

Salzburger State Reactance Scale (SSR Scale)

Validation of a Scale Measuring State Reactance

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Abstract. This paper describes the construction and empirical evaluation of an instrument for measuring state reactance, the Salzburger State Reactance (SSR) Scale. The results of a confirmatory factor analysis supported a hypothesized three-factor structure: experience of reactance, aggressive behavioral intentions, and negative attitudes. Correlations with divergent and convergent measures support the validity of this structure. The SSR Subscales were strongly related to the other state reactance measures. Moreover, the SSR Subscales showed modest positive correlations with trait measures of reactance. The SSR Subscales correlated only slightly or not at all with neighboring constructs (e.g., autonomy, experience of control). The only exception was fairness scales, which showed moderate correlations with the SSR Subscales. Furthermore, a retest analysis confirmed the temporal stability of the scale. Suggestions for further validation of this questionnaire are discussed.

Keywords: reactance, experience of reactance, behavioral intentions, aggression, new instrument, reliability, construct validity, SSR Scale

In an early reactance study, Weiner and Brehm (1966) asked consumers in a supermarket to buy a specific sort of bread. Without any kind of influence, 24% bought this bread. With moderate influence (“please try”), this number increased to 70%, but it declined again to 51% when strong influence (“you are going to buy”) was exerted on the consumers (Brehm, 1966). According to reactance theory, formulated by Jack Brehm in 1966, the motivational state of psychological reactance is aroused when an individual perceives any of his or her free behaviors to be threatened (Brehm, 1966). People in the supermarket study indeed felt restricted in their freedom to choose the sort of bread they wished to buy.

In the Weiner and Brehm (1966) study, reactance was measured by observing the actual behavior of consumers in a supermarket. More recently, as cited in Quick (2012), researchers (mainly in health communication) have measured behavioral effects that indicate evidence of reactance through induction checks (Burgoon et al., 2002), such as source derogation (Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003) or boomerang effects (Buller, Borland, & Burgoon, 1998). Although research in the domain of reactance theory has risen in popularity since 1966, in contrast to several trait reactance measures (e.g., the Therapeutic Reactance Scale: Dowd, Milne, & Wise, 1991; the Hong Psychological Reactance Scale: De las Cuevas, Peñate, Betancort, & de Rivera, 2014; Hong, 1992; Hong & Faedda, 1996; Hong & Page, 1989; Jonason, Bryan, & Herrera, 2010; Merz and Herzberg’s reactance scale: Dowd

et al., 1988; Herzberg, 2002; Hong & Ostini, 1989; Hong & Page, 1989; Tucker & Byers, 1987), only a few state measures have been developed.

Brehm (1966) and Brehm and Brehm (1981) first stated that people can differ in their levels of reactance and that different personalities may show different levels of reactance. They suggested that reactance could be interpreted as a stable characteristic, which led to the creation of the numerous questionnaires designed to measure reactance as a trait. Nevertheless, even though many researchers have acknowledged that trait reactance is only one aspect of the concept of reactance, only a few have attempted to measure reactance as a state. State measures have been developed mainly in the therapeutic area. A paper-based measure of state reactance is the Patient Resistance Scale created by Morgan, Luborsky, Crits-Christoph, Curtis, and Solomon (1982). This scale measures client defensiveness during therapy with seven items but unfortunately has not shown correlations with treatment outcome (Beutler, Moleiro, & Talebi, 2002). Quick and Stephenson (2007a, 2007b, 2008) developed the Reactance Restoration Scale (RRS), which measures a person’s direct, vicarious, and related motivation to restore freedom after restrictions, expanding on the original concept by Brehm and Brehm (1981). They asserted that individuals can restore a threatened freedom in a number of ways: by (1) responding in a manner opposite to the threat, (2) performing a related behavior, that is, a behavior similar to the threatened behavior, or (3) observing other individuals exercise the threatened

freedom (i.e., indirect restoration of freedom). Quick and Stephenson (2007b) classified these three restoration processes as (1) boomerang effects, (2) related boomerang effects, and (3) vicarious boomerang effects. According to Brehm (1966), boomerang effects occur when costs are low, whereas related and vicarious boomerang effects arise when costs are high.

The RRS consists of three questions that participants answer on four 7-point scales with the anchors (a) motivated-unmotivated, (b) determined-not determined, (c) encouraged-not encouraged, and (d) inspired-not inspired.¹ Therefore, participants have to answer a total of 12 items. The RRS asks about exercise and sunscreen use and can be adapted to measure other health behaviors. Validation studies showed that the RRS is strongly positively related to anger and unfavorable cognitions (Quick & Stephenson, 2008) and to both state and trait reactance (Quick & Stephenson, 2007a, 2007b). The confirmatory factor analysis indicated good model fit following Hu and Bentler (1999). The reliabilities for the scales are considered good ($\alpha = .93-.97$).

Researchers have detected connections between reactance and anger (Dillard & Meijnders, 2002; Dillard & Shen, 2005; Nabi, 2002; Wicklund, 1974). Dillard and Shen (2005) proposed measuring state reactance as an amalgamation of anger and negative cognitions. Their overall approach was guided by Brehm (1966), who stated that individuals experiencing psychological reactance could “be aware of hostile and aggressive feelings” (p. 9). They found that anger (i.e., feeling irritated, angry, annoyed, and aggravated) and negative cognitions (e.g., expression of disagreement with the restriction or counterarguing) are empirically inseparable components, and they built a so-called intertwined process model.

Reactance seems to have both an affective and a cognitive component. Studies using the Dillard and Shen (2005) approach (e.g., Quick & Kim, 2009; Quick & Stephenson, 2008; Rains & Turner, 2007) asked participants to express their feelings on four items – irritated, angry, annoyed, and aggravated – and to write down their thoughts. Afterward, independent raters coded the cognitions as supportive, neutral, or negative. Moreover, the perceived threat to choice (four items, e.g., “The message threatened my freedom to choose”) was added as an antecedent variable in Dillard and Shen’s model analysis. Anger affect and counterarguing mediated the effect of perceived freedom threat on negative attitudes toward the message (Dillard & Shen, 2005; Rains, 2013). The intertwined-model approach was successfully tested in several validation studies by Quick and colleagues (Quick & Kim, 2009; Quick & Stephenson, 2008). Recently, Dillard and Shen’s conceptualization and measurement were confirmed by a meta-analytic review ($K = 20$, $N = 4,942$) by Rains (2013). The results were used to test path models representing competing conceptualizations of reactance and provided evidence that the

intertwined model best fit the data. Nevertheless, this approach is mainly used in the cognitive response tradition of persuasion research.

Furthermore, Lindsey (2005) used another approach to measure state reactance. She employed a unidimensional scale consisting of only four items (e.g., “I do not like that I am being told how to feel about. . .”). The four-item scale was adapted from Hong and Faedda’s (1996) trait reactance measure, with the items altered to capture reactance as a psychological state.

To compare the strength and weaknesses of Dillard and Shen’s (2005) intertwined model and Lindsey’s (2005) unidimensional measure, Quick (2012) employed structural equation modeling (EQS 6.1) to identify the differences. Results for the reliability and validity of each measurement favored Dillard and Shen’s approach over Lindsey’s. The reliability for both measures was excellent (Lindsey: $\alpha = .93$; Dillard and Shen anger scale: $\alpha = .90$). Nevertheless, a major concern with Lindsey’s measure is its inability to reliably measure the distinct entities of (1) the freedom threat, (2) anger, and (3) negative cognitions, because her scale combines all facets of reactance into a unidimensional scale. Looking deeper into the validity results, Quick found that Dillard and Shen achieved a better fit of the data with respect to the hypothesized relationships between freedom-threatening language, a perceived freedom threat, and reactance outcomes, including attitudes, motivation, and source appraisal. However, regarding the methodological structure of Quick’s study, one could question the generalizability of the findings, as he surveyed only college students in his research sample.

As already mentioned, these measures have been used mainly in the context of persuasion and communication, where people are allowed to argue against the persuasive message. The question remains whether these specific methods can be used in all domains where a freedom threat is present. In other domains, namely, in social interaction and, for example, change management situations, we have used a different approach, the Salzburger State Reactance (SSR) Scale, multiple times. With our state scale we aimed to establish a universally applicable questionnaire that can capture a wide range of reactance effects. Therefore, we integrated people’s perception of threat, their emotional experience, as well as their negative attitudes and aggressive behavioral intentions.

The SSR Scale

Our aim with the current validation study was to validate a paper-based measure of state reactance. The “first” version of the now so-called SSR Scale, first used by Jonas et al. (2009), is based on Brehm’s (1966) original conception of reactance as a situation-specific state. State reactance is

¹ Questions used: (1) “Right now, I am – to (exercise = use sunscreen the next time I am exposed to direct sunlight for an extended period of time [greater than 15 min]),” (boomerang effects); (2) “Right now, I am – to be around others who (exercise = use sunscreen when they are exposed to direct sunlight for an extended period of time [greater than 15 min]),” (vicarious boomerang) and (3) “Right now, I am – to do something totally unhealthy.” (related boomerang effects).

assumed to vary in intensity, as it is dependent on the situation. Jonas et al. (2009) created items following Brehm's assumption that reactance is an emotional state that consists of subjective feelings such as anger, resentment, defensiveness, and irritability. Research had already shown (Dowd & Wallbrown, 1993) that people experiencing reactance are characterized as defensive, aggressive, or dominant and show nonaffiliative behavior after restrictions, and that reactant individuals are more inclined to express strong feelings and emotions (Dowd, Wallbrown, Sanders, & Yesenosky, 1994). Furthermore, the items developed by Jonas et al. (2009) as well as new appended items created to assess participants' behavioral intentions have been used in several studies examining reactance in the context of change situations (e.g., political reforms), vicarious threats, and culture (Niesta Kayser, Graupmann, Fryer, & Frey, 2015; Sittenthaler & Jonas, 2012; Sittenthaler, Jonas, & Traut-Mattausch, 2015; Sittenthaler, Steindl, & Jonas, 2015; Sittenthaler, Traut-Mattausch, & Jonas, 2015; Steindl & Jonas, 2012; Traut-Mattausch, Guter, Zanna, Jonas, & Frey, 2011; Traut-Mattausch, Jonas, Förg, Frey, & Heinemann, 2008; Traut-Mattausch, Jonas, Schwennen, & Peus, 2011).

The Current Research

Our goal was to investigate the reliability, stability, and convergent and discriminant validities of the SSR Scale. In addition, we investigated the factorial structure of the subscales and items. Data analyses were performed in several steps: First, after doing an exploratory factor analysis, we employed a confirmatory factor analysis to analyze the structure of the measures with regard to latent factors (Study 1). Second, we analyzed the internal consistencies of the SSR Scale (Study 2). Third, we determined the convergent and discriminant correlations to assess the measures' construct validity (Study 3).

Study 1: Factorial Structure

Method

To explore the factorial structure of the SSR Scale, two separate samples of undergraduates at the University of Salzburg completed an online questionnaire in return for extra course credit or sweets. Sample A consisted of 214 women and 113 men ($N = 327$) with a mean age of 23.17 years ($SD = 5.17$). Sample B consisted of 111 women and 99 men ($N = 210$) with a mean age of 24.80 years ($SD = 4.59$). The questionnaire started with general questions about sex, age, and field of study. Afterward, participants in Sample A had to put themselves into three different

reactance-arousing scenarios. To capture different restriction settings, one scenario involved restriction in a workplace environment (restriction originated in a company chief's behavior), a second scenario involved restriction in a student environment (restriction originated in a landlord's behavior), and a third scenario involved restriction in a leisure environment (restriction originated in a doorman's behavior in front of a discotheque). The three scenarios can be found in Table A1 in Appendix A. Participants in Sample B were presented only the student environment scenario. Then, participants were asked to fill out the questionnaire with 19 reactance items (see Appendix B).²

Results

Factor Analysis

Using Sample A, we performed several factor analyses of a one-factor (experience of reactance), two-factor (experience of reactance and aggressive behavioral intentions), and three-factor (experience of reactance and aggressive behavioral intentions and negative attitudes) model using the IBM SPSS 22 program. We conducted several analyses to test the impact of lower loading items on the psychometric properties of the scale. We compared the three solutions (one-factor vs. two-factor vs. three-factor). Following Hu and Bentler (1998, 1999) as well as Beauducel and Wittmann (2005), we used the comparative fit index (CFI), the root mean square error of approximation (RMSEA), the chi-squared test (χ^2), the Tucker-Lewis index (TLI), and the standardized root mean residual (SRMR) as main test values. Threshold values for goodness-of-fit indices are for GFI and Comparative Fit Index (CFI) $> .95$, for Incremental Fit Index (IFI) and TLI $> .90$ (Weiber & Mülhhaus, 2010), for RMSEA $< .08$ (Browne & Cudeck, 1993), and for SRMR $\leq .11$ (Hu & Bentler, 1998, 1999). The value of χ^2 should be as low as possible (Bentler & Bonett, 1980; Weiber & Mülhhaus, 2010). All items of the three subscales were significantly related to the three latent factors. The final best fitting model was the three-factor model that included 10 of the original 19 items (see Table 1, Appendix B, and Figure 1). The internal consistency (α) for experience of reactance was .88, for aggressive behavioral intentions .76, and for negative attitudes .81.

Confirmatory Factor Analysis (CFA)

To confirm our three-factor model, we performed a CFA of the three-factor model with Sample B using the IBM SPSS Amos 22 program. The fit indices of the model indicated that the correspondence between the three-factor model and the sample covariance matrix was satisfactory, $\chi^2(31, N = 210) = 79.311$; TLI = .930; CFI = .952; IFI = .953; RMSEA = .086, 90% CI [.063, .110]; SRMR = .062.

² We used the mean reactance score of all three scenarios for further analysis in Samples A, C, and D. All original English scales were translated into German by professional translators.

Table 1. Comparison of model fit indices

Model	χ^2	df	χ^2/df	$\Delta\chi^2$	Δdf	CFI	TLI	RMSEA [90% CI]	SRMR
One factor	288.559	34	8.487			.841	.790	.152 [.136, .168]	.236
Two factors	171.756	32	5.367	166.803**	2	.913	.877	.116 [.099, .133]	.065
Three factors	89.092	31	2.874	82.664**	1	.964	.947	.076 [.058, .094]	.049

Notes. $N = 327$. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean residual. ** $p < .001$.

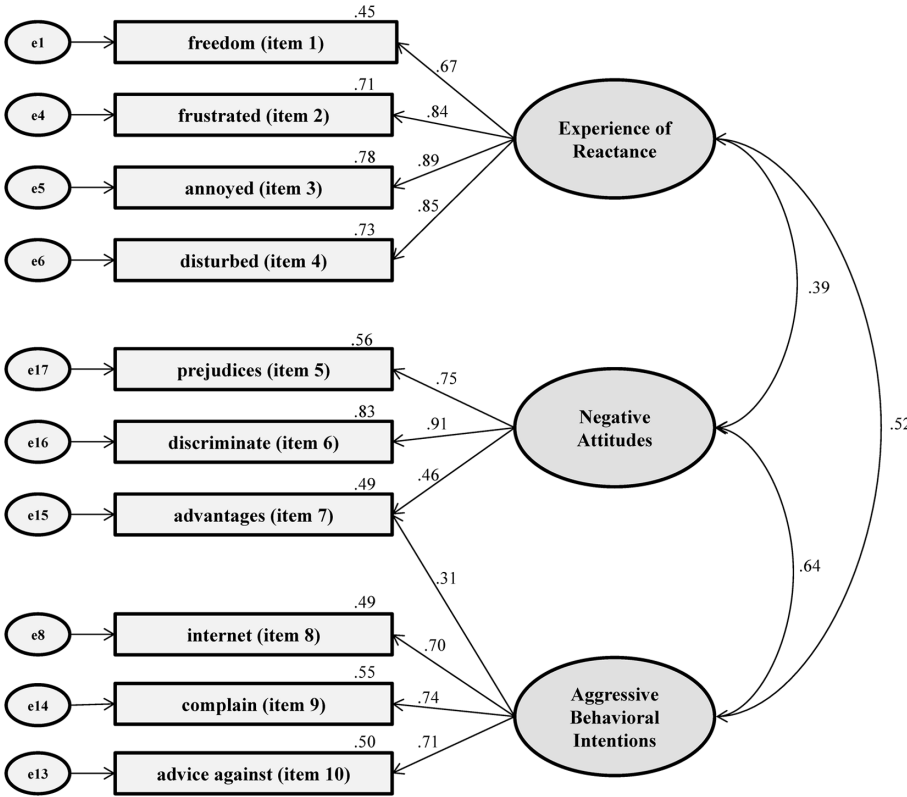


Figure 1. Factor loadings on the three subscales: experience of reactance, aggressive behavioral intentions, and negative attitudes.

All items of the three subscales were significantly related to the three latent factors. The internal consistency (α) for experience of reactance was .91, for aggressive behavioral intentions .70, and for negative attitudes .67.

same three reactance-arousing scenarios used in Study 1 at Day 1 and Day 21.

Study 2: Internal Consistencies

Method

The temporal stability of the scale was examined in an independent sample of 55 participants (Sample C) over a 3-week period (17 men, 38 women; mean age 39 years; age range 17–65 years). To assess test-retest reliability we measured our reactance subscales twice, at Day 1 (Time 1) and Day 21 (Time 2). Participants had to put themselves into the

Results

The internal consistency (α) for experience of reactance ($\alpha_{\text{Time 1}} = .93$; $\alpha_{\text{Time 2}} = .89$), aggressive behavioral intentions ($\alpha_{\text{Time 1}} = .83$; $\alpha_{\text{Time 2}} = .84$), and negative attitudes ($\alpha_{\text{Time 1}} = .83$; $\alpha_{\text{Time 2}} = .87$) over time was satisfactory. Pearson's correlations with two measures for the experience of reactance scale were $r = .829$ ($p < .001$), for aggressive behavioral intentions $r = .704$ ($p < .001$), and for negative attitudes $r = .641$ ($p < .001$).

Another index of stability is test-retest score agreement, that is, whether individuals generally receive the same scale scores over repeated assessment (Dawis, 2000).

A repeated-measures analysis found that Time 1 ($M_{\text{experience of reactance}} = 3.88$; $M_{\text{aggressive behavioral intentions}} = 2.61$; $M_{\text{negative attitudes}} = 2.89$) and Time 2 ($M_{\text{experience of reactance}} = 3.89$; $M_{\text{aggressive behavioral intentions}} = 2.56$; $M_{\text{negative attitudes}} = 2.85$) mean scale scores were not significantly different for any of the three subscales, $F(1, 44) < 1$, $p = .885$, $\eta_p^2 = .00$ (experience of reactance); $F(1, 44) < 1$, $p = .636$, $\eta_p^2 = .01$ (aggressive behavioral intentions); $F(1, 44) < 1$, $p = .655$, $\eta_p^2 = .01$ (negative attitudes).

Study 3: Correlations With Other Measures

In Study 3 our goal was to establish the convergent and divergent validities of the SSR Scale and to examine the relations between the subscales and a variety of other state and trait reactance measures and neighboring constructs. We expected high positive correlations with state reactance measures (Dillard & Shen, 2005; Lindsey, 2005; Quick & Stephenson, 2008) and weaker positive correlations with trait reactance measures (Donnell, Thomas, & Buboltz, 2001; Dowd et al., 1991; Herzberg, 2002; Hong & Faedda, 1996). Moreover, we expected moderate convergence with similar constructs such as experience of control (Fragebogen zu Kompetenz- und Kontrollüberzeugungen; [FKK; a German inventory for the assessment of self-concept, internality, powerful others externality, and chance control in locus of control beliefs] Krampen, 1991), autonomy (Basic Psychological Needs Scale; Gagné, 2003), helplessness (Learned Helplessness Snapshot; Learned Helplessness and the Glory of Failure Project, 2011), frustration (Frustration Discomfort Scale; Harrington, 2005), and procedural unfairness (Organizational Justice Scale; Colquitt, 2001; Maier, Streicher, Jonas, & Woschée, 2007).

Method

This study includes two samples (Samples A and D), comprising a total of 422 participants. Participants in Samples A (described in Study 1) and D were German and Austrian students who received extra course credit or sweets for participation. Sample D included 79 women and 16 men ($N = 95$) with a mean age of 23.97 years ($SD = 4.54$). Again, participants had to put themselves into the three different reactance-arousing scenarios described in Study 1. Afterward participants had to answer the SSR Scale as well as the following convergent and divergent measures.

State Reactance Measures

Dillard and Shen's (2005) measure of reactance contains a freedom threat measure (four items, e.g., "The message tried to pressure me"; $\alpha = .76$) as well as the four-item anger measure asking about participants' anger, irritation, aggravation, and annoyance ($\alpha = .93$). Moreover, we used Lindsey's (2005) measure of state reactance that contains

four items (e.g., "It irritates me that the landlord told me how to feel about..."; $\alpha = .86$). Finally, we used Quick and Stephenson's (2008) RRS, picking three of the six items concerning motivation (e.g., "Right now I am motivated to say that I am not a student"; $\alpha = .51$). For each scale, answers were given on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*very much*).

Trait Reactance Measures

We used the Therapeutic Reactance Scale (Dowd et al., 1991) subscales behavioral reactance (17 items, e.g., "If I receive a lukewarm dish at a restaurant, I make an attempt to let that be known"; $\alpha = .74$) and verbal reactance (11 items, e.g., "I find that I often have to question authority"; $\alpha = .61$) to measure trait reactance. Furthermore, we utilized the following subscales of the refined Hong Psychological Reactance Scale (Hong & Faedda, 1996): (a) emotional response toward restricted choice (four items, e.g., "I become frustrated when I am unable to make free and independent decisions"; $\alpha = .64$), (b) reactance to compliance (three items, e.g., "Regulations trigger a sense of resistance in me"; $\alpha = .74$), (c) resisting influence from others (three items, e.g., "I resist the attempts of others to influence me"; $\alpha = .51$), and (d) reactance toward advice and recommendations (four items, e.g., "I am content only when I am acting of my own free will"; $\alpha = .56$). We also used the Herzberg Scale (Herzberg, 2002) consisting of 18 items (e.g., "It inspires me to disagree with others"; $\alpha = .88$). Finally we used Donnell et al.'s (2001) trait reactance scale with 12 items (e.g., "It makes me angry when someone points out something that I already know"; $\alpha = .85$). Again, for each scale, answers were given on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*very much*).

Neighboring Constructs Measures

Using data from Sample D, the experience of reactance scale (four items, $\alpha = .86$) as well as the aggressive behavioral intentions scale (three items, $\alpha = .75$) and the negative attitudes scale (three items, $\alpha = .84$) were built following the results of the factor analysis and revealed good internal consistency.

To measure neighboring constructs of reactance we used several state and trait constructs. First, we used the concept of own abilities subscale of a questionnaire measuring experience of control (Krampen, 1991, eight items, e.g., "For solving problems, a lot of ideas always come to mind"; $\alpha = .79$). This scale assesses how people deal with new, difficult, or ambiguous situations. Second, we used the autonomy subscale of the Basic Psychological Needs Scale (Gagné, 2003, seven items, e.g., "I feel like I am free to decide for myself how to live my life"; $\alpha = .83$), which assesses people's need for autonomy, which, if satisfied, contributes to healthy development. Third, we measured trait helplessness by employing the Learned Helplessness Snapshot (Grundtvig Project/Long Life Learning Program, 2011). Based on the model of Learned Helplessness

(Abramson, Seligman, & Teasdale, 1978), the questionnaire assesses perceptions, causes, and consequences of learned helplessness and contains four subscales: (a) inability (eight items, e.g., “When something doesn’t happen as I planned, it’s always my fault”; $\alpha = .84$), which assesses feelings and perceptions about one’s inability to control events, (b) personal features (five items, e.g., “I believe my physical characteristics prevent me from achieving my life goals”; $\alpha = .78$), which assess whether learned helplessness is attributed to internal causes, (c) social features (six items, e.g., “I believe my age is a barrier to achieving my life goals”; $\alpha = .68$), which assess whether learned helplessness is attributed to external causes, and (d) change enabler conditions (eight items, e.g., “I feel that a change in my life is possible”; $\alpha = .77$), which assess people’s perceptions of being able to change their life directions based on previous failures. Fourth, to measure participants’ frustration intolerance, we employed the Frustration Discomfort Scale (Harrington, 2005), which consists of four subscales: (a) entitlement (seven items, e.g., “I can’t stand it if other people act against my wishes”; $\alpha = .70$), which assess intolerance of unfairness and frustrated gratification, (b) emotional intolerance (seven items, e.g., “I can’t bear disturbing feelings”; $\alpha = .81$), which assesses intolerance of emotional distress, (c) achievement (seven items, e.g., “I can’t tolerate any lapse in my self-discipline”; $\alpha = .80$), which assesses intolerance of frustrated goal achievement, and (d) discomfort intolerance (seven items, e.g., “I can’t stand doing things that involve a lot of hassle”; $\alpha = .85$), which assesses intolerance of difficulties and hassles.

Additionally, to measure how fair people consider the restricting situations to be, we employed the Organizational Justice Scale (Colquitt, 2001; Maier et al., 2007), which consists of three of the original four subscales: (a) procedural fairness (four items, e.g., “To what extent were you able to influence the result of the pro-

cedure?”; $\alpha = .80$), which assesses how fair people perceive the procedure of a decision to be; (b) informational fairness (four items, e.g., “To what extent did the person explain the procedure in detail?”; $\alpha = .61$), which assesses whether people are given enough, detailed, and justified information on the decision; and (c) interpersonal fairness (five items, e.g., “To what extent did the person treat you in a polite way?”; $\alpha = .68$), which assesses how people perceive the social interaction that leads to a decision.

Results

We first present our findings concerning the distinctiveness and overlap of the SSR Scale with other measures of psychological reactance. We then present correlations with the other relevant constructs mentioned above.

Correlations of the three subscales of the SSR Scale with other measures are shown in Tables 2 and 3. As predicted, the SSR Scale and its subscales correlated at a high level with other state reactance measures. The SSR Subscales showed modest positive correlations to a lesser degree with the trait measures.

Regarding the results for the neighboring constructs, the SSR Subscales showed little or no relation to these measures. The only exceptions are the fairness scales, which showed moderate correlations.

Discussion and Directions for Future Research

Brehm viewed reactance as a hypothetical variable, incapable of being measured (Brehm, 1966; Brehm & Brehm, 1981). More particularly, Brehm and Brehm (1981) wrote that “we cannot measure reactance directly, but hypothesizing its existence allows us to predict a variety of behavioral

Table 2. Correlations of the three subscales of the Salzburger State Reactance Scale with convergent state and trait reactance measures (Sample A)

Measure	Subscale		
	Experience of reactance	Aggressive behavioral intentions	Negative attitudes
Freedom threat (Dillard & Shen, 2005)	.32***	.39***	.35***
Anger (Dillard & Shen, 2005)	.46***	.46***	.38***
State reactance (Lindsey, 2005)	.75***	.41***	.35***
RRS (Quick & Stephenson, 2008)	.54***	.46***	.46***
TRS (Dowd et al., 1991)			
Behavioral reactance	.04(*)	.27***	.20***
Verbal reactance	.12**	.07(*)	.06(*)
HPRS (Hong & Faedda, 1996)			
Emotional response toward restricted choice	.35***	.24***	.26***
Reactance to compliance	.09(*)	.27***	.26***
Resisting influence from others	.18***	.23***	.25***
Reactance toward advice and recommendations	-.02(*)	.19***	.25***
Trait Reactance Scale I (Herzberg, 2002)	.18***	.29***	.30***
Trait Reactance Scale II (Donnell et al., 2001)	.15***	.27***	.26***

Notes. $N = 327$. HPRS = Hong Psychological Reactance Scale; RRS = Reactance Restoration Scale; TRS = Therapeutic Reactance Scale. (*) $p > .05$. ** $p < .05$. *** $p < .01$. **** $p \leq .001$.

Table 3. Correlations of the three subscales of the Salzburger State Reactance Scale with divergent neighboring constructs measures (Sample D)

Measure	Subscale		
	Experience of reactance	Aggressive behavioral intentions	Negative attitudes
Experience of control (Krampen, 1991)	-.19(*)	-.11(*)	.06(*)
Autonomy (Gagné, 2003)	.10(*)	-.01(*)	.05(*)
Learned helplessness (Grundtvig, 2011)			
Inability	.05(*)	.07(*)	.07(*)
Internal	-.08(*)	-.08(*)	-.16(*)
External	-.28**	-.01(*)	-.12(*)
Change	-.07(*)	-.09(*)	-.12(*)
Frustration (Harrington, 2005)			
Entitlement	.15(*)	.18(*)	.01(*)
Emotional intolerance	.16(*)	.12(*)	.09(*)
Achievement	-.05(*)	.01(*)	-.07(*)
Intolerance	.06(*)	.06(*)	-.07(*)
Fairness (Colquitt, 2001; Maier et al., 2007)			
Procedural fairness	-.30**	-.16(*)	-.32***
Interpersonal fairness	-.47***	-.43***	-.52***
Informational fairness	-.39***	-.15(*)	-.20(*)

Notes. $N = 95$. (*) $p < .05$. * $p < .05$. ** $p < .01$. *** $p < .001$.

effects” (p. 37). Nevertheless, several researchers have developed “reactance” measurements. Although several trait and fewer state measurements do exist, there are also several problems with those measurements (e.g., useful only in a therapy context or lack of reliability and validity).

Our goal was to take one step toward creating a valid and reliable measure of state reactance. We have shown the SSR Scale consists of three subscales, namely, experience of reactance, aggressive behavioral intentions, and negative attitudes. The subscales demonstrate excellent internal consistency based on Cronbach’s alpha and the interitem correlations. The outcome of Study 1 resulted in the validation of our SSR Scale by showing that the subscales highly correlated with other state reactance measures.

Specifically, the relationship between anger and reactance has been reported by several researchers in the past. Anger is thought to be an integral component of reactance (Dillard & Shen, 2005; Quick & Stephenson, 2007a, 2007b). Therefore, our finding of a positive correlation between experience of reactance (including an anger item) and Dillard and Shen’s (2005) reactance measure provides some validity for our SSR Scale. When we considered trait reactance measures, we found lower convergence between the new SSR Scale and existing trait scales. This may be due not to different constructs being assessed but rather to the new measure’s situation specificity. Neighboring constructs, as expected, showed little or no correlation with our new SSR Scale.

It should be noted that although we intended to treat reactance as a situation-specific state, the SSR Scale can also be interpreted as lending support to the conceptualization of reactance as a trait. For example, people who are highly reactant in general (indicating a trait) will be more likely to evaluate the reactance-arousing scenarios as restriction to their freedom and therefore would receive higher scores on the SSR Scale. However, a person who

is reactant only in certain situations (indicating a state) might also score high on the SSR Scale if the situation is covered by one of our different reactance-arousing scenarios. Thus, further work is necessary to develop a method to tease apart these two constructs, by conducting a latent state-trait analysis to determine the specific amount of state versus trait variance assessed by the scale.

Our results suggest a number of opportunities for further investigation. As this series of studies was not designed as an overall validation program, but only an investigation of different aspects of construct validity, other validation aspects should be considered in future research. Such studies could, for example, shed further light on discriminatory validity using a real reactance measure; for instance, participants could be required to undersign a campaign after receiving a restriction. Furthermore, our correlational results concerning reactance and the different kinds of fairness (neighboring construct) suggest an interesting approach for future studies in fairness and reactance research.

Conclusion

The intent of this series of studies was to take a first step in validating a new state reactance measure that could be used in several application areas. Interest in the underpinnings and enhancement of Brehm’s (1966) assumptions for measuring reactance has been burgeoning in recent years, mainly in the persuasion and communication context (e.g., Dillard & Shen, 2005). Our hope is that the present research nourishes this trend and the use of state reactance measures in different psychological fields (e.g., organizational, social, and clinical psychology). Fur-

ther research into this attribute may open up significant new avenues for reactance theory enhancement.

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Appendix A

Table A1. Reactance-arousing scenarios

Environment	Scenario
Student	Imagine you are going to begin your studies at the Ludwig Maximilian University of Munich this coming semester and are therefore seeking an apartment near the university. Through a newspaper ad you find a suitable studio apartment in the lovely neighborhood of Schwabing. You want to make an appointment to see the apartment by phone and call the landlord. When the landlord asks you about your job, you reply that you are beginning your studies in Munich next month. Before you can continue, the landlord interrupts to say: “No, you’re a student; you won’t get this apartment” and hangs up.
Workplace	Imagine you have been working at a marketing agency for 2 years. Since you began your job, there has been a coffee maker in your office; you enjoy using it and do so frequently. One day your boss comes into your office and says: “You have to give me the coffee maker; it’s costing the agency too much electricity!” Without giving you the chance to say anything, he takes the coffee maker and leaves your office with it.
Leisure	Imagine you and your friends really feel like going out again! You haven’t seen each other in a while and this evening you’re all going downtown. You have a flyer inviting you to the opening of a club in town: It’s got your kind of music, specials such as “2-for-1 drinks,” “no cover charge,” and “free pizza,” and guarantees a great time. You talked to your friends and you all agree: This is where you’ll go tonight! Looking forward to the evening, you make your way to the club where your friends are waiting for you on the dance floor. When you get there you can see the crowds. You get in line and wait 20 min before you reach the bouncer. He looks at you critically; then, after a moment, pushes you to the side and says: “No, not you,” as he waves others through the door.

Appendix B

Salzburger State Reactance Scale

The 19 Original Items of the Salzburger State Reactance Scale for the Student Scenario are listed below. Answers are given on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*very much*). The items have to be adapted to each reactance-arousing situation. The three-factor model produced the best fit based on the 10 items printed in bold. The words in parentheses at the end of each item are the short name for each item (see Figure 1).

- To what extent do you perceive the reaction of the landlord as a restriction of freedom? (freedom)**
- Are you frustrated about the reaction of the landlord? (frustrated)**
- How much does his reaction annoy you? (annoyed)**
- To what extent are you offended/disturbed by his reaction? (disturbed)**
- Do you think that this landlord could also have prejudices against foreigners? (prejudices)**
- Do you think that the landlord also shows discriminatory behavior in other areas? (discriminate)**
- How likely do you think it is that this man takes advantage of other people? (advantages)**
- Would you like to ruin his reputation by publishing a negative review on a relevant Internet site? (internet)**
- How strong is your wish to complain about his reaction to the professional association for tenants’ interests? (complain)**
- How much would you advise other students against this landlord? (advise against)**
- Do you feel sympathy with the landlord? (sympathetic)
- How illegitimate do you think the landlord’s reaction is? (illegitimate)
- How inadequate do you think his reaction is? (inadequate)
- How much do you feel being put under pressure by his reaction? (pressure)
- Would you ever consider renting an apartment from this landlord in the future? (rent)
- How attractive do you rate this apartment? (attractive)
- How much would you try to describe this man as incompetent to other students? (incompetent)
- How important would it be for you to react to his verbal attack? (react)
- Would you like to severely criticize the landlord in a daily newspaper? (criticize)