative Affect, indicating a corresponding cognitive and affective component. Furthermore, all affective and cognitive factors correlated at $r \geq |.22|$, as did the behavioral component with the cognitive factor Organizational Valence, indicating a second-order factor. Next, the identified model's goodness-of-fit was tested. A chi-square indicated differ-

Table 1. Inter-factor correlations in the first sample (*N* = 224)

Factors	Inter-factor correlations			
	1	2	3	4
1. Organizational Valence				
2. Individual Valence	.52			
3. Positive Affect	.49	.61		
4. Negative Affect	−.30	−.22	−.45	
5. Change Behavior	.33	.13	.08	.08

Note. Results based on ML factor analysis with direct oblimin rotation. Descriptive values, no significance test was conducted.

Table 2. ORC model comparisons in the second sample (*N* = 384)

	Model 1 1-factor solution	Model 2 3-oblique factors solution	Model 3 5-orthogonal factors solution	Model 4 5-oblique factors solution	Model 5 5-factor solution with second-order factor
Yuan–Bentler χ^2	831.55	597.36	844.67	153.31	174.20
df	90	87	90	80	85
p	< .001	< .001	< .001	< .001	< .001
Scale correction	1.279	1.240	1.230	1.213	1.207
CFI	.74	.82	.73	.97	.97
RMSEA	.15	.12	.15	.05	.05
RMSEA CI	[.14, .16]	[.12, .13]	[.14, .16]	[.04, .06]	[.04, .06]
SRMR	.11	.08	.34	.04	.05

Note. Robust estimators for the respective fit indices are reported. CFI = comparative fit index; CI = confidence interval; RMSEA = root mean square error of approximation; SRMR = standardized root mean squared residual.

ences between the implied and empirical correlation matrix with $\chi^2(185, N = 224) = 263.70$, $p < .001$. This was likely due to the sample sensitivity of the chi-square so that larger sample sizes decrease the *p* value while the thereby indicated misfit is negligible (e.g., Kline, 2016). A standardized root mean squared residual (SRMR) value of .02 indicated an excellent fit, as did a comparative fit index (CFI) of .98 and a root mean square error of approximation (RMSEA) of .04, 95% CI [.03, .06]. Overall, the fit indices suggested an adequate model fit (cf. Hu & Bentler, 1999). To optimize the ORC-Q for time-efficient usage, three items per factor were combined into a scale (Fabrigar et al., 1999) and analyzed for internal consistency and homogeneity. We selected items whose loading was $\lambda \geq .50$ and that, according to the authors, tapped content-distinct aspects of the respective factor (Hinkin, 1998). This resulted in 15 items, which were examined further in the second survey using CFA. See ESM 3 for an overview of the initial 25 items as well as ESM 4 for an English translation of the 15 selected items (please note that this translated version is not psychometrically tested and, thus, not intended for use).

Second Survey

To confirm the identified factor structure, CFA was used for the 15-item version of the ORC-Q. CFA was implemented using a robust maximum likelihood estimator. After the initial model's fit was assessed in the first survey, five models were comparatively tested with respect to their model goodness in the next step: (1) A 1-factor solution postulating one ORC factor; (2) a 3-factor solution consisting of a cognitive, affective, and behavioral component of ORC; (3) an orthogonal 5-factor solution and (4) an oblique 5-factor solution, both corresponding to the identified factor structure from the first data collection without a second-order factor; (5) and a 5-factor solution with the five identified ORC factors and a second-order factor that should serve as a general ORC factor that is in line with the derived construct definition. The results of the model comparisons are displayed in Table 2.

Of these five models, Model 5 (see ESM 5) fitted the data the best regarding its statistical features and its theoretical foundation. A Yuan–Bentler chi-square test indicated differences between the implied and empirical correlation matrix while robust estimators of SRMR, CFI, and RMSEA indicated an excellent fit. For Model 5,

Table 3. ORC-Q scales with reliabilities and inter-item correlations in the first sample (N = 224) and second sample (N = 384)

Scales	Sample 1			Sample 2		
	ω	α	IIC	ω	α	IIC
1. Organizational Valence	.80	.82	.60	.85	.86	.68
2. Individual Valence	.82	.84	.64	.84	.86	.66
3. Positive Affect	.86	.87	.69	.93	.94	.84
4. Negative Affect	.79	.82	.60	.85	.87	.69
5. Change Behavior	.68	.71	.45	.70	.73	.47
6. ORC-Q total scale	.69	.86	.18	.80	.90	.18

Note. ω = Omega ω_H for the total scale, ω_T for each subscale; α = Cronbach's α; IIC = inter-item correlation.

standardized factor loadings in the measurement model ranged from λ = .54 to λ = .93, and determination coefficients from r^2 = .30 to r^2 = .86. For relationships within the structural model, standardized factor loadings ranged from λ = .24 to λ = .99, and determination coefficients ranged from r^2 = .06 to r^2 = .98. The second-order factor accounted for 59 % of variance, which is above the recommended cut-off value of 50 % (Fornell & Larcker, 1981, p. 46), explaining an average of 35 % of the variance in the underlying indicators, which is above the recommended cut-off of 24 % (Credé & Harms, 2015, p. 854). Model 5 was consistent with the derived construct definition in regard to its interpretability as a general ORC factor.

Heterogeneous factor loadings suggested violations of tau-equivalent measurements (McNeish, 2018), thus implying a congeneric factor structure, that is, the slopes of the items indicating their respective factor cannot be considered as equal. Therefore, reliabilities were estimated with omega ω_H for the total scale, ω_T for each subscale (McDonald, 1970), and Cronbach's α for comparison reasons. Moreover, reliabilities as well as inter-item correlations were examined for the samples of both surveys (separately). The results are displayed in Table 3. Further information on item features is displayed in Table 4 (for the second sample only).

In sum, all reliabilities showed at least acceptable psychometric properties. The inter-item correlations for each subscale indicated high homogeneity (Bühner, 2011, p. 243), whereas the inter-item correlation for the total scale indicated the distinctness across all scales. Also, the part-whole item discriminations and item difficulties were in the recommended range (Bühner, 2011, p. 80). In total, five factors could be tapped accurately by the respective scales and items based on both surveys. These factors constituted a second-order factor, which could be interpreted as ORC. Two factors each could be assigned to the cognitive and affective component, and one factor to the behavioral component. This indicated the construct validity of the ORC-Q (H1).

Validity Assessment

First, the convergent (H3 and H4a), then the discriminant (H4b and H5), and finally the criterion validity were assessed (H2a–c and H4d). Expected significant correlations were found between the ORC-Q total scale, its subscales, and the validity measures. A complete overview including significance levels is displayed in Table 5. In terms of convergent validity, the MLQ5 x Short correlated significantly with all facets of ORC (H3). The same applied to the GEO (H4a). Regarding discriminant validity, the expected significant correlations for the RTC with Negative Affect r = .32 and Change Behavior r = .12 occurred (H5). Yet, particular correlations did not emerge for the cognitive component with Distributive Justice, or for the behavioral component with Procedural, Interpersonal, or Informational Justice (H4b). In terms of criterion validity, the ORC-Q significant correlations with the affective organizational commitment scale of the COMMIT ranged between r = –.21 (Negative Affect) and r = .27 (Organizational Valence), with the ABB between r = –.27 (Negative Affect) and r = .37 (Individual Valence), and with the Turnover Intention Questionnaire between r = –.23 (Organizational Valence) and r = .26 (Negative Affect), providing evidence for H2a, H2b, and H2c, respectively. However, no particular relationships between the affective component and the ABB as well as between the behavioral component and the Turnover Intention Questionnaire occurred (H2d). Overall, all correlations indicated the construct validity of the ORC-Q.

Discussion

The ORC-Q meets psychometrical requirements for usage in organizational change monitoring from a psychological perspective in a parsimonious and time-efficient manner. In the first survey, cognitive, affective, and be-

Table 4. ORC-Q items with mean, standard deviation, skewness, kurtosis, item discrimination, and item difficulty in the second sample (N = 384)

Items	*M*	*SD*	*s*	*k*	r_{it}	*p*
ov1. *Die Veränderung ist wichtig für unsere Organisation.*	3.29	1.20	−0.47	−0.67	.78	.66
ov2. *Es gibt für unsere Organisation gute Gründe, die Veränderung einzuführen.*	3.52	1.14	−0.68	−0.25	.73	.70
ov3. *Unsere Organisation wird von der Veränderung profitieren.*	3.15	1.24	−0.24	−0.89	.71	.63
iv4. *Ich werde durch die Veränderung mehr Möglichkeiten haben, mich beruflich weiterzuentwickeln.*	2.74	1.26	0.07	−1.09	.75	.55
iv5. *Ich werde an der Veränderung persönlich wachsen.*	3.07	1.20	−0.29	−0.84	.72	.61
iv6. *Ich werde durch die Veränderung Vorteile haben.*	2.77	1.24	−0.97	0.07	.71	.55
pa7. *Die Veränderung stimmt mich enthusiastisch*	2.54	1.22	0.29	−0.94	.87	.51
pa8. *Insgesamt freue ich mich über die Veränderung*	2.71	1.29	0.08	−1.17	.87	.54
pa9. *Ich fühle mich durch die Veränderung motiviert.*	2.73	1.26	0.08	−1.12	.88	.55
na10. *Ich fühle mich durch die Veränderung gestresst.*	3.26	1.22	−0.34	−0.87	.72	.65
na11. *Insgesamt habe ich bei der Veränderung ein ungutes Gefühl.*	3.22	1.28	−0.26	−1.02	.74	.64
na12. *Ich fühle mich der Veränderung ausgeliefert.*	3.37	1.26	−0.44	−0.88	.78	.67
cb13. *Ich informiere mich aktiv über die Veränderung.*	3.93	0.78	−0.67	0.71	.61	.79
cb14. *Ich tausche mich aktiv mit meinen Kolleginnen und Kollegen über die Veränderung aus.*	3.93	0.96	−1.14	1.39	.57	.79
cb15. *Wenn mir etwas an der Veränderung nicht passt, sage ich das.*	3.72	0.92	−0.77	0.48	.46	.74

Note. M = mean; SD = standard deviation; s = skewness; k = kurtosis; r_{it} = part-whole item discrimination; p = item difficulty; ov = Organizational Valence; iv = Individual Valence; pa = Positive Affect; na = Negative Affect; cb = Change Behavior.

havioral components were identified using EFA. A 5-factor solution with a second-order factor was confirmed via the second survey using CFA. This model could be distinguished from alternative models and interpreted in accordance with theoretical assumptions. The cognitive, affective, and behavioral components were measured by five scales. The cognitive component consists of Organizational Valence and Individual Valence, which describe the value placed on organizational change from an organizational and individual perspective. Both scales conceptually overlapped with the established ORC facets Appropriateness and Discrepancy and Personally Beneficial, respectively (cf. Armenakis et al., 2007; cf. Holt, Armenakis, Field, et al., 2007). Especially, Appropriateness and Discrepancy resulted in a common factor, which is in line with previous findings on ORC measurement (cf. Holt, Armenakis, Field, et al., 2007). For the affective component, factor analyses resulted in two distinguishable, yet highly correlated factors Positive Affect and Negative Affect. This is in line with previous research findings on affective states (Krohne et al., 1996), with recommendations to operationalize the affective component via distinct affect states (Rafferty et al., 2013), and with the affect-based model (Oreg et al., 2018). The same occurred for the behavioral component, which aligns with the affect-based model as well: Change Behavior described the extent to which individuals are proactive about change. The internal consistencies and reliabilities of the scales were adequate across both samples. Also, the ORC-Q inter-item correlations indicated high homogeneity within each scale, which was further supported by high item discriminations for each item in regard to their respective scale. Moreover, the overall inter-item correlation indicated sufficient content distinctiveness across all scales, emphasizing the content broadness of the construct. Also, the identified ORC-Q correlations with selected validation measures, as well as differences in the strength of correlations, provided evidence of convergent, discriminant, criterion, and therefore construct validity. These findings confirmed the assumed factor structure and provide a sound indication of the validity of the ORC-Q, thereby setting it apart from other measures for describing individual responses to organizational change (Oreg & Sverdlik, 2011; Rafferty et al., 2013). However, factor loadings, inter-factor correlations, and reliability coefficient ω_H only indicated comparatively weak relationships of the behavioral component with the cognitive and affective component and with the second-order factor. While the cognitive and affective component showed high inter-factor correlations with each other and the second-order factor, the behavioral component was statistically more distinct. The results of CFA and especially the comparison of fit indices between models nevertheless support the interpretation of ORC in line with its derived definition. It should also be noted that both samples were drawn from the target population for which the ORC-Q is intended. This addresses the frequently voiced criticisms of psychological studies relying on student samples (e.g., Peterson, 2001). Furthermore, the ORC-Q allows for a flexible and easy adaptation to a specific organizational change by directly

Table 5. Correlations of the ORC-Q scales with the validity measures in the second sample (N = 384)

Scales	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Organizational Valence	.86														
2. Individual Valence	.60***	.86													
3. Positive Affect	.66***	.81***	.94												
4. Negative Affect	−.37***	−.50***	−.60***	.87											
5. Change Behavior	.24***	.23***	.20***	−.04	.73										
6. ORC-Q total scale	.83***	.88***	.88***	−.27***	.46***	.90									
7. MLQ5 x Short	.47***	.51***	.51***	−.28***	.29***	.57***	.97								
8. Distributive Justice	.47***	.57***	.62***	−.38***	.20***	.60***	.64***	.92							
9. Procedural Justice	.54***	.56***	.60***	−.38***	.24***	.62***	.70***	.67***	.86						
10. Interpersonal Justice	.30***	.26***	.24***	−.27***	.24***	.31***	.54***	.33***	.45***	.85					
11. Informational Justice	.40***	.44***	.46***	−.34***	.21***	.48***	.75***	.63***	.75***	.60***	.91				
12. RTC	−.04	−.06	−.05	.32***	−.12*	−.04	.01	.00	.03	−.17***	−.01	.85			
13. COMMIT	.27***	.26***	.23***	−.21***	.24***	.30***	.51***	.39***	.45***	.51***	.49***	−.13**	.89		
14. ABB	.35***	.37***	.36***	−.27***	.25***	.41***	.65***	.52***	.59***	.57***	.63***	−.02	.75***	.84	
15. Turnover Intention Questionnaire	−.23***	−.21***	−.19***	.26***	−.11*	−.22***	−.37***	−.31***	−.29***	−.43***	−.40***	.11*	−.56***	−.60***	.80

Note. Pearson correlations coefficients calculated. Cronbach's α in main diagonal; MLQ5 x Short = Transformational Leadership; RTC = Dispositional Resistance to Change; COMMIT = Organizational Affective Commitment; ABB = Job Satisfaction; Negative Affect is inverted for ORC-Q total scale calculation. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

referencing it in the item itself. Therefore, the ORC-Q can easily be used for different organizational changes by specifically tailoring the measure to each respective change effort.

Limitations and Outlook

With the ORC-Q, a measure tapping ORC has been developed. To further investigate the practical utility, the ORC-Q should be used in the context of a specific organizational change within organizational units over different measurement time points. Alignment with organizational success measures may reveal immediate practical utility in this context. Yet, the ORC-Q has only been validated to a limited extent in the studies in regard to its dimensional structure or criterion validity so far. However, no factors interpretable as the established ORC facets Change Self-Efficacy and Top Management Support were found by EFA, either because the factor loadings of the respective items were too small to meet the defined criteria (Change Self-Efficacy) or the factor was not indicated by at least three items (Top Management Support). Also, the psychometrical link between Change Behavior and the second-order factor ORC was quite weak. This is in line with research positing that behavior is not part of a change-related attitude (e.g., Rafferty et al., 2013). Thus, further research investigating these topics is needed. Also, the ORC-Q taps ORC on the individual's level. Since organizational change takes place in a multilevel context, it should be assessed whether a direct-consensus model can be applied (Chan, 1998). This model understanding is recommended for attitudinal constructs (Wallace et al., 2016) and is consistent with the recommendation by Holt, Armenakis, Harris, et al. (2007) to map ORC at the individual level. It allows for aggregation on higher organizational levels (e.g., teams, departments, etc.) and makes it possible to accommodate an awareness of the influence of the organizational context on individual experiences (e.g., Schneider et al., 2017). Thus, such horizontal and vertical distinctions between levels of analysis allow conclusions to be drawn about the strength and uniformity of a multilevel construct. Strength describes the extent to which perceptions of the construct are shared within an organizational unit (Schneider et al., 2017), whereas uniformity describes the distribution pattern of perceptions within an organizational unit (González-Romá & Hernández, 2014). This allows for appropriately differentiated statements across different organizational levels and enables change management efforts to be tailored more effectively. Therefore, more attention should be paid to this field of research in the future by applying the ORC-Q in multilevel research designs. Furthermore, it should be assessed whether the ORC-Q can be used for clustering different profiles of ORC by usage of methods such as latent profile analysis (LPA; e.g., Oberski, 2016) to design tailored change management efforts targeting the needs of the respective profile group.

Electronic Supplementary Materials

The electronic supplementary materials are available with the online version of this article at https://doi.org/10.1026/0012-1924/a000324

ESM 1. Holistic overview on the construction approach.
ESM 2. Types of organizational change and their respective distributions in both samples.
ESM 3. Results of exploratory factor analysis.
ESM 4. English translation of the 15-item ORC-Q version.
ESM 5. Model of organizational readiness for change based on confirmatory factor analysis.

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