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The Impact of Laws on Norms Perceptions

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Abstract

When opinions in a society change toward more or less tolerance of a group people do not necessarily see it. Drawing on a quasi-representative survey (Study 1, $N = 830$) and a natural experiment (Study 2, $N = 437$), we investigated people's perceptions of the societal norms toward sexual minorities and the influence of laws on these (mis-)perceptions. Study 1 indicated pluralistic ignorance as participants overestimated the societal disapproval toward same-sex issues. Complementing this finding, Study 2 found that informing participants about a new law legalizing step-child adoption decreased perceived societal disapproval of same-sex parenting compared to participants not informed about the law. Pluralistic ignorance, however, was not affected by the new law. While results indicate that pluralistic ignorance may be more resilient to change, they also highlight that laws can have a dual impact on societies, changing not only the legal situation, but also shifting perceptions of societal norms.

Keywords: Social change; social norms; pluralistic ignorance; sexual minorities

The Impact of Laws on Norms Perceptions

Times change, laws evolve, and societies become more open toward some social groups but less toward others. In the last few decades, the legal situation of sexual minorities has changed dramatically. In many countries (e.g., the Netherlands, Taiwan, Uruguay, the United States), new laws legalizing same-sex marriage and same-sex adoption have been implemented (ILGA, 2019). In other countries, sexual minorities have faced an upsurge of legal discrimination. For instance, Russia legally banned “homosexual propaganda”, while Brunei planned to impose the death penalty for same-sex sexual activity (ILGA, 2019). These changes in law, have direct effects on sexual minorities’ lives and well-being by legalizing previously illegal behavior, such as same-sex marriage (e.g., Badgett, 2011; Hatzenbuehler et al., 2010; Ogolsky et al., 2019). What is less understood, is the effect that new laws have on sexual minorities due to their impact on the general acceptance of this group by wider society. We argue that informing society about new laws should also impact the lives of sexual minorities by signaling which opinions are typical in the society (i.e., societal norms; see Tankard & Paluck, 2016, 2017).

In the present research, we not only test the impact of new laws on perceptions of most people opinions in a society, but we move beyond prior research by also testing their ability to adjust pluralistic ignorance (i.e., defined as a misperception of most people’s opinions, Eveland & Glynn, 2008; Katz & Allport, 1931; e.g., thinking that society is intolerant to sexual minorities when the societal opinion is actually tolerant). In situations of rapid societal change toward greater acceptance or disapproval of a social group (see also normative window; Crandall & Warner, 2005) perceptions of most peoples’ opinions in a society, referred to as perceived societal norms (Cialdini et al., 1991), tend to lag behind actual changes in personal opinions (see O’Gorman, 1976; Zou et al., 2009). This lag often results in a situation of pluralistic ignorance in which people misperceive others’ opinions

(Katz & Allport, 1931). Research has suggested that this lag might be partly explained by the prominence of some incorrect indicators of the majority opinions (e.g., heterosexual marriage) that mistakenly signal stability in times of social change (Shamir & Shamir, 1997). In this situation, informing people about new laws can be particularly impactful by providing a visible signal to people that the societal norm has changed and, in turn, lead them to adjust their (mis-)perception of societal norms.

In this article, we investigate how new laws impact (mis-)perceptions of societal norms and pluralistic ignorance in Switzerland. Sexual minorities are increasingly accepted in Switzerland (see general trends in different Western countries reported in Baunach, 2011; Smith et al., 2014), but same-sex marriage and joint adoption by same-sex partners are still illegal. This potential discrepancy makes Switzerland an excellent test case for assessing overestimation of the level of intolerance toward sexual minorities and to investigate the impact of information about new laws on people's perceptions. To accomplish this, three steps are necessary. First, we need to establish whether people in Switzerland actually misperceive others' opinions (i.e., pluralistic ignorance about societal norms) and overestimate the level of intolerance toward sexual minorities. Second, we need to assess whether informing people about new laws does indeed impact their perceptions of the societal norms. Third, we need to investigate the impact of institutional changes on pluralistic ignorance (i.e., the gap between societal norms and personal opinions). To address these goals, we conducted two studies exploring societal norms toward same-sex parenting and same-sex marriage in Switzerland. Based on a quasi-representative field study, Study 1 investigates evidence of pluralistic ignorance concerning sexual minorities. Building on this, Study 2 investigates the influence of a new law legalizing step-child adoption on perceptions of societal norms and pluralistic ignorance using a naturally occurring experimental variation.

Together this allows us to bridge the literature on changing social norms and pluralistic ignorance, and give new insight into how laws impact normative perceptions.

Perceived Societal Norms and Societal Change

Individuals' attitudes and behaviors are inherently embedded in and influenced by social contexts, and social norms are a key component of this contextual influence (McDonald & Crandall, 2015; Pettigrew, 2018). Even more, *perceptions* of societal norms may affect attitudes and behavior over and above actual norms (Eicher et al., 2015). As a result of this, perceptions of societal norms can play a central role in the social change process as they are of increasing interest of public policy experts who aim to influence perceptions in order to change opinions and behaviors (Reynolds et al., 2015; Paluck & Ball, 2010).

Although perceived societal norms are important determinants of behavior (Paluck & Ball, 2010), people often have perceptions of societal norms that are outdated, exaggerated or simply wrong (Prentice & Miller, 1993). In some cases, this (mis-)perception of the societal norm can diverge quite strongly from the actual opinions of people within this society (e.g., when the societal norm toward sexual minorities is seen as intolerant, while most people in the society hold rather positive opinions), to the extent that the phenomenon of pluralistic ignorance (Katz & Allport, 1931) arises. According to the social representation approach (Moscovici, 1988), some societal norms are so widely shared among all members of a respective society (i.e., hegemonic representations) that perceptions of these norms become highly stable. They are 'fossils' anchored within the social structure (Moscovici, 2000) and are often reified through institutions. People may not necessarily be aware when societal opinions change, and, hence, misperceive others' opinions.

Pluralistic ignorance is consequently often conceptualized as a *misperception* of others' opinions (see for instance Eveland & Glynn, 2008) and can have important implications for individuals. To illustrate, if members of society hold rather positive opinions

toward sexual minorities but perceive the societal norms as intolerant, individuals with positive opinions and sexual minorities themselves may feel (unnecessarily) isolated from their society (e.g., Cialdini & Goldstein, 2004; Prentice & Miller, 1993). They may, in turn, be less willing to express their opinions, therefore perpetuating the unsupported societal norm. In the present research, we suggest that institutional decisions, particularly learning about new laws, might help to correct these (mis-)perceptions. In this situation, institutional decisions and, in particular, laws that reflect these changes might serve as a strong signal to help people change their (mis-)perception of the societal norm (e.g., Cox et al., 2014; Prentice & Miller, 1993), and therefore not only change perceived societal norms, but also reduce pluralistic ignorance.

Institutional Decisions, Laws, and Societal Change

Institutional decisions (e.g., new laws) come from institutions that govern or organize a group and their social interactions, such as governments (Getzels & Guba, 1957; Tankard & Paluck, 2016). Governments are one of the few large-scale representatives of a society and new laws enacted by a government might, therefore, inform perceptions of what is acceptable in a society (Hogg, 2010; Tankard & Paluck, 2016). A large number of studies has investigated the impact of institutional decisions on opinions and behaviors. Studies have shown that institutional decisions (e.g., new laws or Supreme Court decisions) influence individuals' opinions or behaviors depending on their political knowledge or personal experience with the institutional decision (e.g. Bartels & Mutz, 2009; Beaman et al., 2012; Bishin et al., 2016; Castro, 2012; Murphy & Tanenhaus, 1968). For instance, research has shown that legal, policy, and institutional innovations in the context of sustainability and environmental protection have the potential to promote social change to the extent that the general public is informed about these innovations (i.e., see Castro, 2012).

We suggest that institutional decisions, and new laws in particular, can impact perceptions of societal norms. Recent research by Tankard and Paluck (2017) has presented strong evidence supporting the idea that institutional decisions (i.e., by the U.S. Supreme Court) play an important role in changing societal norms. Applying an experimental design, their first study demonstrated that participants' perceptions of the likelihood that the Supreme Court would rule in favor of same-sex marriage affected perceptions of the societal norm toward this issue: Participants reported a less negative perception of the societal norm in the positive ruling condition than in the negative one. In addition, in a five-wave times series (Study 2), they showed that the Supreme Court's decision to legalize same-sex marriage in 2015 led individuals to have a more positive perception of the societal norm in the U.S. than before. These findings suggest that institutional decisions, such as new laws, have a direct impact on people's perception of the societal norm.

Although these findings suggest that institutional decisions might shift perceptions of societal norms, the causal link between the implementation of a new law and its effect on (mis-)perceptions of societal norms has not yet been tested experimentally. Most importantly, Tankard and Paluck (2017) followed a group of participants who were most likely all aware of the outcome of the supreme court ruling on same-sex marriage due to the large media coverage. However, not all the legal changes draw that much media attention and some people might not be aware of them. As such, it is still unclear how knowledge about a law which is less discussed might impact norm perceptions. We move beyond Tankard and Paluck's (2017) research in at least two key ways. First, we investigate the relative impact of being newly informed about the legal changes versus (already having knowledge of the law and) being reminded of the law/making it salient in situ. This is important to test because there is reason to believe that there will be strong variation in (a) how politically well informed members of a society are (i.e., some individuals may have little political knowledge

or interest and are likely to be unaware of new legal changes that do not affect themselves) and (b) how well publicized the introduction of a new law is. Second, we test how legal changes might affect pluralistic ignorance (i.e., gap between perceived societal norms and personal opinions. This is important because knowing solely about how changes in laws impact perceptions does not tell us about their impact on accuracy of these perceptions. Hence, in the present research, we were not only interested in the ability of laws to change perceived norms, but also in understanding whether legal changes serve to update norms that were *misperceived* in the first place.

The Present Research

This research aimed to investigate people's (mis-)perception of the societal norms toward sexual minorities and the impact of new laws on these perceptions, including its potential to reduce pluralistic ignorance (i.e., the gap between perceived most people opinion in society and the actual opinion of most people in society). Yet, addressing these two goals requires a specific research design. Identifying pluralistic ignorance in perceptions of others' opinions in the population entails that the sample is representative of this population. Likewise, understanding the causal effect of an actual new law is difficult without the ability to randomize exposure to the new law. The present research capitalized on the Swiss political context to address these requirements.

First, Switzerland offers a perfect context for studying perceptions of others' opinions, as increasingly positive attitudes toward sexual minorities have been documented in the last decades (see general trends in different Western countries reported in Baunach, 2011; Smith et al., 2014). While more than one third (37.1%) of Swiss people considered homosexuality as 'never justifiable' in 1989, only 10.5% held this opinion in 2007 (World Value Survey, 2009). However, it has not yet been explored whether these positive shifts in attitudes are reflected in perceptions of societal norms toward sexual minority issues. To address this, Study 1,

conducted at the end of 2016, focused on the relationship between personal opinions and perceived societal norms toward same-sex issues.

Second, the contested legal rights for sexual minorities and the Swiss political context make Switzerland an ideal context to study the impact of law on norm perception. Sexual minorities in Switzerland still face many institutional inequalities (e.g., denied same-sex marriage and joint adoptions). Right before we collected data for Study 2, a new law legalizing stepchild adoption was implemented (Swiss info, 2017). Study 2 uses this natural experiment setting to investigate whether this new law affects people's perceptions of societal norms. In combination, these studies further our understanding of the extent that laws inform perceptions of societal norms/ public opinions in a normative window of change.

In Study 1, we present a quasi-representative field study of Swiss residents in order to assess the degree to which Swiss people misperceive people's opinion using a representative dataset. We complement this with Study 2, which combined a natural experiment that tests the impact of informing people about a new law on step-child adoption and their prior knowledge of this law to provide new insight into how a law affects people's perceptions of societal norms and pluralistic ignorance. Please note that Study 1 relies on a dataset that has been used to explore how pluralistic ignorance toward same-sex female parenting and working mothers changes across groups varying in their size and distance to the individual (Eisner et al., 2019). The goal of the current study is instead to examine pluralistic ignorance at the societal level toward same-sex female parenting, same-sex male parenting, and same-sex marriage. These analyses set the stage for Study 2, which tests how the new adoption law affects perceptions of societal norms (and pluralistic ignorance) about these three facets of same-sex issues. Importantly, Study 2 both builds on and moves beyond prior research (Tankard & Paluck, 2017) by testing the both role of 1) being informed vs. uninformed about a new law and 2)

having prior knowledge vs. no prior knowledge about this law on both norms and pluralistic ignorance.

Study 1: Field Study

In Study 1 we explore differences between personal opinions and societal norms in the canton of Vaud in Switzerland. Vaud is one of the largest of the 26 cantons of Switzerland, covering 8% of Swiss territory, and is the third most populous (BIC, 2016). We gathered quasi-representative data of the population of the canton of Vaud to investigate pluralistic ignorance about same-sex parenting and same-sex marriage. We sought to address the question: Do members of society overestimate the level of disapproval toward sexual minorities? We hypothesized the following: *Participants perceive most residents in the canton of Vaud to be more disapproving than they actually are (Hypothesis 1).*

Method

Participants and Design. We collected a quasi-representative sample in October 2016 in the canton of Vaud, Switzerland, as part of a larger project including additional measures. Some data from this project (i.e., one variable from a total of six reported variables; i.e., personal opinions toward same-sex female parenting) was previously reported in Eisner and al. (2019), however, the present study departs from this study by focusing on a set of predominantly unique dependent variables¹. The sample was randomly selected based on a geographical criterion. First, 30 municipalities² (ten urban, ten rural, and ten peri-urban) in the canton of Vaud were randomly selected. Next, residents of these municipalities were contacted using the random route method (Brace & Adams, 2006) and the drop-off technique for delivering questionnaires. Finally, we distributed 80 paper-based questionnaires in each

¹ Specifically, Eisner et al., (2019) measured (a) perceptions of norms relative to a different group of reference (most friends and family/most neighbors/most people while we focus on most people in the canton of Vaud), and (b) 2 out of 3 personal opinions item were different – this manuscript tests two new measures in this analysis of marriage and male parenting (and one variable featured in both manuscripts - personal opinion toward same-sex female parenting).

² The low intraclass correlation (< .02) indicated that multilevel modelling was not necessary.

municipality. In addition, to increase the sample size, we also distributed 40 letters including a link to a web survey in each municipality ($N = 3,600$ in total).

Out of the 3,600 contacted persons, 1,105 (30.7%) participated in the survey: 892 participants sent back the completed paper-based questionnaire and 213 completed the web version of the questionnaire. Due to missing answers on the questions about perceptions of residents of the canton of Vaud opinions, 275 participants were excluded, leading to a final sample of 830 participants. This provided over 99% power for detecting a small effect size (Cohen's $d = 0.20$) for paired t -tests. The collected data was quasi-representative of the distribution of the population characteristics in the canton of Vaud in 2016 (Statistique Vaud, 2016). However, there were minor variations: Our sample was slightly older ($M_{age} = 51.97$ vs. mean age in the canton = 47.7), included more women (56.7% of women in the sample vs. 51.5% in the population), and was more educated (26.6% of respondents with a university degree vs. 21.4% in the population).

Measures. *Personal opinions* toward same-sex parenting and marriage were assessed with three items, using a 5-point Likert type scale (1 = *I strongly approve*, 3 = *I neither disapprove nor approve*, 5 = *I strongly disapprove*): “To which extent do you approve or disapprove of a... i) same-sex male couple bringing up a child? ii) same-sex female couple bringing up a child? iii) same-sex couple getting married?”

Perceived societal norm toward same-sex issues in the canton of Vaud was assessed with three validated and pre-tested items from the European Social Survey (2006; Eicher et al., 2015): “How do you think most residents in the canton of Vaud would react if a... i) same-sex male couple raises a child? ii) same-sex female couple raises a child? iii) same-sex couple gets married?” Responses were given using a 5-point Likert type scale (1 = *They would openly approve*, 2 = *They would secretly approve*, 3 = *They would not mind either way*, 4 = *They would secretly disapprove*, 5 = *They would openly disapprove*).

To avoid order effects, the order of personal opinions and perceived societal norms items was randomized (i.e., one version of the questionnaire presented the personal opinions items first, the other started with the perceived societal norms items). Correlations between each of the measures are provided in Table S1.

Results

Pluralistic ignorance toward same-sex parenting and marriage. To test for pluralistic ignorance (H1), we conducted paired *t*-tests to compare perceived societal norms with personal opinions (for similar analytical approach see Shelton & Richeson, 2005). All of the results displayed in this section are based on the weighted dataset³ (by age groups and gender using the “Survey” package in R, Lumley, 2018) to correct for the overrepresentation⁴ of women and older people (see Table 1).

Table 1

Means (SDs) for personal opinions and perceptions of societal norms toward same-sex issues where five indicates highest (perceived) disapproval (Study 1)

	Personal opinions		Perceived societal norm	
	Weighted	Unweighted	Weighted	Unweighted
Same-sex male parenting	3.11 (1.52)	3.18 (1.46)	4.23 (0.85)	4.23 (0.78)
Same-sex female parenting	2.94 (1.49)	2.99 (1.41)	3.99 (0.91)	3.99 (0.82)
Same-sex marriage	2.60 (1.49)	2.68 (1.45)	3.72 (1.03)	3.72 (0.94)

Note. The weighted and unweighted data are very similar due to the fact that the sample distribution in terms of age and gender was really close to the population distribution. In addition, for perceived societal norms there was little variation in answers leading to identical means between the weighted and unweighted data.

Table 1 shows that participants had the greatest disapproval (in personal opinions) toward same-sex male parenting followed by same-sex female parenting, and same-sex

³ Notably, analyses using the unweighted dataset do not differ (see supplementary material).

⁴ We did not weight the data by level of education but added it as a control variable in the models. Level of education impacted neither perceptions of societal norm nor personal opinions.

marriage; all the differences between the three same-sex issues were significant at $p < .001$). Perceived societal norms also followed the same pattern, with perceived intolerance of same-sex male parenting being most negative and same-sex marriage being most positive (all differences between the three same-sex issues were significant at $p < .001$).

According to Hypothesis 1, participants should overestimate the level of disapproval toward same sex marriage and parenting in the canton of Vaud. In order to control for differences in labels between perceived societal norm (1 *openly approve* to 5 *openly disapprove*) and personal opinions (1 *totally approve* to 5 *totally disapprove*), we collapsed the first and second response categories (approval) as well as the fourth and fifth response categories (disapproval). This allowed us to standardize the response categories. Consistent with predictions, paired t -test⁵ revealed evidence of a mismatch between perceived societal norms and personal opinions. Specifically, participants significantly overestimated the level of disapproval toward same-sex male parenting⁶ ($t(828) = 21.86, p < .001, \eta_p^2 = .37$), same-sex female parenting ($t(828) = 21.25, p < .001, \eta_p^2 = .35$), and same-sex marriage ($t(828) = 21.62, p < .001, \eta_p^2 = .36$). In line with Hypothesis 1, people in Vaud overestimated the level of disapproval toward same-sex (male and female) parenting and same-sex marriage –indicating pluralistic ignorance.

It is interesting to note that although the majority of participants (i.e., more than 50%) think that the norm is disapproving of sexual minorities, the majority of participants did not disapprove (see Table S2, supplementary material). Hence, this ‘misperception’ of the norm is extreme enough to comply even with early definitions of pluralistic ignorance (i.e., individuals

⁵ Analyses using the untransformed data (i.e., five-point scales) led to similar findings (see supplementary material).

⁶ Partial eta squared may be biased (i.e., overestimation of the effect size) for power analyses in within-subject designs (compared to between-subject designs; see Lakens, 2013). Hence, if you use the partial eta squared as a basis to conduct a power analysis to replicate our effects using a between subject design, please consider this bias to avoid having an underpowered sample.

perceive their opinion to be shared by a minority while it is actually shared by the majority of people, or vice versa see; Katz & Allport, 1931; Merton, 1968).

Discussion

Study 1 examined differences between personal opinions and perceived societal norms toward same-sex issues in the canton of Vaud in Switzerland. In line with Hypothesis 1, we found evidence of pluralistic ignorance regarding societal norms toward same-sex issues in the canton of Vaud. Is it worth noting that the perceived societal norms toward these same-sex issues appear to be widely shared across participants and different groups (see supplementary material for additional analyses across age groups) reflecting a hegemonic representation (Moscovici, 1988).

Study 2: Natural Experiment

Study 1 indicated that people tend to overestimate societal intolerance toward same-sex issues in Switzerland. This supports our claim that Switzerland is a particularly relevant context to study the impact of new laws on perceptions of societal norms. Indeed, misperceptions of others' opinions might not only lead to the perpetuation of unsupported norms (e.g., Noelle-Neumann, 1974; Prentice & Miller, 1993), but also negatively impact sexual minorities' and their allies' well-being (Hatzenbuehler, 2009; Oswald et al., 2018). It is therefore important to understand if introducing new laws and informing people about them might serve as cue to correct these (mis-)perceptions, which arise in a time of social change.

The principal goal of Study 2 was to demonstrate if a new law promoting the rights of same-sex couples influences perceptions of the societal norm toward same-sex parenting. In addition, Study 2 aimed to explore the impact of a new law on opinions and pluralistic ignorance (i.e., difference between perceptions of societal norm and personal opinions). Study 2 was conducted shortly after the implementation of the new law legalizing step-child adoption (January 2018; Swiss info, 2017). This law was implemented by parliament (i.e.,

without popular voting), and there was little media coverage and societal awareness. We took advantage of this unique context by experimentally manipulating information about the law: Participants were either informed about the new law before assessing their opinions and perceptions, or after this assessment. Additionally, we measured whether participants already had prior knowledge about this law.

Our first hypothesis was that *people who newly learned about the law (i.e., participants who were informed about the new law in the study and did not have prior knowledge about it) would report a less negative perception of Swiss people's opinions toward same-sex parenting than people who had never heard about it (H1)*. Since we do not know whether institutional decisions have a durable impact on normative perceptions, we had no definitive expectations as to whether people with prior knowledge about the law should differ from others. However, given that institutional decisions have been shown to impact perceived societal norms (Tankard & Paluck, 2017), our second hypothesis predicted that *among the people who were not informed about the law, those with prior knowledge about the new law have a less negative perception of Swiss people's opinions toward same-sex parenting than people with no prior knowledge (i.e., their norm perception has already been updated; H2)*. As the new law was specifically about step-child adoption, we had no definitive expectation about the influence of the law on perceptions of the societal norm on same-sex marriage.

Method

Sample. Based on a priori power analysis for a 2x2 ANOVA (assuming a relatively small effect size, $f = .15$, $\alpha = .05$ and power of 80%) we aimed for a sample of at least 400 participants. A total of 456 students were recruited in February 2018 at the University of Lausanne (the capital of the canton of Vaud) and participated voluntarily. Importantly, most students at the University of Lausanne are from the canton of Vaud. This allows us to maintain

our chief focus on the same target population as in Study 1 (i.e., people living in the canton of Vaud), however, this study entails a (non-representative) student population, which is younger and likely more tolerant. Notably, however, although younger participants in Study 1 were generally more tolerant toward same-sex issues than older participants, perceptions of societal norms in Study 1 were not affected by participants' age (see supplementary material).

The sample for Study 2 was collected among students present at the main university buildings (e.g., cafeteria and main libraries). Due to social desirability concerns, students were given the questionnaire with a blank envelope and were told that the investigator would return approximately 30 minutes later to gather the closed anonymous envelopes. Nineteen participants were excluded a priori due to missing answers on relevant items (i.e., measures of perceived societal norm), leaving a final sample of 437 participants (209 men, 227 women, 1 other; $M_{\text{age}} = 22.10$, $SD_{\text{age}} = 2.65$).

Design. We conducted a 2 (Informed about law: yes vs. no) x 2 (prior knowledge about the law: yes vs. no) between-subjects quasi-experiment. Participants were randomly allocated to the first, experimentally manipulated condition, either informing them about the new adoption law ($n = 228$) or not ($n = 209$). These experimental conditions were then crossed with a naturally occurring variation of whether participant reported prior knowledge about the law ($n = 236$) or not ($n = 201$).

Procedure. Participants were randomly allocated into one of the two 'informed about law' conditions: (1) informed and (2) uninformed. In the informed about the law condition, participants were presented with the following information about the implementation of the new law before the assessment of the questionnaire items: "Since January 2018, a new law on adoption has been implemented in Switzerland. Before, same-sex couples were not allowed to adopt children, now they can adopt the child of their partner".

In the uninformed condition, participants were presented with this paragraph at the end of the questionnaire after assessment of all other items. This allowed us to assess participants prior level of knowledge about the new law in both conditions. We assessed prior knowledge right after the information about the law: "Have you ever heard of this law? 1) No; 2) Yes, but I am not familiar with it; 3) Yes, I am familiar with it". As few participants reported being familiar with the law in the two conditions ($n < 20$ in both versions), these participants were pooled with the group who had heard of but were not familiar with it, resulting in one group of participants who had heard about the law. Thus, analyses were made on the dichotomized level of prior knowledge: no (*never heard*) vs. yes (*yes, familiar* or *yes, unfamiliar*).

Before running our actual analyses, we tested for differences between the conditions. The composition of the sample did not differ significantly across the two experimental conditions (informed about the law condition: 50.2% of women, $M_{\text{age}} = 22.31$; uninformed condition: 45.6% of women, $M_{\text{age}} = 21.87$). However, prior level of knowledge varied between the two experimental conditions. More participants reported that they knew about the law in the informed about the law condition ($n = 151$) than in the uninformed about the law condition ($n = 89$), $\chi^2(1) = 21.93, p < .001$.

Measures. All items were assessed on a 5-point Likert type scale (1 = *openly approve*, 5 = *openly disapprove*) unless otherwise stated. These items were part of a larger questionnaire, but the remaining items were not relevant to the focus of this research. Correlations between each of the measures are provided in Table S3.

Personal opinion was assessed with three items: "How would you react if a... i) same-sex male couple raises a child? ii) same-sex female couple raises a child? iii) same-sex couple gets married?"

Perceived societal norm in Switzerland was assessed with three items: “How do you think most people in Switzerland would react if a... i) same-sex male couple raises a child? ii) same-sex female couple raises a child? iii) same-sex couple gets married?”

Results

Pluralistic ignorance toward same-sex parenting and marriage.

We first compared perceived societal norms with personal opinions across all conditions, following Study 1’s analytical approach. As in Study 1, participants showed the greatest disapproval toward same-sex male parenting ($M = 2.29$) followed by same-sex female parenting ($M = 2.21$), and same-sex marriage ($M = 1.91$; all the differences between the three same-sex issues were significant at $p < .01$ using paired- t tests). In line with results from Study 1, paired t -tests⁷ (using the standardized 3-point scales) revealed that participants perceived most people in Switzerland to be significantly less tolerant than themselves toward same-sex male parenting ($t(436) = 26.22, p < .001, \eta_p^2 = .61$), same-sex female parenting ($t(436) = 24.64, p < .001, \eta_p^2 = .58$), and same-sex marriage ($t(436) = 17.65, p < .001, \eta_p^2 = .42$). Although these findings are not representative of the general population, and thus do not directly reflect pluralistic ignorance (i.e., within the population as a whole), they do show that individuals in this sample have tendencies toward perceiving a widely intolerant norm.

Influence of the law on perceived norms. To investigate the influence of the information about the law on perceptions of the societal norms toward same-sex parenting and same-sex marriage, we conducted a two-way ANOVA among information about the law condition (yes vs. no) and prior knowledge about the law (yes vs. no). Consistent with Study 1, preliminary analyses revealed that the scores for same-sex male parenting and female parenting

⁷ Analyses using the untransformed data (i.e., five-point scales) led to similar findings (see supplementary material).

were strongly correlated (see Table S3) and that the results are very similar for both categories. Thus, we combined these items (see supplementary material for additional analyses).

Next, we turned to assess our hypotheses of the effect of the new law (H1) and prior knowledge (H2) on the perception of Swiss people's opinions toward same-sex parenting. In line with our hypotheses, we found a significant interaction between information about the law and prior knowledge about the law, $F(1, 433) = 12.07, p < .001, \eta_p^2 = .03$. Although our experimental design was a 2 x 2 design, the main focus of our hypotheses lays on the comparison of the 'uninformed/no prior knowledge' condition with the other conditions. As such, and in order to more accurately test the expected effects, we ran a post-hoc contrast analysis, weighting the 'uninformed/no prior knowledge' condition as -3/4 and the remaining three conditions cases as 1/4 each. In this case, we also found a significant interaction, $F(1, 433) = 9.25, p = .002, \eta_p^2 = .02$. We then followed this up with planned contrasts addressing each of our specific hypotheses.

In line with Hypothesis 1, participants without prior knowledge about the law perceived less societal disapproval toward same-sex parenting when they were informed about the new law ($M = 3.66$) than when they were not informed ($M = 4.09$), $t(433) = 3.72, p < .001, \eta_p^2 = .03$. This supports Hypothesis 1 that being newly informed about a recent change in law is an important cue that individuals use to update their perceptions of social norms.

In line with Hypothesis 2, participants who had no prior knowledge about the law and were not informed about it ($M = 4.09$) perceived slightly more societal disapproval than participants who had prior knowledge about the law and were not informed about it ($M = 3.85$), $t(433) = 2.14, p = .033, \eta_p^2 = .01$. This supports the expectation of Hypothesis 2 that knowing about a new law at all (not only its situational salience) is associated with a more positive perceptions of societal norms toward same-sex parenting.

In order to complete the comparisons, we also tested the conditions no prior knowledge and uninformed vs. prior knowledge and informed. Although we did not report an a priori hypothesis regarding this comparison, a post hoc expectation derived from theory would be that people with prior knowledge and who were informed about it perceive a more tolerant societal norm. Results, however, indicate that participants who had no prior knowledge about the law and were not informed about it ($M = 4.09$) did not differ from participants who had prior knowledge about the law and were informed about it ($M = 3.97$), $t(433) = 1.23, p = .221, \eta_p^2 < .01$. This is an unexpected effect, suggesting that reminding participants who already know about a law change may make them feel that society is somewhat less tolerant.

Besides testing the effect of the law legalizing step-child adoption on perception of Swiss people's opinions toward same-sex parenting, we also tested whether the effect extended to more general same-sex issues, namely same-sex marriage. We found a significant interaction between information about the law and prior knowledge about the law, $F(1, 433) = 6.37, p = .012, \eta_p^2 = .01$. Indeed, participants who had prior knowledge about the law and were informed about it perceived more societal disapproval ($M = 3.36$) than those who were not informed about it ($M = 2.98$), $t(433) = 3.00, p = .003, \eta_p^2 = .02$. Yet, we found no significant interaction using the contrast coding to compare the uninformed and no knowledge condition against the other cases (3 by 1 contrast), $F(1, 433) = 0.533, p = .466, \eta_p^2 < .01$.

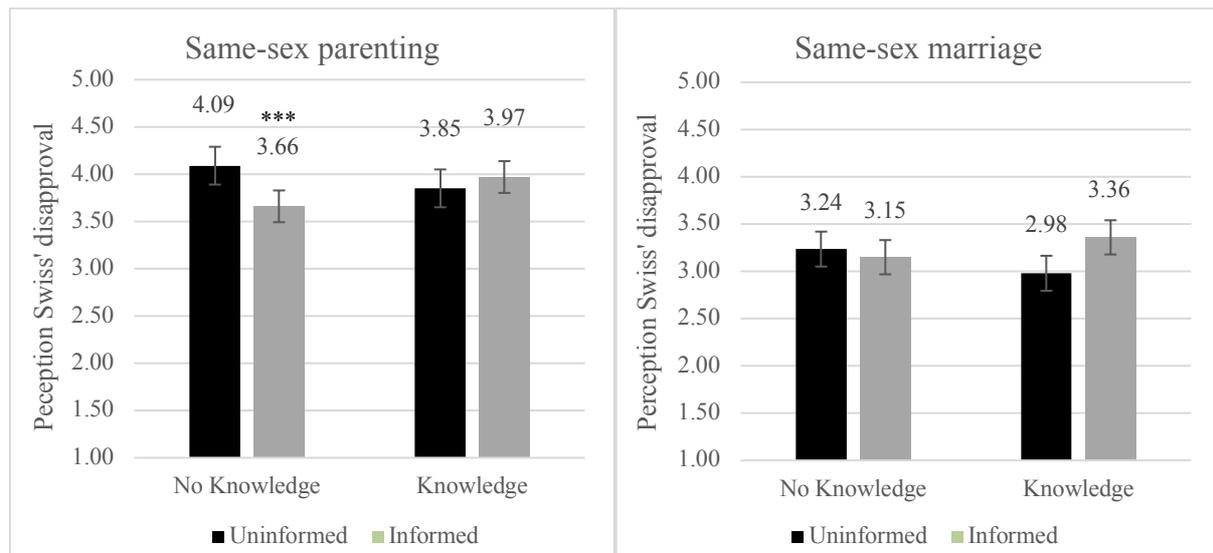


Figure 1. Effect of the two conditions (uninformed; informed) among participants with different prior level of knowledge (no; yes) on perceived Swiss people's level of disapproval toward same-sex issues. Error bars represent 95% CI. *** $p < .001$, ** $p < .01$.

Influence of the law on personal opinions. Third, as an exploratory analysis we tested whether the new law affected personal opinions toward same-sex issues. In contrast to perceptions of Swiss people's opinions, we found no significant interactions between information about the law and prior knowledge about the law for personal opinion toward same-sex parenting, $F(1, 433) = 0.26$, $p = .613$, $\eta_p^2 < .01$, and between the uninformed/no knowledge condition and the other cases (3 by 1 contrast), $F(1, 433) = 1.99$, $p = .159$, $\eta_p^2 < .01$. Moreover, we found no significant main effects (see Table 2 and supplementary material).

Table 2

Means (SD) of personal opinions toward same-sex parenting (Study 2)

	No knowledge	Knowledge
Uninformed	2.39 (1.16)	2.15 (1.31)
Informed	2.28 (1.19)	2.17 (1.25)

We also did not find any significant interactions between information about the law and prior knowledge about the law for personal opinion toward same-sex marriage, $F(1, 433) = 0.07, p = .790, \eta_p^2 < .01$, and between the uninformed/no knowledge condition and the other cases (3 by 1 contrast), $F(1, 433) = 1.06, p = .304, \eta_p^2 < .01$. Moreover, we found no significant main effects (see Table 3 and supplementary material).

Table 3

Means (SD) of personal opinions toward same-sex marriage (Study 2)

	No knowledge	Knowledge
Uninformed	2.00 (1.10)	1.89 (1.17)
Informed	1.90 (0.98)	1.84 (1.14)

Thus, while the information about the law influenced perceptions of most Swiss people's opinions, it did not influence personal opinions (although participants in the uninformed/no knowledge condition reported higher disapproval). Together, these findings support that new information about institutional decisions can influence people's perceptions of societal norms.

Influence of the law on pluralistic ignorance. Finally, as an exploratory analysis we tested whether the new law affected the gap between perceived societal norms and personal opinions using the standardized 3-point scales (see Study 1)⁸. This allows us to see if new laws/knowledge can reduce the gap between norm perceptions and personal opinions that is typical of pluralistic ignorance. In contrast to perceptions of Swiss people's opinions, we found no significant interactions between information about the law and prior knowledge about it for the perceived others/personal difference in opinions toward same-sex parenting, $F(1, 433) = 0.74, p = .390, \eta_p^2 < .01$. This was also the case for the 3 by 1 interaction between

⁸ Analyses using the untransformed data (i.e., five-point scales) led to similar findings.

the uninformed/no knowledge condition and the other cases, $F(1, 433) = 1.84$, $p = .175$, $\eta_p^2 < .01$. The same pattern was found for same-sex marriage (2 by 2 interaction, $F(1, 433) = 3.28$, $p = .075$; 3 by 1, $F(1, 433) = 0.072$, $p = .788$). Moreover, all the main effects are non-significant (see supplementary material). Thus, while the information about the law influenced perceptions of most Swiss people's opinions, it did not reduce the gap between perceived societal norms and personal opinions.

Discussion

Study 2 aimed to illuminate the impact of new laws on perception of the societal norm, in a Swiss context where residents generally perceived others' opinions toward same-sex issues as more intolerant than they actually are (see Study 1) and where sexual minorities still face many legal inequalities (ILGA, 2019). First, we found that information about a new institutional decision in favor of same-sex adoption had an immediate positive impact on perceptions of the societal norm toward same-sex parenting (H1). Moreover, our results also suggest that new institutional decisions have a durable (approximately 8 weeks later) but small impact (to the extent that people were not reminded of it) (H2).

Findings, however, indicated that participants without prior knowledge about the law and were not informed about it did *not* differ in their perceptions of the norm from people who had prior knowledge and were informed about it. One possible explanation may be that reminding people about the law might have made participant more sensitive to the social debate around sexual minorities' issues in Switzerland and the extent of lack of rights (e.g., same-sex marriage is not legal) despite the new law on step-child adoption.

Results indicate that pluralistic ignorance was not affected by the new information about the law. Despite this, it is important to note that some of the necessary ingredients for adjusting pluralistic ignorance were found. Specifically, the information about the new law did lead to more accurate perceptions of the societal norms. However, we found no evidence

that the gap between personal opinions and perceived norms was reduced. This seems to indicate that not only did people switch their perception of the norm in the direction of the law, but that their personal opinions tended to also follow this direction (although the new law did not significantly impact personal opinions). This brings the question whether –on the long run– new laws reflecting social change do indeed reduce pluralistic ignorance (i.e., as the effect of the law is stronger on perception of the norm than personal opinions).

General Discussion

The present research furthers our understanding of the impact of new laws on perceptions of societal norms and pluralistic ignorance in the context of sexual minorities. Study 1 documented pluralistic ignorance in perceptions of others' opinions toward sexual minorities using a representative sample of the Swiss population in the canton of Vaud: Residents in the canton of Vaud overestimated the level of disapproval toward same-sex male parenting, same-sex female parenting, and same-sex marriage. Moreover, Study 2 highlights an important factor that influences perceptions of societal norms: institutional decisions in the form of new laws. Most prominently, Study 2 demonstrates that presenting information about a new adoption law for same-sex couples can decrease perceptions of disapproval toward same sex parenting not only incidentally (i.e., when individuals first learn about the law) but potentially more durably. Study 2 also showed that in the absence of a reminder about this law, prior knowledge about the new law was associated with lower perceptions of societal disapproval toward same sex parenting. However, overall pluralistic ignorance was not strongly affected.

Our findings have several implications for literature on norms and pluralistic ignorance. First, results speak to the mechanisms that can give rise to perceptions of societal norms which inform pluralistic ignorance. Substantial prior evidence has pointed to the role of individual perception biases in producing pluralistic ignorance (i.e., a bottom-up process;

Prentice & Miller, 1993). However, our research also suggests that higher-level, institutional decisions (i.e., new laws that are imposed from the top-down) can play a major role in the formation of perceived societal norms. In particular, new institutional decisions may provide important additional cues to update perceptions of the societal norm in a “normative window of time in which social norms are shifting toward equal treatment . . . but for which the entire process has not yet been completed” (Crandall et al., 2013, p. 56). Second, results suggest that pluralistic ignorance may be more resilient to change than norms. Results provide no firm evidence that pluralistic ignorance was reduced by the new law. This raises the question of what conditions would facilitate the reduction of pluralistic ignorance. On the one hand, integrating this finding with theory from Crandall and colleagues (2013), it is possible that the change in individual’s perceptions of norms is one step in a long-term process of normative (window of) change which remains incomplete until higher degrees of equality are met (e.g., implementation of multiple laws such as same-sex marriage but also more agreement in society about sexual minorities) across multiple domains (e.g., group prejudice, stereotypes). As such, it is likely that the adjustment of pluralistic ignorance will take more time to reduce and ultimately disappear. On the other hand, these findings might suggest that changing pluralistic ignorance is not necessarily gradual. Instead, there may be a tipping point whereby an accumulation of felt or perceived change towards sexual-minorities may result in a qualitative shift in pluralistic ignorance that corrects misperceptions (see also Livingstone, 2014; Shamir & Shamir, 1997).

Despite this, our research joins a growing body of literature (e.g., Paluck & Shepherd, 2012) in emphasizing that even when perceived societal norms are highly shared among members of a society (i.e., hegemonic representations; Moscovici, 1988), they are not static. Rather, they can be renegotiated among groups, creating opportunities for social change to occur. This work provides an initial answer to the question of when this renegotiation results

in the updating of norms: It suggests that laws might shift the balance by updating the norm and resulting societal change. However, further research should assess whether institutional decisions influence perceptions of the societal norm only when the decisions are in line with ongoing opinion shifts or also when institutional decisions precede or conflict with changes in opinions (i.e., how do top-down changes interact with bottom up changes in beliefs).

All in all, findings emphasize that laws could play a central role in the social change process. In federalist political systems like Switzerland and the United States, these findings are of great importance. Indeed, federalist political systems and direct democracies in particular are characterized by slow and incremental decision-making processes (Kriesi & Trechsel, 2008). Hence, changes in laws might take time to be implemented even when an object is largely supported by citizens. For instance, although an increasing number of Swiss people were supportive of women's vote, the last canton to grant women the right to vote was in 1991. Moreover, a law to legalize same-sex marriage, first suggested in 2012, is still being discussed in the Swiss Parliament (in 2020). Our findings suggest that slow decision-making processes might perpetuate both existing legal inequalities and a (mis-)perception of intolerant societal norms. In that sense, these findings also present a strong signal to policy makers that institutional changes are central and impactful in many ways.

New institutional decisions can have a dual impact on societies, improving not only the legal situation for sexual minorities, but also shifting perceptions of the societal norm by setting a new status quo which is more inclusive of sexual minorities. This could increase feelings of connectedness and inclusion in societies among sexual minorities and people with liberal opinions (e.g., Cialdini & Goldstein, 2004), reduce feeling of discrimination (see Schmitt et al., 2014), and also benefit sexual minorities' well-being (e.g., Badgett, 2011). Yet, these positive changes are dependent on citizens being *informed* about these new laws. Despite this, 46% of our participants did not know about the new law on stepchild adoption,

which occurred two months previously. Hence, not only changing laws, but effectively communicating and publicizing these changes is crucial.

Interestingly our findings in Study 2 indicate that personal opinions were not affected by the law. Nevertheless, there is reason to think that the current findings may have important implications for people's behavior, even if there is no substantial change in personal opinions. This is because, important group norms, such as those of the society we live in, impact people's behavior (e.g., Goldstein et al., 2008; Paluck, 2009; Sparkman & Walton, 2007). In line with this, shifts in the perceived norms might impact the behavior of people who hold relatively *intolerant* attitudes toward sexual minorities. Although these behavior changes may first reflect some level of compliance (e.g., people who are less tolerant may be less willing to express intolerant attitudes), they may be internalized as defining of the self over time. In addition, shifts in the perceived norms might impact the behavior of people who hold *tolerant* attitudes toward sexual minorities. Indeed, research indicate that attitudes become a more predictive of behavior when people learn that their opinion is shared by other people (see Guimond et al., 2013). As such, it would be interesting to conduct a long-term study exploring the impact of changing societal norms on behavior and (subsequent) personal opinions.

Our findings also have several implications for research on LGBTIQ+ (e.g., lesbian, gay, bisexual, trans, intersex, questioning) individuals. Our results suggest that LGBTIQ+ individuals and allies might overestimate the level of intolerance toward LGBTIQ+ individuals (see also Tankard & Paluck, 2017). This misperception might increase LGBTIQ+ individuals' concealment, internalized stigma, and decrease their willingness to come out (see Meyer, 2013). As reflected by the following tweet: "I never expected that the #swiss people are that tolerant and open minded. I'm out since 4 months and everyone is very supporting; I experienced not a single negative thing thank you #TransIsBeautiful". Thus, new information

indicating that people are more tolerant than expected might positively impact LGBTIQ+ individuals' well-being. In line with this, the information that individuals are on average accepting of LGBTIQ+ individuals might also impact the well-being of families and friends of sexual minorities and their reaction to coming out. Indeed, family members often worry about the intolerance of society toward LGBTIQ+ individuals as reaction to the coming out of close persons. Therefore, future research is needed to understand the impact of perceptions of societal norms on coming out processes, concealment, and internalized stigma.

Limitations

First, we focused on one type of law, in one country. Replicating our results for other issues, in other national contexts, and at other time periods would be a valuable extension to this work. Despite this, there is reason to think that the processes explored in this article should be relevant to other countries and may therefore generalize. Indeed, we already know that people use cues available in society to update perceptions of social norms (e.g., Donald Trump's election campaign; Crandall et al., 2018; see also Shamir & Shamir, 1997), while Tankard and Paluck (2017) also specifically highlighted the impact of supreme court rulings in the U.S. on perceived norms. Replication of this work in other places and with other issues is therefore necessary. Second, while a mismatch between perceptions of others' opinions and personal opinions, especially for sensitive topics (like sexual minorities), might reflect a social desirability bias (Tourangeau & Yan, 2007), we are less concerned in this case given that we showed that a decision in favor of sexual minorities only influenced perceptions of the societal norm, but did not influence personal opinions (Study 2). Another limitation of our design is that we did not include a control condition to see whether *any* new law might also have influenced perceptions of the societal norm. Reducing this concern was our observation that the new law on same-sex adoption had no positive impact on perception of the societal

norm toward same-sex marriage, but this possibility should be tested again with a control condition.

Conclusion

Thomas Hobbes (1651) claimed that “The law is the public conscience”. In line with this, the present article reinforces the importance of laws as one possible driver of society’s perception of its norms. We showed that the implementation of and, particularly, informing individuals about a new, more tolerant law toward same-sex couples led them to update their perception of the societal norm to also be more tolerant. This even occurred in a context of pluralistic ignorance where people perceived the norm to be more intolerant than it actually was. As such, our studies are a source of information for researchers and practitioners who aim to assess the impact of new institutional decisions on norm perceptions to achieve greater social harmony.

References

- Badgett, M. L. (2011). Social inclusion and the value of marriage equality in Massachusetts and the Netherlands. *Journal of Social Issues, 67*(2), 316-334.
<https://doi.org/10.1111/j.1540-4560.2011.01700.x>
- Bartels, B. L., & Mutz, D. C. (2009). Explaining processes of institutional opinion leadership. *The Journal of Politics, 71*(1), 249-261. <https://doi.org/10.1017/S0022381608090166>
- Baunach, D. M. (2011). Decomposing trends in attitudes toward gay marriage, 1988-2006. *Social Science Quarterly, 92*(2), 346–363. <https://doi.org/10.1111/j.1540-6237.2011.00772.x>
- Beaman, L., Duflo, E., Pande, R., & Topalova, P. (2012). Female leadership raises aspirations and educational attainment for girls: A policy experiment in India. *science, 335*(6068), 582-586. <https://doi.org/10.1126/science.1212382>
- Bishin, B. G., Hayes, T. J., Incantalupo, M. B., & Smith, C. A. (2016). Opinion backlash and public attitudes: Are political advances in gay rights counterproductive?. *American Journal of Political Science, 60*(3), 625-648. <https://doi.org/10.1111/ajps.12181>
- Brace, I., & Adams, K. (2006). *An Introduction to Market & Social Research. Planning & Using Research Tools & Techniques: Planning and Using Research Tools and Techniques*. London: Kogan Page Limited.
- Castro, P. (2012). Legal innovation for social change: exploring change and resistance to different types of sustainability laws. *Political Psychology, 33*(1), 105-121.
<https://doi.org/10.1111/j.1467-9221.2011.00863.x>
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 201-234). New York: Academic Press.

- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review Psychology, 55*, 591–621.
<https://doi.org/10.1146/annurev.psych.55.090902.142015>
- Crandall, C. S., Ferguson, M. A., & Bahns, A. J. (2013). When we see prejudice: The normative window and social change. In C. Stangor & C. S. Crandall (Eds.), *Stereotyping and prejudice: Frontiers of social psychology* (pp. 53–69). New York, NY: Psychology Press.
- Crandall, C. S., Miller, J. M., & White, M. H. (2018). Changing norms following the 2016 US presidential election: The Trump effect on prejudice. *Social Psychological and Personality Science, 9*(2), 186-192. <https://doi.org/10.1177/1948550617750735>
- Crandall, C. S., & Warner, R. H. (2005). How a prejudice is recognized. *Psychological Inquiry, 16*(2/3), 137-141. <https://doi.org/2005-09295-012>
- Eicher, V., Settersten, R. A., Penic, S., Glaeser, S., Martenot, A., & Spini, D. (2015). Normative climates of parenthood across Europe: Judging voluntary childlessness and working parents. *European Sociological Review, 32*(1), 135-150.
<https://doi.org/10.1093/esr/jcv083>
- Eisner, L., Spini, D., & Sommet, N. (2019). A contingent perspective on pluralistic ignorance: When the attitudinal object matters. *International Journal of Public Opinion Research. https://doi.org/10.1093/ijpor/edz004*
- Eveland, W. P., & Glynn, C. J. (2008). Theories on the perception of social reality. In W. Donsbach & M. W. Traugott (Eds.), *The SAGE handbook of public opinion research* (SAGE Publi, pp. 155–163). London: SAGE Publications Ltd.
- Getzels, J. W., & Guba, E. G. (1957). Social behavior and the administrative process. *The School Review, 65*(4), 423-441. <https://doi.org/10.1086/442411>

- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35, 472–482. <https://doi.org/10.1086/586910>
- Guimond, S., Crisp, R. J., De Oliveira, P., Kamiejski, R., Kteily, N., Kuepper, B., ... & Sidanius, J. (2013). Diversity policy, social dominance, and intergroup relations: Predicting prejudice in changing social and political contexts. *Journal of Personality and Social Psychology*, 104(6), 941-958. <https://doi.org/10.1037/a0032069>
- Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological bulletin*, 135(5), 707. <https://doi.org/10.1037/a0016441>
- Hatzenbuehler, M.L., McLaughlin, K.A., Keyes, K.M., & Hasin, D.S. (2010). The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: A prospective study. *American Journal of Public Health*, 100, 452-459. <https://doi.org/10.2105/AJPH.2009.168815>
- Hobbes, T. (1980). *Leviathan* (1651). Glasgow 1974.
- Hogg, M. A. (2010). Influence and leadership. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (pp. 1166–207). Hoboken, NJ: John Wiley & Sons, Inc.
- International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA): Mendos, L. R. (2019), *State-Sponsored Homophobia* (Geneva; ILGA, March 2019).
- Katz, D., & Allport, F. H. (1931). *Students' attitudes*. Syracuse, NY: Craftsman.
- Kriesi, H., & Trechsel, A. H. (2008). *The politics of Switzerland: Continuity and change in a consensus democracy*. Cambridge, UK: Cambridge University Press.

- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in psychology*, 4, 863.
<https://doi.org/10.3389/fpsyg.2013.00863>
- Livingstone, A. G. (2014). Why the psychology of collective action requires qualitative transformation as well as quantitative change. *Contemporary Social Science*, 9(1), 121-134.
- Lumley T. (2018). Package 'Survey' from <http://cran.r-project.org/web/packages/survey/survey.pdf>.
- McDonald, R. I., & Crandall, C. S. (2015). Social norms and social influence. *Current Opinion in Behavioral Sciences*, 3, 147-151.
<https://doi.org/10.1016/j.cobeha.2015.04.006>
- Merton, R.K. (1968). *Social theory and social structure*. New York, NY: Free Press.
- Meyer, I. H. (2013). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychology of Sexual Orientation and Gender Diversity*, 1, 3-26. <https://doi.org/10.1037/2329-0382.1.S.3>
- Moscovici, S. (1988). Notes toward a description of Social Representations. *European Journal of Social Psychology*, 18(3), 211–250.
<https://doi.org/10.1002/ejsp.2420180303>
- Moscovici, S. (2000). The phenomenon of social representations. In S. Moscovici & G. Duveen (Eds.), *Social representations: Explorations in social psychology* (pp. 18–77). Cambridge, UK: Polity Press. (Original work published 1984)
- Murphy, W. F., & Tanenhaus, J. (1968). Public opinion and Supreme Court: the Goldwater campaign. *Public Opinion Quarterly*, 32(1), 31-50. <https://doi.org/10.1086/267577>
- Noelle-Neumann, E. (1974). The spiral of silence a theory of public opinion. *Journal of communication*, 24(2), 43-51. <https://doi.org/10.1111/j.1460-2466.1974.tb00367.x>

- O'Gorman, H. J., & Garry, S. L. (1976). Pluralistic ignorance—A replication and extension. *Public Opinion Quarterly*, *40*(4), 449-458. <https://doi.org/10.1086/268331>
- O' Gorman, H. J. (1979). White and black perceptions of racial values. *Public Opinion Quarterly*, *43*(1), 48-59. <https://doi.org/10.1086/268490>
- Ogolsky, B. G., Monk, J. K., Rice, T. M., & Oswald, R. F. (2019). Personal well-being across the transition to marriage equality: A longitudinal analysis. *Journal of Family Psychology*, *33*(4), 422–432. <https://doi.org/10.1037/fam0000504>
- Oswald, R. F., Routon, J. M., McGuire, J. K., & Holman, E. G. (2018). Tolerance versus support: Perceptions of residential community climate among LGB parents. *Family relations*, *67*(1), 41-54. <https://doi.org/10.1111/fare.12292>
- Paluck, E. L. (2009). Reducing intergroup prejudice and conflict using the media: a field experiment in Rwanda. *Journal of personality and social psychology*, *96*(3), 574-587. <https://doi.org/10.1037/a0011989>
- Paluck, E. L., & Ball, L. (2010). Social Norms Marketing to Reduce Gender-Based Violence. *IRC Policy Briefcase*.
- Paluck, E. L., & Shepherd, H. S. (2012). The salience of social referents: A field experiment on collective norms and harassment behavior in a school social network. *Journal of Personality and Social Psychology*, *103*(6), 899–915. <https://doi.org/10.1037/a0030015>
- Pettigrew, T. F. (2018). The emergence of contextual social psychology. *Personality and Social Psychology Bulletin*, *44*(7), 963-971. <https://doi.org/10.1177/0146167218756033>
- Prentice, D. A., & Miller, D. T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *Journal of Personality and Social Psychology*, *64*(2), 243. <https://doi.org/10.1037/0022-3514.64.2.243>

- Prentice, D. A., & Miller, D. T. (1996). Pluralistic ignorance and the perpetuation of social norms by unwitting actors. *Advances in Experimental Social Psychology*, 28(C), 161–209. [https://doi.org/10.1016/S0065-2601\(08\)60238-5](https://doi.org/10.1016/S0065-2601(08)60238-5)
- Reynolds, K. J., Subašić, E., & Tindall, K. (2015). The problem of behaviour change: From social norms to an ingroup focus. *Social and Personality Psychology Compass*, 9(1), 45-56. <https://doi.org/10.1111/spc3.12155>
- Schmitt, M. T., Branscombe, N. R., Postmes, T., & Garcia, A. (2014). The consequences of perceived discrimination for psychological well-being: a meta-analytic review. *Psychological bulletin*, 140(4), 921. <https://doi.org/10.1037/a0035754>
- Shamir, J., & Shamir, M. (1997). Pluralistic ignorance across issues and over time: Information cues and biases. *Public Opinion Quarterly*, 61(2), 227-260.
- Shelton, J. N., & Richeson, J. A. (2005). Intergroup contact and pluralistic ignorance. *Journal of Personality and Social Psychology*, 88(1), 91. <https://doi.org/10.1037/0022-3514.88.1.91>
- Smith, T. W, Son, J., & Kim, J. (2014). Public attitudes toward homosexuality and gay rights across time and countries. *UCLA: The Williams Institute*. Retrieved from <https://escholarship.org/uc/item/4p93w90c>
- Sparkman, G., & Walton, G. M. (2017). Dynamic norms promote sustainable behavior, even if it is counternormative. *Psychological science*, 28(11), 1663-1674. <https://doi.org/10.1177/0956797617719950>
- Statistique Vaud [STATVD] (2016), *Population résidante permanente par âge exact, sexe et origine, Vaud 1980-2016* [Data file]. Retrieved from <http://www.pisepub.vd.ch/>
- Swiss info (2017). *Step child adoption will be possible from 2018*. Retrieved from https://www.swissinfo.ch/eng/society/family-law_stepchild-adoption-will-be-possible-from-2018/43323244

Tankard, M. E., & Paluck, E. L. (2016). Norm perception as a vehicle for social change.

Social Issues and Policy Review, 10(1), 181–211. <https://doi.org/10.1111/sipr.12022>

Tankard, M. E., & Paluck, E. L. (2017). The effect of a supreme court decision regarding gay marriage on social norms and personal attitudes. *Psychological Science*, 28(9), 1334–1344. <https://doi.org/10.1177/0956797617709594>

Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, 133(5), 859–883. <https://doi.org/10.1037/0033-2909.133.5.859>

World Value Survey (2009). *World Value Survey 1981–2008 official aggregate v.20090902, 2009*. Retrieved from <http://www.worldvaluessurvey.org>. Aggregate File Producer: ASEP/JDS Data Archive, Madrid: World Values Survey Association.

Zou, X., Tam, K.-P., Morris, M. W., Lee, S., Lau, I. Y.-M., & Chiu, C. (2009). Culture as common sense: Perceived consensus versus personal beliefs as mechanisms of cultural influence. *Journal of Personality and Social Psychology*, 97, 579–597. <https://doi.org/10.1037/a0016399>

Supplementary Material

Study 1

Table S1 below indicates the correlations between the different measures.

Table S1

Correlations Between Perceived Societal Norms and Personal Opinions (Study 1)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) Personal male parenting	–					
(2) Perceived male parenting	.23***	–				
(3) Personal female parenting	.94***	.20***	–			
(4) Perceived female parenting	.19***	.72***	.23**	–		
(5) Personal same-sex marriage	.75***	.16***	.76***	.11***	–	
(6) Perceived same-sex marriage	.13***	.41***	.13***	.47***	.21***	–

Note. Spearman correlations. *** $p < .001$, ** $p < .01$, * $p < .05$

Pluralistic ignorance toward same-sex parenting and marriage: weighted dataset untransformed data (five-point scales). Consistent with predictions, paired t -test (using the 5-point scales variables) revealed evidence of a mismatch between perceived societal norms and personal opinions participants significantly overestimated the level of disapproval toward same-sex male parenting ($t(828) = 20.26, p < .001, \eta_p^2 = .33$), female parenting ($t(828) = 19.18, p < .001, \eta_p^2 = .31$), and same-sex marriage ($t(828) = 19.03, p < .001, \eta_p^2 = .30$).

Pluralistic ignorance toward same-sex parenting and marriage: unweighted dataset untransformed data (five-point scales). To test for pluralistic ignorance, the analyses were also conducted on the unweighted dataset. In line with findings reported in the article, there is evidence of a mismatch between perceptions and opinions. Specifically, paired t -tests revealed evidence of a mismatch between perceived societal norms and personal

opinions. Participants significantly overestimated the level of disapproval toward same-sex male parenting ($t(828) = 20.17, p < .001, \eta_p^2 = .33$), same-sex female parenting ($t(828) = 19.70, p < .001, \eta_p^2 = .32$), and same-sex marriage ($t(828) = 19.56, p < .001, \eta_p^2 = .32$).

Pluralistic ignorance toward same-sex parenting and marriage: unweighted dataset transformed data (three-point scales). To test for pluralistic ignorance, the analyses were also conducted on the unweighted dataset. In line with findings reported in the article, there is evidence of a mismatch between perceptions and opinions. Specifically, paired t -tests revealed evidence of a mismatch between perceived societal norms and personal opinions. Participants significantly overestimated the level of disapproval toward same-sex male parenting ($t(828) = 22.17, p < .001, \eta_p^2 = .37$), same-sex female parenting ($t(828) = 22.25, p < .001, \eta_p^2 = .37$), and same-sex marriage ($t(828) = 21.95, p < .001, \eta_p^2 = .37$).

Pluralistic ignorance toward same-sex parenting and marriage: majority-minority distribution. We assessed how many people were in disapproval of same-sex marriage and parenting, and how many people perceived that the majority of the population is in disapproval of same-sex marriage and parenting, respectively. We calculated the percentage of disapproval for personal opinions (4–5 = *disapproval*, 1–3 = *approval or neutral*) and most residents of the canton of Vaud's opinions (4–5 = *perceived disapproval*, 1–3 = *perceived approval or neutral*).

First, one sample t -tests were conducted to test whether a minority of participants (less than 50%) was in disapproval of same-sex male parenting, female parenting, and marriage. Second, we tested whether a majority of participants (more than 50%) perceived that other residents are in disapproval of same-sex parenting/marriage. All the results displayed in this section are based on the weighted dataset. In general, participants showed the greatest disapproval toward same-sex male parenting (44.9%), followed by same-sex female parenting (38.2%) and same-sex marriage (27.0%; all the differences were significant at $p < .001$).

The data revealed evidence of a mismatch between perceptions and opinions (see Table S2). A minority of participants disapproved of same-sex male parenting (44.9%), while a large majority of them (87.7%) thought that most residents of the canton of Vaud would disapprove. Similar results were observed for same-sex female parenting (38.2% of disapproval, 80.8% perceived disapproval) and same-sex marriage (27.0% of disapproval, 64.1% perceived disapproval). These results are consistent with a pattern indicating pluralistic ignorance.

Table S2

Percentage of Disapproval Using One-Sided t-Tests for Comparison With 50% (Study 1)

Item	Disapproval %	90% CI	One-sided <i>t</i> test
Same-sex male parenting			
Personal opinion	44.9	[42.0, 47.9]	– 2.85**
Most residents' opinion	87.7	[85.6, 89.7]	30.63***
Same-sex female parenting			
Personal opinion	38.2	[35.3, 41.1]	– 6.71***
Most residents' opinion	80.8	[78.4, 83.2]	20.97***
Same-sex marriage			
Personal opinion	27.0	[24.5, 29.5]	– 14.93***
Most residents' opinion	64.1	[61.2, 67.1]	7.89***

Note. The analyses were conducted on the weighted data. *** $p < .001$, ** $p < .01$, one-tailed, $df = 828$.

Personal opinions and perceived norms toward same-sex parenting and same-sex marriage as a function of age. To better understand the relation between perceived societal norms and personal opinions toward same-sex parenting and same-sex marriage across people of different ages, we conducted a two-way Analysis of Variance (ANOVA) on the unweighted dataset with *group of reference* (personal opinions vs. perceived societal norms) as a within-subject variable, and *age* as a continuous between-subject variable. Personal opinions toward

same-sex male and female parenting were strongly correlated (see Table S1), so we collapsed gender to simplify the reporting of these results.

For same-sex parenting, we found a significant interaction between group of reference (i.e., perceived societal norms and personal opinions) and age, $F(1, 827) = 57.1$, $p < .001$, $\eta_p^2 = .06$. Follow-up analyses indicated that the effect size was larger among younger participants ($-1 SD$), $F(1, 828) = 414.87$, $p < .001$, $\eta_p^2 = .33$, and smaller among older participants ($+1 SD$), $F(1, 828) = 92.98$, $p < .001$, $\eta_p^2 = .10$. Consequently, younger participants differentiate more between their personal opinion and the perceived societal norm than older participants (see Figure S1).

To break down the interaction, we conducted two additional analyses, looking at the main effect of age on opinions and on perceptions of the societal norm, respectively. We found a significant main effect of age on personal opinions reflecting an increase in score of personal disapproval toward same-sex parenting with age, $F(1, 828) = 64.00$, $p < .001$, $\eta_p^2 = .07$. We had no specific expectation whether age affects perceived societal norm and found no significant main effect, $F(1, 828) = 0.30$, $p = 0.582$, $\eta_p^2 < .001$.

Consistent with patterns for same-sex parenting, we found a significant interaction between group of reference and age on disapproval of same-sex marriage, $F(1, 827) = 101.40$, $p < .001$, $\eta_p^2 = .11$. The effect size was larger among younger participants here too, $F(1, 828) = 471.86$, $p < .001$, $\eta_p^2 = .36$, and smaller among older participants, $F(1, 828) = 56.85$, $p < .001$, $\eta_p^2 = .06$. Again, and in line with our expectations, we found a significant main effect of age on personal opinions toward same-sex marriage, $F(1, 828) = 121.43$, $p < .001$, $\eta_p^2 = .13$. In contrast, we found no main effect of age on the perceived societal norm $F(1, 828) = 0.22$, $p = 0.640$, $\eta_p^2 < .001$. To summarize, while older participants hold more negative opinions toward sexual minorities than younger participants, perceptions of the societal norm are stable between age groups. These results indicate that younger participants (compared to older

participants) differentiate more than older participants between their own (positive) opinions and (negative) perceptions of societal norms toward same-sex parenting and marriage.

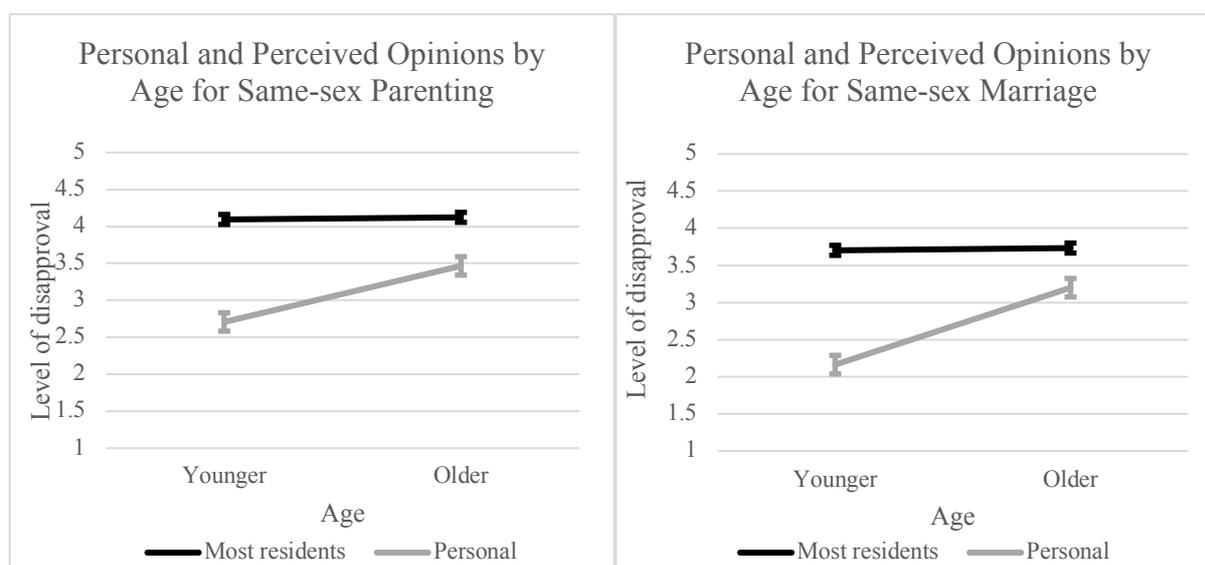


Figure S1. Perceived societal disapproval (openly approve to openly disapprove) and personal disapproval (totally approve to totally disapprove) toward same-sex parenting and same-sex marriage. Values are based on the adjusted means. Error bars represent 95% CI.

Study 2

Table S3 below indicates the correlations between the different measures.

Table S3

Correlations Between Perceived Societal Norms and Personal Opinions (Study 2)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) Personal male parenting	–					
(2) Perceived male parenting	.01	–				
(3) Personal female parenting	.92***	.00	–			
(4) Perceived female parenting	.07	.75***	.12*	–		
(5) Personal same-sex marriage	.67***	-.08	.66***	-.02	–	

(6) Perceived same-sex marriage	.00	.37***	.01	.37***	.07	–
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Note. Spearman correlations. *** $p < .001$, ** $p < .01$, * $p < .05$

Influence of the law on personal opinions: main effects. As reported in the main paper, we found no significant interactions between information about the law and prior knowledge about the law for personal opinion toward same-sex parenting. We found no significant difference between people who were not informed about the law and had no prior knowledge about it and all the three other conditions (informed and no prior knowledge, $t(433) = 0.61, p = .545, \eta_p^2 < .01$; uninformed and prior knowledge, $t(433) = 1.37, p = .173, \eta_p^2 < .01$; informed and prior knowledge, $t(433) = 1.46, p = .145, \eta_p^2 < .01$).

Moreover, we also did not find any significant interactions between information about the law and prior knowledge about the law for personal opinion toward same-sex marriage. We found no significant difference between people who were not informed about the law and had no prior knowledge about it ($M = 2.00$) and all the three other conditions (informed and no prior knowledge ($M = 1.90$), $t(433) = 0.63, p = .531, \eta_p^2 < .01$; uninformed and prior knowledge ($M = 1.89$), $t(433) = .73, p = .464, \eta_p^2 < .01$; informed and prior knowledge ($M = 1.84$), $t(433) = 1.14, p = .253, \eta_p^2 < .01$).

Influence of the law on pluralistic ignorance: main effects. As reported in the main paper, we found no significant interactions between information about the law and prior knowledge about it for the perceived others/personal difference in opinions toward same-sex parenting. We found no significant difference between people who were not informed about the law and had no prior knowledge about it and all the three other conditions (informed and no prior knowledge, $t(433) = 1.60, p = .111, \eta_p^2 < .01$; uninformed and prior knowledge, $t(433) = 0.03, p = .979, \eta_p^2 < .01$; informed and prior knowledge, $t(433) = -0.57, p = .566, \eta_p^2 < .01$).

Finally, we also did not find any significant interactions between information about the law and prior knowledge about it for the perceived others/personal difference in opinions toward same-sex marriage. We found no significant difference between people who were not informed about the law and had no prior knowledge about it and all the three other conditions (informed and no prior knowledge, $t(433) = -0.05, p = .959, \eta_p^2 < .01$; uninformed and prior knowledge, $t(433) = 0.76, p = .446, \eta_p^2 < .01$; informed and prior knowledge, $t(433) = -1.64, p = .101, \eta_p^2 < .01$).

Influence of the law on perceptions, opinions, and pluralistic ignorance toward same-sex male and same-sex female parenting. First and in line with findings reported in the main paper, we found a significant interaction between information about the law and prior knowledge about the law for perceived Swiss people's opinion toward same-sex male parenting, $F(1, 433) = 10.84, p = .001, \eta_p^2 = .02$ and same-sex female parenting, $F(1, 433) = 10.39, p = .001, \eta_p^2 = .02$. Second and in line with findings reported in the main paper, we found no significant interactions between information about the law and prior knowledge about the law for personal opinions toward same-sex male parenting, $F(1, 433) = 0.22, p = .643, \eta_p^2 < .01$, and same-sex female parenting, $F(1, 433) = 0.28, p = .598, \eta_p^2 < .01$. Finally, and in line with findings reported in the main paper, we found no significant interactions between information about the law and prior knowledge about it for perceived others/personal difference in opinions toward same-sex male parenting, $F(1, 433) = 2.08, p = .150, \eta_p^2 < .01$ and same-sex female parenting $F(1, 433) = 2.42, p = .120, \eta_p^2 < .01$.