

**Lateral Attitude Change: In Search of Generalization and Displacement Effects
in Majority and Minority Influence**

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Abstract

Hypotheses derived from the lateral attitude change (LAC) model were tested in a study on majority and minority influence. The authors predicted that reading majority arguments would lead to explicit and implicit focal attitude change as well as LAC (i.e., generalization), whereas reading minority arguments would lead to explicit LAC, but not to explicit focal attitude change (i.e., displacement). In a 3 (source: majority vs. minority vs. control) x 2 (order of attitude assessments: explicit-implicit vs. implicit-explicit) design, students ($N = 180$) read arguments against an unconditional basic income (focal topic) that came from either a majority or a minority, or no arguments (control condition). Later, their explicit and implicit attitudes toward the focal topic and four lateral topics (e.g., inclusive schooling) were assessed. Individual differences in the need for uniqueness were assessed as a potential moderator of majority and minority influence. The results showed focal explicit and implicit attitude change in both the majority and minority conditions, but no evidence for LAC. Need for uniqueness did not moderate the effects of majority or minority arguments. Potential reasons for the lack of evidence for LAC and implications for future research are discussed.

Keywords: displacement; generalization; lateral attitude change; minority influence; need for uniqueness

**Lateral Attitude Change: In Search of Generalization and Displacement Effects
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Lateral attitude change (LAC) is said to occur when an attempt to change a person's attitude toward a focal attitude object shows effects on attitudes toward other, related attitude objects (lateral objects). Glaser et al. (2015) have proposed a general theory that conceptualizes LAC in terms of an interplay between associative and propositional processes (see Gawronski & Bodenhausen, 2006). Specifically, they distinguish two types of LAC, called generalization and displacement. *Generalization* comprises a pattern of explicit and implicit attitude change toward both focal and lateral objects, whereas *displacement* consists of explicit attitude change only toward the lateral objects in the absence of any explicit change toward the focal object (cf. Steele & Ostrom, 1974; for further discussion, see Linne et al., in press).

In the current paper, as in some of our previous studies on LAC (Bohner et al., 2020; Linne et al., in press), we address hypotheses derived from the LAC model regarding the conditions for generalization versus displacement effects. The present experiment was first conceived as part of a research proposal on LAC by Glaser and Bohner (2015, p. 11: Experiment 9). It represents a conceptual replication and extension of an experiment on majority and minority influence by Alvaro and Crano (1997, Study 2). These authors had shown that targets of an influence attempt by an ingroup minority often process the minority's arguments but refuse to be influenced by them (whereas the same arguments presented by an ingroup majority do cause focal attitude change). According to Alvaro and Crano, however, elaborating the minority arguments exerts pressure on the cognitive system, and therefore the targets of minority influence will change their attitudes on issues that are subtly but not obviously related to the focal issue. For example, when the minority argued for stricter gun control laws in the United States of America, recipients changed their attitude on the issue of allowing gay men into the US military. Alvaro and Crano's approach thus represents a template for studying displacement effects under conditions where participants may be socially motivated to reject an influence attempt – because it comes from a minority (Moscovici, 1980).

The LAC model states that propositional thinking may either affirm the automatic evaluation of a focal attitude object resulting from an influence attempt (the default), which will lead to generalization, or reject the automatic evaluation of the focal attitude object, which will lead to displacement (Glaser et al., 2015; p. 266: Postulates 1-3). In terms of Alvaro and Crano's (1997) approach, affirmation would thus be expected if the influence source is a majority, and displacement if the influence source is a minority.

Going beyond our own previous research, and following Alvaro and Crano (1997), we established the relatedness of focal and lateral objects in two ways: (1) by examining lateral objects' distance from the focal object in terms of their location in multidimensional semantic space, a relatedness that participants are often not consciously aware of, and (2) by examining participants' judgments of the likelihood that focal attitude change would cause lateral attitude change. This design would allow us to test the LAC model's assumptions about conscious awareness of an association between focal and lateral object moderating LAC effects (see Glaser & Bohner, 2015, pp. 10-11): We predicted displacement effects to be present in particular when the lateral object would be close to the focal object in multidimensional semantic space but subjective estimates of focal change going along with lateral change would nonetheless be low.

Because we assumed that indirect minority influence as observed by Alvaro and Crano (1997) indeed represents a displacement effect (see Glaser et al., 2015), we closely replicated core aspects of their original experiment: We used an ingroup minority or majority as the source of persuasion, and we set out to include lateral topics that were associated with the focal topic but not perceived by participants to be highly similar in terms of attitude change on one issue causing attitude change on the other (see Method section for details). To enable a comprehensive test of the LAC model's hypotheses, we extended Alvaro and Crano's design by adding implicit measures of both focal and lateral attitudes. As another extension of the original design, we examined an individual-difference variable known to moderate effects of majority and minority influence on attitudes. Specifically, we predicted stronger effects of majority influence for participants low in the need for uniqueness (NfU;

see Imhoff & Erb, 2009).

In sum, we hypothesized (H1) that a majority message would cause explicit attitude change on the focal topic, whereas a minority message would not cause explicit attitude change on the focal topic, (H2) that both a majority message and a minority message would cause implicit attitude change on the focal topic, and (H3) that both a majority message and a minority message would cause explicit and implicit attitude change on lateral topics. The interaction effect stated in H1 was further predicted (H4) to be larger for participants low in NfU. The minority message effects stated in H3 were further predicted (H5) to be larger for subtly (but not obviously) related lateral topics.

Method

Participants and Design

Participants ($N = 180$; 115 female, 64 male, 1 other; $M_{age} = 22.31$, $SD_{age} = 4.35$) were recruited on the campus of Bielefeld University. They were randomly assigned to one of the conditions of a 3 (source: minority vs. majority vs. control condition) \times 2 (order of attitude assessments: explicit-implicit vs. implicit-explicit) between-subjects design and received EUR 2.50 for their participation. The order of attitude assessment was counterbalanced to control for potential order effects, without any hypotheses attached to that factor.

Procedure

Participants were welcomed by an experimenter and seated in front of a desktop computer. Instructions stated that the study was part of a Germany-wide investigation of political opinion. To ensure a minimal knowledge base regarding the lateral topics, all participants first read short texts about these topics, which were introduced as potential topics of interest that might reappear in the course of the study.

Participants in the majority and minority conditions then learned that their task was to rate political topics as well as arguments made by previous participants from either Bielefeld University or Stuttgart University. Subsequently, participants were told that the specific arguments they would rate originated from either a "minority of 20%" or "a majority of 80%" of students at Bielefeld

University. By mentioning both ingroup and outgroup sources beforehand, we aimed to ensure that all participants would perceive the source as being part of their ingroup. Participants were also told that the minority (or majority) was arguing against an *unconditional basic income* (the focal topic). Then participants read five strong arguments against an unconditional basic income. Participants in the control condition only received a short informative text about the unconditional basic income that was similar to the short texts about the lateral topics. However, they read no arguments against the basic income and no information regarding either a minority or a majority.

Subsequently, implicit and explicit attitudes toward the focal and lateral topics were assessed; the order of assessment (explicit-implicit vs. implicit-explicit) was counterbalanced. In line with the cover story, participants were also asked to rate the persuasiveness of the arguments as part of the explicit attitude survey.

After the attitude assessments, participants indicated their gender and age, completed a manipulation check and a scale measuring NfU. Finally, participants were thanked, debriefed, and dismissed. In order to counter any lasting effects of the manipulation, participants also received a text containing arguments *in favor* of an unconditional basic income before leaving the lab.

Focal and Lateral Topics

The focal topic, *unconditional basic income* ("An unconditional basic income should be introduced in Germany"), had been evaluated somewhat positively ($M = 5.54$, $SD = 6.42$ on a scale from 1 = *do not agree at all* to 9 = *completely agree*) in a pilot test ($N = 140$; see Boege et al., 2020, Study 3a). This left sufficient leeway for attitude change, because the arguments to be presented would be *against* the unconditional basic income. Based on the same pilot test, four lateral topics had been selected that were evaluated as relatively neutral: *prolonged primary school* ("In Germany the transition to secondary school should happen only after 6th grade;" $M = 4.91$, $SD = 5.94$), *inclusive schooling* ("Children with mental disabilities should not be in special schools, but in schools together with non-disabled children;" $M = 5.08$, $SD = 6.32$), *online supermarkets* ("More supermarkets should offer online ordering and delivery of groceries;" $M = 5.52$, $SD = 5.52$), and

women quota ("There should be women quota at the senior management level of all companies;" $M = 4.99$, $SD = 7.44$). Following Alvaro and Crano (1997), relatedness of the lateral topics to the focal topic had been piloted using two criteria: a lateral object's Euclidian distance to the focal object based on multidimensional scaling (MDS) of four semantic-differential ratings, and participants' estimated likelihood that someone would change their attitude regarding one object given that they had changed their attitude toward the other object¹ (for details, see Boege et al., 2020, Studies 3a and 3b).

Unlike Alvaro and Crano (1997), our pilot test did not identify objects that showed high similarity regarding the more implicit MDS criterion but truly low similarity regarding the more explicit likelihood-estimate criterion. Instead, the topic *women quota* showed high similarity on both criteria, the topics *prolonged primary school* and *online supermarkets* showed moderate similarity on both criteria, and the topic *inclusive schooling* showed high similarity on the MDS criterion but moderate similarity on the likelihood estimates. Based on our pilot data, therefore, the inclusive schooling topic would be most likely to show a pattern of displacement under minority influence (see H3) as reported in Alvaro and Crano's research.

Arguments

In order to generate a strong message arguing against an unconditional basic income, twelve arguments were generated and separately pilot-tested. Specifically, pilot participants ($N = 25$) rated the persuasiveness of each argument on a scale from 1 = *not at all convincing* to 9 = *absolutely convincing*. The five arguments that received the highest ratings (all $M > 5.24$) were selected for the main study; an English translation of these arguments is shown in the Appendix.

Explicit Attitudes

Explicit attitudes were assessed by presenting one topic at a time (first the focal topic, then

¹ Alvaro and Crano had asked their participants if they would change their *own* attitude regarding one object given that they had changed their attitude toward the other object. We altered the wording of items to circumvent self-presentational concerns.

the four lateral topics in a randomized order) and asking participants to evaluate each topic on a horizontal slider scale with endpoints labeled "negative" and "positive," respectively; responses were coded from -100 = *most negative* to +100 = *most positive*.²

Implicit Attitudes

The affect misattribution procedure (AMP; Payne et al., 2005; Payne & Lundberg, 2014) was used to assess implicit attitudes. Words representing the focal and lateral topics were used as primes, each being shown several times shortly before a Chinese symbol that served as the target. The word-primes were abbreviations of the attitude topics (e.g., "inclusion" instead of "inclusive schooling") that had already been introduced in the materials at the beginning of the experiment. Participants were instructed to ignore the words and to focus on the Chinese symbols, quickly deciding in each trial whether the target appeared negative or positive to them by pressing the appropriate key ("E" for "negative" and "I" for "positive"). In each trial, a fixation cross was shown in the center of the screen for 250 ms, and this was followed by the prime for 300 ms; then followed a blank screen for 125 ms, which was replaced by the target for 100 ms. The inter-trial interval was 250 ms. After a short practice phase in which each of two unrelated positive and negative primes was displayed twice, the critical prime words were displayed eight times each, resulting in 40 critical trials. The proportion of "positive" responses for each prime served as an index of implicit attitude toward the respective topic.

Need for Uniqueness

A German version (Schumpe et al., 2016) of the NfU scale (Snyder & Fromkin, 1977) was used to assess individual differences in NfU. This scale contains 26 items (e.g., "If I disagree with a superior on his or her views, I usually do not keep it to myself"). Participants were asked to rate each item on a scale from 1 = *do not agree at all* to 5 = *completely agree*. After reverse-scoring where appropriate,

² In addition, participants were asked to indicate how certain they were concerning their attitude toward each topic on a similar slider scale; results concerning these variables will not be reported.

item scores were averaged into an NfU score (Cronbach's alpha = .79). Participants' NfU scores were independent of experimental conditions, as shown by an ANOVA, all $p > .33$. Thus, low vs. high levels of NfU could be used as an independent variable to examine possible influences of NfU on LAC. A median split ($Mdn = 3.15$) yielded a low-NfU group ($n = 91$) and a high-NfU group ($n = 89$).

Manipulation Check

Participants in the minority and majority conditions were asked to indicate who was the source of the arguments against an unconditional basic income (response options: *a majority of Bielefeld students / a majority of Stuttgart students / a minority of Bielefeld students / a minority of Stuttgart students / I don't know*).

Results

Manipulation Check

Of the 122 participants in the minority and majority conditions, 87 correctly remembered the minority vs. majority status of the source; 35 participants either did not remember the source at all ($n = 19$) or remembered its minority vs. majority status incorrectly ($n = 16$). Thus, correct recall was well above chance levels, $\chi^2(1, N = 122) = 22.16, p < .001$, independently of source condition (majority: 43 out of 61; minority: 44 out of 61). As the manipulation check was at the end of the experiment and a non-reportable influence of the source information on the DVs cannot be ruled out, analyses were performed on the whole sample. We note that this is a highly conservative test. Nevertheless, significant discrepancies in comparison to a reduced sample will be reported as well.

Focal Attitude Change

A 3x2 ANOVA on explicit focal attitudes with source and order as between-subjects factors revealed a significant main effect of source, $F(2, 174) = 5.89, p = .003, \eta^2 = .063$. Table 1 shows that, in line with H1, attitudes toward the basic income were more negative in the majority condition than in the control condition. However, contrary to H1, focal attitudes were also more negative in the minority condition than in the control condition, and the difference between majority and minority conditions was not significant for either the whole sample, $t(177) = 0.28, p = .782$, or the reduced

sample, $t(142) = 0.61$, $p = .546$. There were no effects involving the order in which attitudes were assessed, all $p > .26$.

A 3x2 ANOVA on implicit focal attitudes (AMP-scores) revealed significant main effects of the source, $F(2, 174) = 5.64$, $p = .004$, $\eta^2 = .061$ and of order of attitude assessments, $F(1, 174) = 4.40$, $p = .037$, $\eta^2 = .025$, as well as a marginal interaction effect of source and order, $F(2, 174) = 2.48$, $p = .086$, $\eta^2 = .028$. As shown in Table 2, implicit attitudes were more negative in the majority condition than in the control condition; they were also more negative in the minority condition than in the control condition, and the majority and minority conditions did not differ from each other (see Table 3 for significance tests). This suggests, in line with H2, that implicit focal change occurred independent of the source condition. Also, theoretically less interesting, in both the minority and the control conditions, but not in the majority condition, AMP-scores tended to be more positive when they were collected after rather than before the explicit evaluations (see Table 2).

Overall, then, the data pattern is only partly in line with hypotheses derived from the LAC model and does not replicate the results of Alvaro and Crano (1997). Instead, both majority and minority messages led to focal attitude change.

Lateral Attitude Change

Although the presence of a significant effect of the minority condition on focal explicit attitudes precluded the testing of displacement effects, we did examine the presence of generalization effects with 3x2 ANOVAs, first on the averaged explicit evaluations of all four lateral topics (overall $M = +10.09$, $SD = 30.06$), and on the averaged AMP scores across all four lateral topics (overall $M = 57.61$, $SD = 16.68$), for the whole and reduced samples, respectively. Contrary to H3, none of these ANOVAs yielded any significant effects, all $p > .19$.

Additional analyses showed that the four explicit lateral attitudes were not very highly intercorrelated (Cronbach's alpha = .16, pairwise correlations between $-.09$ and $+.32$), whereas the intercorrelations among the four implicit lateral attitudes were somewhat higher (Cronbach's alpha = .65, pairwise correlations between $+.20$ and $+.47$). This may indicate either that associative

connections among the four topics were higher than more consciously attributed similarities, or that the AMP scores shared more method-related variance.

We thus also ran 3x2 ANOVAs on explicit and implicit attitudes toward each individual topic. When the whole sample was included, none of these ANOVAs yielded any significant main or interaction effects, all $p > .13$. When only participants who correctly remembered the source were included, there were still no main effects of source, but some trends toward interaction effects involving the order of attitude assessment emerged. However, these varied in direction across the lateral topics and were uninterpretable.

Overall, then, attitude change was absent in the present experiment for any of the lateral topics. This data pattern is not in line with predictions derived from the LAC model (H3 and H5) and does not replicate the results of Alvaro and Crano (1997).

Need for Uniqueness

Adding NfU as a dichotomous factor (low vs. high) to the ANOVAs on explicit and implicit focal and lateral attitudes yielded a few interaction effects involving the order factor for which we have no meaningful interpretation. Apart from that, there was only a marginal main effect of NfU on the focal explicit attitude, $F(1, 168) = 3.69, p = .056, \eta^2 = .021$. Participants high in NfU evaluated the basic income more positively ($M = 11.12, SD = 50.15$) than did participants low in NfU ($M = -4.47, SD = 58.74$). Thus, the hypothesis regarding NfU (H4) was not supported.

Discussion

Extending an experimental paradigm introduced by Alvaro and Crano (1997), we were successful in creating conditions of focal attitude change, both explicit and implicit, under majority influence. However, other than in Alvaro and Crano's original study, focal attitude change, both explicit and implicit, also emerged in the minority influence condition. Thus, participants who read strong arguments against an unconditional basic income generally reported less positive attitudes toward this topic, and displayed more negative associations of this topic in the AMP, than did control participants who had not received any arguments.

The present study thus becomes part of a series of studies that failed to generate the necessary preconditions for testing displacement effects, both in our lab (Bohner et al., 2020; Linne et al., in press) and elsewhere (Brannon et al., 2019). In our own previous studies, we had attempted to produce rejection of a focal influence attempt more directly, for example by instructing participants to ignore the stimulus pairings of an evaluative conditioning procedure (Bohner et al., 2020) or by warning them that valenced information about the focal object was deliberately made up (Linne et al., in press). Despite such strong instructions, participants were still influenced by the discredited information, and effects on focal attitudes were reduced at best, but did not disappear. In the present study, we had hoped that telling participants that arguments came from a minority, a more subtle but also more socially meaningful manipulation, would trigger a motive to reject any focal influence. In the words of Alvaro and Crano (1997), despite processing the minority message, "receivers resist so as to avoid identification with the minority position" (p. 950). However, our data showed that this was not the case. Perhaps this may be explained by a cultural difference between the USA and Germany: Whereas Alvaro and Crano's participants may have valued their university membership as a highly important social identity, which may have motivated them to resist minority influence, this may not have been the case for our own Bielefeld University students. Future studies on minority influence and LAC may thus benefit from ascertaining the use of more meaningful social identities or from screening participants for high ingroup identification.

Despite the failure of the minority condition to produce focal rejection, the general pattern of focal attitude change in both majority and minority conditions as opposed to the control condition did allow us to examine generalization effects. Although generalization effects had been found in numerous previous studies testing the LAC model (e.g., Brannon et al., 2019; Cruz, 2019; Linne et al., in press), there was no evidence for generalization effects in the present study. None of the four lateral objects showed any indirect influence of participants' being exposed to either minority or majority arguments (and interaction patterns involving the order of attitude assessments were erratic). An explanation for this discrepancy in findings may lie in the relative proximity of lateral to

focal objects. In the present study, focal-lateral proximity in semantic space was high for some topics, but consciously perceived similarity was mostly moderate (except for the women quota topic). By contrast, previous studies had shown generalization effects mainly for lateral objects that were high in perceived proximity to the focal objects, such as products from the same brand (Linne et al., in press) or closely related issues (e.g., recycling and climate change, Cruz, 2019; or antibiotics and growth-promoting hormones, Brannon et al., 2019) but had failed to find generalization effects for more distantly related objects (e.g., gun control and climate change; Cruz, 2019; or gluten-free diet and growth-promoting hormones, Brannon et al., 2019). Thus, the similarities among topics in the present study may have been too subtle for LAC to emerge.

A potentially expedient alternative for examining displacement effects in LAC may be the inclusion of individual-difference variables that predispose a recipient toward rejecting social influence (see Brannon et al., 2019). In the present study, we had included individual differences in NfU based on the assumption that low-NfU recipients would be particularly likely to accept majority influence (and reject minority influence; Imhoff & Erb, 2009). However, we only found a theoretically uninteresting trend toward a main effect of NfU on focal attitudes that may tentatively be interpreted as reflecting a tendency of high NfU going along with a preference for novel or non-standard political solutions. To conclude, the demonstration of displacement effects in LAC remains an elusive endeavor (for further discussion, see Brannon et al., 2019; Linne et al., in press).

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Table 1

Explicit Focal Attitudes: Condition Means and Planned Comparisons of Minority and Majority

Conditions With Control Condition, Separately for the Whole and Reduced Samples

Sample	Source Condition				
	Majority		Minority		Control
	<i>M (SD)</i>	Maj vs. Control	<i>M (SD)</i>	Min vs. Control	<i>M (SD)</i>
Whole	- 8.62 (56.11)	$t(177) = 3.14^{**}$	- 5.70 (61.82)	$t(177) = 2.89^{**}$	+25.12 (56.26)
Reduced	- 10.47 (58.36)	$t(142) = 2.99^{**}$	- 2.77 (63.78)	$t(142) = 2.36^*$	

Note. Scores shown are on a scale from -100 to +100, with higher scores representing more positive attitudes. Maj = Majority, Min = Minority.

* $p < .05$, ** $p < .01$.

Table 2*Implicit Focal Attitudes (AMP Scores): Condition Means by Order of Explicit and Implicit Attitude**Assessment for the Whole and Reduced Samples*

Sample	Source Condition and Order of Explicit/Implicit Assessment					
	Majority		Minority		Control	
	Exp - Imp ^a	Imp - Exp ^a	Exp - Imp	Imp - Exp	Exp - Imp	Imp - Exp
Whole	53.60 (23.49)	50.16 (26.10)	49.77 (22.58)	63.50 (21.55)	60.19 (22.00)	71.44 (21.27)
Reduced	50.45 (25.79)	55.71 (24.55)	51.45 (19.44)	67.36 (19.46)		

Note. Scores shown are proportions of positive AMP responses. Standard deviations in parentheses.

^aExp - Imp = explicit assessment before implicit assessment; Imp - Exp = implicit assessment before explicit assessment.

Table 3

Implicit Focal Attitudes: Planned Comparisons Between Source Conditions for the Whole and the Reduced Sample

Sample	Planned Comparison		
	Majority vs. Control	Majority vs. Minority	Minority vs. Control
Whole	$t(177) = 3.17^{**}$	$t(177) = 1.11$	$t(177) = 2.08^*$
Reduced	$t(177) = 2.72^{**}$	$t(142) = 1.31$	$t(142) = 1.33$

Note. * $p < 0.05$, ** $p < 0.01$.

Appendix: Arguments Against an Unconditional Basic Income

Argument	Pilot Rating (<i>N</i> = 25)	
	M	SD
People strive for paid work, both for personal fulfillment and as a basis for their own, well-deserved income.	6.16	1.99
If children learn that they do not have to achieve anything in order to find their way in society, then they will make less effort to acquire a good education. Especially in these times, however, high qualifications of entry-level employees are becoming more important.	5.64	2.41
The money used for a basic income must be generated by those who have employed work. The basic income is income without performance, which is generated from the taxes paid by those citizens who work. It is unfair toward those people who work if others who do not want to work are supported at their cost.	5.64	2.33
An unconditional basic income would be so expensive that in order to pay for it other important government spending would have to be cut. (Although a basic income looks good at first glance, it would not be worth having, for instance, at the cost of reductions in health care.)	5.40	2.217
An unconditional basic income would be unfair also because it would not take into account how much money a person really needs. This way, tax money would be used also to pay a basic income for very rich people.	5.24	2.15

Note. Ratings were made on a scale from 1 = *not at all convincing* to 9 = *absolutely convincing*.